1979 Columbia R. Br. (N. Channel 890
Superstruc.) I-205
Sverdrup & Parcel (Reports) #1

8905
Consult.

4-71

PRELIMINARY DESIGN REPORT
FOR
PROPOSED INTERSTATE ROUTE I-205
COLUMBIA RIVER BRIDGE

Prepared for

OREGON STATE HIGHWAY COMMISSION

April 1971

Oregon State Highway
Technical Library

by

SVERDRUP & PARCEL AND ASSOCIATES, Inc.
Consulting Engineers
Bellevue, Washington - St. Louis, Missouri

SVERDRUP & PARCEL AND ASSOCIATES, Inc.
Consulting Engineers
505 - 106TH AVENUE N. E.
P. O. BOX 369
BELLEVUE, WASHINGTON 98004

April 1, 1971

Oregon State Highway Division
Highway Building
Salem, Oregon 97310

Gentlemen:

We are pleased to submit this report entitled "Preliminary Design Report, I-205 Columbia River Bridge". This submittal covers the preliminary phase of services under the terms of our agreement dated September 30, 1970.

The report presents pertinent site studies and investigations of alternative types of bridge construction. Comparative evaluation of aesthetics, economy, and serviceability lead to our recommendation that prestressed concrete box girder construction will provide the most appropriate bridge.

The firm of Broome, Selig & Oringdulph has reviewed the architectural features of the bridge and the Preliminary Foundation Investigation was performed by Cornell, Howland, Hayes & Merryfield. Consulting services for construction features of long-span, prestressed concrete spans were furnished by Santa Fe-Pomeroy, Inc., under the direction of Ben C. Gerwick, Jr.

The cooperation extended by the Oregon State Highway Division and the Washington State Department of Highways is greatly appreciated. We believe that this report will provide the basis for design and construction of this important bridge.

Very truly yours,

SVERDRUP & PARCEL AND ASSOCIATES, Inc.

R. D. Bane

R. D. Bane, P. E.
Assistant Vice President

4166
R. D. Bane
SEP. 6, 1957
RAYMOND D. BANE

FOREWORD

This report presents the results of basic design studies for a bridge over the Columbia River, between Clark County, Washington, and Multnomah County, Oregon, on proposed Interstate Route I-205. It has been prepared in compliance with a contract dated September 30, 1970, between the Oregon State Highway Commission and Sverdrup & Parcel and Associates, Inc., Consulting Engineers.

The report discusses aesthetics, design criteria, construction cost, serviceability, and the various advantages and disadvantages of steel and concrete superstructure construction. Structural steel girders with concrete or orthotropic decks are compared with prestressed segmental concrete box-girders, all of which are horizontally curved to the proposed centerline alignment.

Various concepts in each type of construction are discussed, and four basic schemes, two in structural steel and two in segmental prestressed concrete, are selected for complete analysis.

SUMMARY

The report covers the preliminary development of design criteria, architectural features, structural concepts and miscellaneous related installations for a bridge over the Columbia River on the alignment of proposed Interstate Route I-205 from Clark County, Washington to Multnomah County, Oregon.

A number of superstructure cross sections, in both structural steel and prestressed concrete, are combined with various pier locations and pier shaft shapes. Based on these combinations, two concepts in structural steel and two concepts in prestressed concrete are selected for further study because of indicated economic, aesthetic and structural advantages.

Auxiliary installations of deck waterproofing and wearing surfaces, drainage, signing, roadway and navigation lighting and pier protection are discussed and recommendations are presented together with their construction cost estimates.

An architecturally treated, slope-sided, prestressed concrete box-girder superstructure, supported by a pier arrangement approximating that indicated on the bridge permit issued by the United States Coast Guard, is recommended. Based on current price levels, the proposed structure is estimated to cost about $64,610,000 which includes auxiliary installations and a 10% contingency item to provide a margin for possible variation in the estimated quantities.

TABLE OF CONTENTS

Transmittal Letter
Frontispiece
Foreword i
Summary ii

I INTRODUCTION 1

A. Site Characteristics 1
B. Related Transportation Routes 4
C. The Project 6

II DESIGN CRITERIA 8

A. General Considerations 8
B. Structural Steel Design 10
C. Concrete Design 11
D. Foundation Design 12
E. Miscellaneous Installations 13

III ARCHITECTURAL CONSIDERATIONS 14

A. General 14
B. Steel Superstructure 18
C. Concrete Superstructure 18

IV STRUCTURAL CONCEPTS 21

A. Structural Steel Superstructure 21
B. Prestressed Concrete Superstructure 24
C. Substructure 47
D. Economic Span Lengths 59
E. Relocated Marine Drive 60

V AUXILIARY INSTALLATIONS 65

A. Bridge Deck Waterproofing and Wearing Surface 65
B. Drainage 68
C. Signing 69
D. Electrical 70
E. Fender System 73
F. Inspection Access 77

VI CONSTRUCTION 79

A. Construction Schedule 79
B. Construction Costs and Estimates 82

VII CONCLUSIONS AND RECOMMENDATIONS 95

FIGURES

1. Location Map vi
2. Pier Studies 17
3. Structural Steel Cross Sections 20
4. Girder Articulation 29
5. Rigid Frame Articulation 30
6. Prestressed Concrete Cross Sections 33
7. Prestressed Concrete Erection 37
8. Foundations 51
9. Pier Location and Orientation 57
10. Economic Spans - Structural Steel 61
11. Economic Spans - Prestressed Concrete 62
12. Construction Schedule - Structural Steel 80
13. Construction Schedule - Prestressed Concrete 81

PLATES
(Bound at end of the Report)

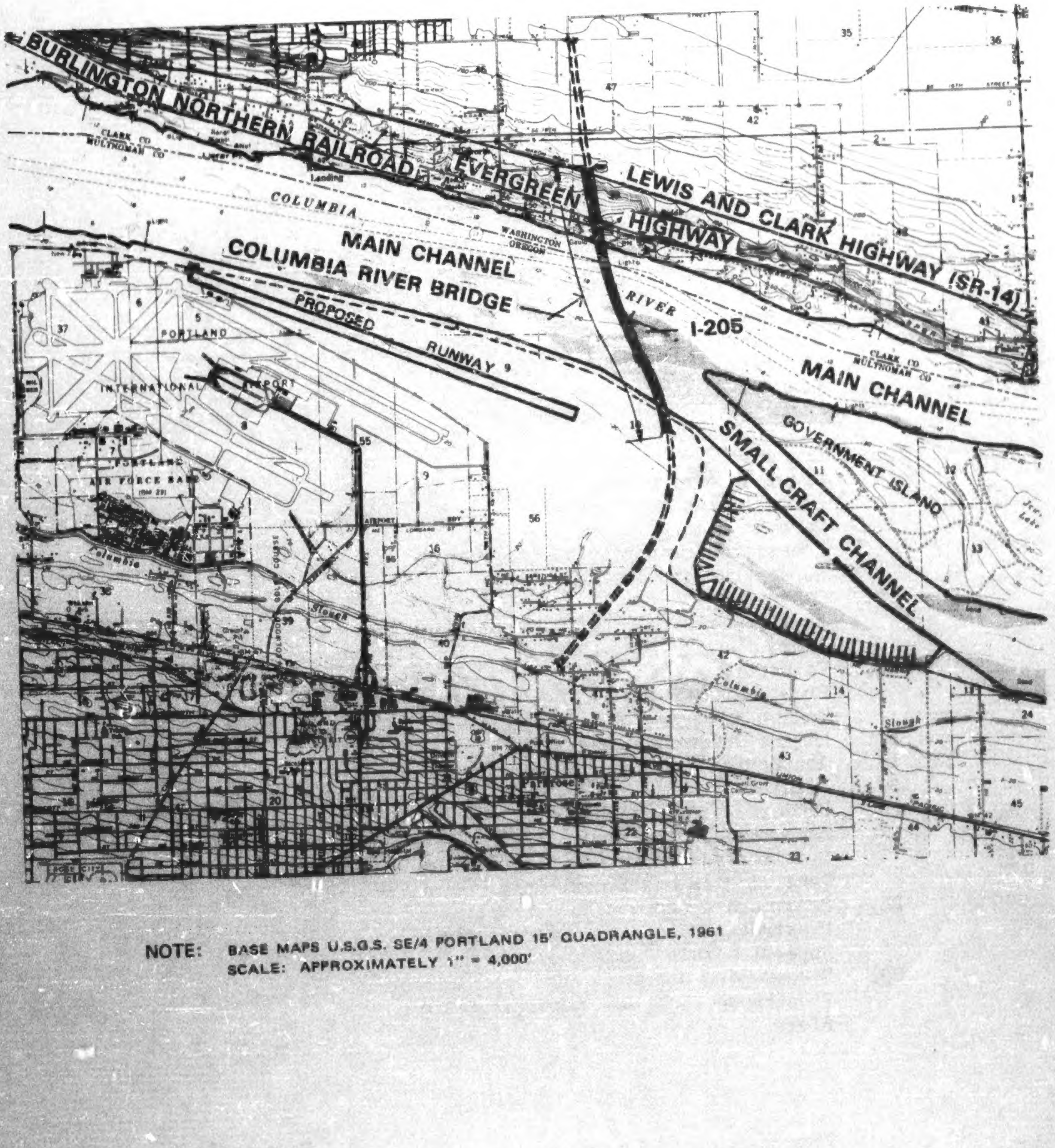
1. Geometrics
Plan, Profile and Deck
2. Concept A
Structural Steel Superstructure
General Plan and Elevation
3. Concept A
Structural Steel Superstructure
Superstructure Cross Sections
4. Concept A
Structural Steel Superstructure
Piers
5. Concept B
Prestressed Concrete Superstructure
General Plan and Elevation
6. Concept B
Prestressed Concrete Superstructure
Superstructure Cross Sections
7. Concept B
Prestressed Concrete Superstructure
Piers

PLATES (cont'd.)

8. Concept B
Prestressed Concrete Superstructure
Tendon Arrangement
9. Concept B
Prestressed Concrete Superstructure
Tendon Profile
10. Concept C
Structural Steel Superstructure
General Plan and Elevation
11. Concept C
Structural Steel Superstructure
Superstructure Cross Sections
12. Concept C
Structural Steel Superstructure
Piers
13. Concept D
Prestressed Concrete Superstructure
General Plan and Elevation
14. Concept D
Prestressed Concrete Superstructure
Superstructure Cross Sections
15. Concept D
Prestressed Concrete Superstructure
Piers
16. Concept D
Prestressed Concrete Superstructure
Tendon Arrangement
17. Marine Drive Crossing
18. Abutments
19. Signing
20. Fenders
21. Recommended Concept
Prestressed Concrete Superstructure
General Plan and Elevation
22. Recommended Concept
Prestressed Concrete Superstructure
Superstructure Cross Sections
23. Recommended Concept
Prestressed Concrete Superstructure
Piers

COLORED RENDERINGS

View Looking East — Frontispiece
View Looking Northwest — follows 96


BURLINGTON NORTHERN RAILROAD
EVERGREEN HIGHWAY
LEWIS AND CLARK HIGHWAY (SR-14)
COLUMBIA
RIVER
MAIN CHANNEL
COLUMBIA RIVER BRIDGE
PROPOSED RUNWAY
I-205
MAIN CHANNEL
SMALL CRAFT CHANNEL
GOVERNMENT ISLAND
PORTLAND INTERNATIONAL AIRPORT
PORTLAND AIR FORCE BASE
WASHINGTON
OREGON
CLARK CO
MULTNOMAH CO
Columbia Slough

NOTE: BASE MAPS U.S.G.S. SE/4 PORTLAND 15' QUADRANGLE, 1961
SCALE: APPROXIMATELY 1" = 4,000'

FIGURE 1

LOCATION MAP

I INTRODUCTION

The states of Oregon and Washington are presently planning a highway, Route I-205, which passes to the east of Portland and Vancouver. It is a circumferential route on the interstate system and connects to Route I-5. A bridge between the two states is necessary to carry the highway across the Columbia River.

The bridge location and alignment, as established by prior planning, are compatible with a proposed expansion of Portland International Airport. At the airport, The Port of Portland plans to construct a new runway on fill material placed in the river. The fill will also carry Route I-205 from the bridge end to the present Oregon shore.

This section of the report discusses physical characteristics of the bridge site, as well as the relationship between the bridge and all land, water, and air transportation activities in its immediate vicinity.

A. SITE CHARACTERISTICS

1. Location

As shown on Figure 1, the bridge is located just east of Portland, Oregon, and Vancouver, Washington. It spans the Columbia River near Government Island, which is approximately 113 miles upstream from the river mouth and 32 miles downstream from Bonneville Dam. Of the approximately 7,700-foot bridge length, about 2,720 feet are within the state of Washington and about 4,980 feet are within the state of Oregon.

2. Topography

Topographic features are shown on Figure 1. The terrain slopes downward over a distance of about 2,000 feet from Elevation 160.0± at the Lewis and Clark Highway (SR-14) to about Elevation 5.0 at the river's edge. The remaining portion of the alignment is over the river and terminates on the Oregon shore where construction by others will provide a fill on a 3-to-1 slope up to about elevation 40.0.

On the Washington shore the bridge spans SR-14, Evergreen Highway, and the Burlington Northern Railway. Other man-made features on the shore include several single-family residences and a private boat dock.

In the river, the present topography will be altered for the new airport runway. Although the main shipping channel will remain near the Washington shore, the central portion of the river will be dredged to a depth of 19 feet below Mean Low Water (MLW). This will remove two small islands (Sand Island and Lemon Island) and provide material for the runway fill extending out from the Oregon shore.

At the Oregon end of the bridge, fill placed in the river will provide space for the new airport runway west of I-205 and for a lagoon east of the freeway. Marine Drive, which follows the present river bank, will be relocated onto the airport fill and will pass under I-205.

3. Hydraulics

Filling of a portion of the Columbia River for the new airport runway will alter the present river characteristics. Investigation of the hydraulic aspects of the proposed airport construction has been made by others[1], and the following conclusions pertinent to the bridge design are drawn therefrom:

a. Sediment transport capacity will tend to be more uniform than it is in the present channels.

b. Flood-passing ability will be equal to or slightly greater than that of the present channels.

c. The magnitude of the average current velocity in the bridge vicinity will be nearly unchanged. Predicted values of the average velocity for a 100-year flood (700,000 cfs) range between 4 and 5 feet per second.

4. Seismic Activity

The project area is within a zone characterized by moderate earthquake damage. Shocks of intensity V to VI on the Modified Mercalli Scale have occurred frequently, and in 1962 a shock of intensity VII occurred in Portland.[2]

5. Climate

The Portland-Vancouver area has a moderate climate produced by the maritime influence of the Pacific Ocean and the shielding effects of the Coast Range to the west and the Cascade Range to the east.

Average afternoon temperatures during the summer are in the upper 70's and nighttime temperatures during the winter are generally in the 30's. The daily temperature variation is about 15°F in winter and about 25°F in summer.

---

[1] Preliminary Report of Hydraulic Analyses Related to the Proposed Airport Expansion, Bauer Engineering, Inc., Chicago, Ill., April, 1968.

[2] Earthquake History of the United States, Part 1, Coast and Geodetic Survey, Department of Commerce, Washington, D. C., 1965.

Approximately 40 inches of precipitation, mainly rainfall, occurs annually, and most of it falls between October and March. Rainfall is typically of relatively long duration and light intensity.

Fogs which form at night and disappear the following morning are common in late summer and early fall. Heavy fogs occur an average of 31 days annually at the Portland airport.

The extreme-mile wind velocity at 30 feet above ground for a recurrence interval of 50 years is about 80 mph, and for a recurrence interval of 100 years, is about 90 mph. An 88 mph wind was observed at the airport in October, 1962.[3]

B. RELATED TRANSPORTATION ROUTES

As in the location and alignment of the bridge, consideration must be given in its design to the highway, railway, water and air transportation routes which cross the bridge alignment. (See Figure 1.)

1. Land Routes

SR-14, Evergreen Highway and the Burlington Northern Railroad pass under the bridge on the Washington shore, while on the Oregon side Marine Drive passes beneath I-205.

SR-14 is classified as a major state highway and is designated part of the historic Lewis and Clark Trail. It has two 24-foot wide roadways separated by a 15-foot median. A 28-foot wide collector-distributor road parallels SR-14 under the bridge. Evergreen Highway and scenic Marine Drive are two-lane secondary roads where they cross the alignment. Marine Drive will be relocated to follow the riverbank on the new fill.

---

[3] Thom, H. C. S., "Distribution of Extreme Winds in the United States", Journal of the Structural Division, Proceedings of the American Society of Civil Engineers, April, 1960.

The Burlington Northern Railroad's single track line provides the railroad's main connection from Portland to the east.

2. Water Routes

The Department of Transportation, United States Coast Guard, has issued Bridge Permit 41-70 for construction of the proposed bridge. Two channels are specified for use by river traffic.

The main channel passes under the bridge near the Washington shore. The authorized depth of the main channel is presently 27 feet below MLW and extends over a width of 300 feet. However, since the U. S. Army, Corps of Engineers, is investigating the feasibility of deepening the channel through this reach of the river to 40 feet, a 40-foot deep channel is used in the design of the main channel piers. The bridge provides a minimum vertical clearance of 149 feet above MLW, and the total channel width between pier protection systems is 500 feet.

The secondary channel, which is 120-feet wide, provides for small craft access to the relocated south channel of the river. Minimum vertical clearance under the bridge here is 69 feet, and the channel depth is 19 feet, both measured from MLW.

3. Air Navigation

Route I-205 passes east of the Portland International Airport, approximately 6,000 feet east of the end of the existing north runway approach surface and 7,500 feet east of the end of the existing south runway approach surface. Near the southern end of the bridge, I-205 is about 3,100 feet east of the end of the proposed new airport runway. A minimum of about 25 feet of vertical clearance is provided between the bridge and an imaginary surface which extends out from a point 200 feet beyond the end of the new runway on a 50-to-1 slope. The Department of Transportation, Federal Aviation Administration, under Aeronautical Study No. SEA-OE-68-145, has determined that the bridge will not be a hazard to air traffic.

C. THE PROJECT

1. Project Limits

The project limits for this study extend between the abutment backwalls from approximate Station 8+40 on the north to approximate Station 85+40 on the south, for a total length of about 7,700 feet.

2. Horizontal and Vertical Alignment

The horizontal alignment, previously determined by others, provides for a tangent length on a bearing of S4°-57'-07.7"E from the north abutment to the point of curvature of a 0°-30' curve at Station 22+59.34. Turning to the left on this curve for a total length of 3422.90 feet the curve terminates on a tangent with a bearing of S22°-04'-00"E at Station 56+82.24. After following this bearing for 825.41 feet the alignment turns toward the right into a 1,000-foot spiral and thence into a 1° curve which terminates beyond the south abutment.

The topography of the crossing dictates the need for a profile which predominately slopes downward toward the south. Passing over SR-14 at Elevation 195.6± the profile descends slowly on the overbank portion of the structure until it reaches an elevation of about 181.0 near the main shipping channel on the river. At this point the profile dips sharply (-2.877%) until, nearing the southern end of the structure at about Elevation 48.8, the gradient begins to level off to a downward slope at the south abutment. Vertical curve lengths of 1200, 1000 and 800 feet are utilized between gradient changes.

3. Roadway Cross Section

The roadway deck geometry provides for a dual facility. Each unit is divided into four 12-foot traffic lanes and two 10-foot shoulders, making a total roadway width of 68'-0". On each side of each roadway is a parapet barrier with its inner face sloped in accordance with safety standards. The overall width of the total bridge is about 143 feet. The cross slope of the roadway surface varies from about 1/4" per foot in the normal section to about 1/2" per foot as transition areas and curves dictate.

On the Washington end, the two roadways are widened to accommodate acceleration and deceleration lanes for an interchange with SR-14.

II DESIGN CRITERIA

A. GENERAL CONSIDERATIONS

1. Design

Design of the bridge will be in accordance with Division I of the AASHO Standard Specifications for Highway Bridges, 1969 Edition, including the 1970 Interim Specifications, except as modified by requirements of the Oregon State Highway Commission and the provisions, exceptions and interpretations noted in the following paragraphs.

2. Construction

Construction will be in accordance with the Oregon State Highway Commission's Standard Specifications for Highway Construction, 1970 Edition, and such special provisions as may be required.

3. Alignment, Deck Geometry and Clearances

The horizontal and vertical alignments, deck geometry and clearances at navigation channels and roadways will be as indicated on Plate 1.

4. Dead Loads

Structure types utilizing conventional concrete decks will have an allowance of 25 pounds per square foot for a future wearing surface and membrane waterproofing system.

For other structure types, including orthotropic girders and prestressed segmental construction, allowance for wearing surface and membrane waterproofing systems will be consistent with the installation recommended.

5. Live Load

HS20 loading will be used, except that for the design of floor systems (stringers and floorbeams) a special loading of two 24,000 lb axles at 4'-0" centers will be used where this loading is more critical than the HS20 loading.

Girders carrying floor systems, box-girders and substructure units will be designed for five lanes per roadway, with appropriate lane reduction as per AASHO.

Live load deflection will be computed on the basis of the design live load per member with no allowance for lateral distribution due to cross bracing.

6. Longitudinal Forces

Friction at sliding bearings and pin friction for rocker shoes will be assumed to be 14% of the dead load supported.

7. Wind Loads

Wind loads will be as specified in AASHO Specifications and will be considered as unbroken moving loads. Identical loaded length for wind-on-structure and wind-on-live-load will be used. In loading combinations which include live load and wind-on-live-load, the stress from each will be computed as maximum and need not be based on identical positions of the live load.

8. Thermal Forces

Thermal forces will be applied in accordance with AASHO Article 1.2.15 and Oregon State Highway Bridge Division office practice consistent with a moderate climate.

9. Seismic Forces

Seismic loads will be applied as designated in AASHO Article 1.2.20.

Unit stresses for dead load plus seismic forces will not exceed 133% of the normal unit stresses, except for lateral systems where the unit stresses will not exceed the normal allowable.

Seismic forces will be considered to act concurrently with forces listed in Group VII, AASHO Article 1.2.22. Vertical dynamic forces will be disregarded.

The effect of horizontal seismic acceleration of water will be considered to add horizontal forces to the river piers.

10. Centrifugal Forces

Centrifugal forces will be determined in accordance with AASHO Article 1.2.21, using a design speed of 70 miles per hour. The actual number of lanes per roadway with reductions for multi-lanes will be used.

B. STRUCTURAL STEEL DESIGN

1. Structural Steel

The following structural steels will be utilized, with selection based on stress requirements and overall economy:

Structural carbon steel A36.

High-strength low-alloy steels A242, A441, A572 or A588, with thickness limitations as set forth in Table 1.7.1 of the AASHO Specifications. Selected material will have a minimum yield point of 50,000 psi.

High-yield-strength quenched and tempered alloy steel A514 and/or A517, with thickness limitations as designated in Table 1.7.1 of AASHO Specifications.

Fatigue stresses will be considered consistent with Article 1.7.3 of the AASHO Specifications.

2. Welding

All welding will be in accordance with the Oregon State Highway Commission's Standard Specifications for Welded Highway Bridges and Incidental Structures, dated July, 1970.

C. CONCRETE DESIGN

1. Concrete

Minimum concrete strengths will be as follows:

Prestressed Concrete	
Cast-in-place	f'c = 5,000 psi; fc = 2,000 psi; n = 6
Precast	f'c = 6,000 psi; fc = 2,400 psi; n = 6
Ordinary Concrete	
Roadway decks	f'c = 4,000 psi; fc = 1,320 psi; n = 8
Substructure	f'c = 3,300 psi; fc = 1,320 psi; n = 10
Substructure integral with superstructure	f'c = 4,000 psi; fc = 1,600 psi; n = 8

2. Reinforcing Steel

All reinforcing steel will be deformed billet-steel bars for concrete reinforcement, ASTM A-615, Grade 40 or Grade 60.

14S and 18S bars will not be lapped at splices but will be butt-spliced or connected by an approved mechanical device.

3. Prestressing Tendons

Prestressing tendons and anchorages will not be specified; however, several systems will be investigated to insure structural feasibility.

D. FOUNDATION DESIGN

1. Foundations

Abutments will be supported by 50-ton capacity friction piles.

Overbank piers on the Washington shore and the north main channel piers will be supported by end-bearing H-piles having a capacity of 100 tons except where spread footings are feasible. In that instance bearing capacity on the compact sands and gravels will be taken as 7 tons per square foot.

All other piers will be supported by end-bearing H-piles having a capacity of 200 tons per pile.

2. Stability of Soil Bearing Foundations

For computing the stability of the substructure units on soil bearing foundations, the substructure dead loads will consist of the weight of concrete, the weight of earth and the weight of water on top of the base, with uplift considered as full hydrostatic pressure. Water surface elevations at any stage up to Elevation 36.5 will be used. A stream flow velocity of 4 feet per second will be used with AASHO Article 1.2.17 in computing stream forces. For all conditions of loading the resultant pressure will remain within the middle third of the base.

3. Stability of Substructure Units On Pile Foundations

In computing stability of substructure units on pile foundations, uplift will be computed on the assumption that full hydrostatic pressure, with water surface elevations at any stage up to Elevation 36.5, is applied over the entire base with gravity loads consisting of the weight of concrete, the weight of earth and the weight of water on top of the footing. A stream flow velocity of 4 feet per second will be used with AASHO Article 1.2.17 in computing stream forces. The pile group will be designed so that no tension exists on any pile for any loading condition.

4. Seal Course Design

For seal course design the maximum design water elevation will be 12.0 (approximate 25% line of daily high stages). Allowable uplift force per pile will be taken as 10 pounds per square inch acting on an area equal to the perimeter of the pile times the depth of seal course. Maximum uplift per pile for 35 feet of effective embedment will be limited to 25 tons per pile.

E. MISCELLANEOUS INSTALLATIONS

1. Roadway Drainage

Roadway drains will accommodate a 10-year frequency rainfall of 20-minute duration with 100% runoff. Drains will be provided which will discharge the water below the bridge deck except in areas over highways and railroads where the water will be collected and discharged into storm drain facilities.

2. Utilities and Signing

Navigation lighting will be provided in accordance with current U. S. Coast Guard requirements.

Roadway lighting will provide an average maintained illumination level of 1.4 foot-candles with a uniformity ratio of 3:1.

Signing and sign lighting that meets interstate standards will be provided as required.

III ARCHITECTURAL CONSIDERATIONS

A. GENERAL

Bridges being built today will affect the physical and psychological environment of future generations. Consequently, it is the responsibility of the bridge designer to create the best structure possible, both functionally and aesthetically. To this end, the basic principle must be the integrity of the bridge, both within its environment and within itself. Not only must the bridge be designed to blend with its natural surroundings, but each element of the bridge must be integrated with every other element. Piers, superstructure, abutments, signs, lighting, and fender system must all fit a basic design and structural concept if the bridge is to be a source of visual satisfaction.

1. Predetermined Restrictions and Requirements

Previous studies by others and existing permits issued by the Federal Aviation Administration and the U. S. Coast Guard have established certain architectural limitations for this structure. The shape of a deck type superstructure and the shape and location of piers and abutments are the elements of major architectural concern. The treatment of these elements determines the character of the bridge.

2. Shape and Depth of the Superstructure

The I-205 bridge will be about 7,700 feet long. The economic depth of the superstructure varies from 7- to 22-feet for steel, and from 10- to 34-feet for concrete.

As these depths indicate, the superstructure of the bridge will appear very thin in proportion to its considerable length. To achieve a pleasing proportion, it is necessary to emphasize the depth of the superstructure. To do this, effects of light and shadow must be considered. For example, the superstructure in Figure (a) has a cantilevered edge which casts a shadow on the supporting box beam.

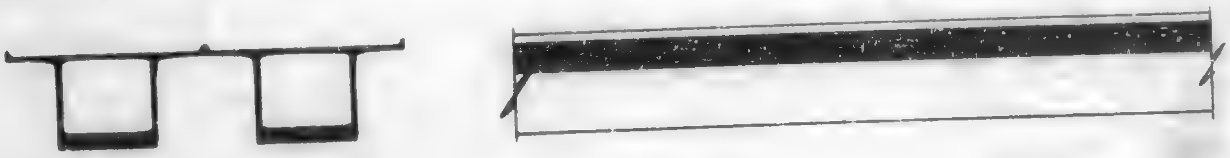


FIGURE (a)

The superstructure, seen in elevation, displays a band of light on the parapet, a band of shadow below the parapet and a band of light on the lower portion of the box beam. This light-and-shadow interplay accentuates the length of the bridge.

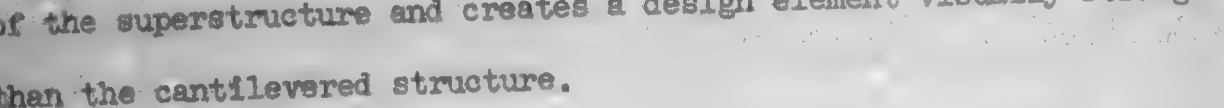


FIGURE (b)

Alternately, the slope-sided cross section (Figure (b)) eliminates the elongating effects of light and shadow, emphasizes the depth of the superstructure and creates a design element visually stronger than the cantilevered structure.

3. Pier Design

The design of the piers to support the superstructure must provide a continuity of appearance and still be adaptable to a wide range of heights (30-to-180 feet).

The effect of this height variation on various pier designs is illustrated in Figure 2 and discussed briefly below.

If a large-radius uniform curvature is adopted for the edge of the main channel pier and utilized consistently on the shallower piers, as shown in Figure 2-c, the uniformity of treatment is lost as the superstructure comes closer to the water or ground. On the other hand, if a uniformly varying edge curvature is used from pier to pier, the shallower piers appear massive in comparison to the main channel unit. As a result, the heaviest part of the superstructure is supported by the most delicately proportioned piers as indicated in Figure 2-d.

When the above treatments are combined into a single pier with a web wall, the form is totally different for each pier and the result is visually objectionable at the shortest water piers. (See Figure 2-e.)

From the foregoing studies, it appears that a more effective approach would be to use uniformly shaped shafts, limiting the architectural treatment to the area directly below the superstructure. Figure 2-f depicts a single pier with a narrow shaft and hammer head carrying both roadways. This pier type results in an excessively heavy appearance at the tallest piers and an even heavier appearance at the shortest piers.

Uniformly shaped shafts with a curvature sweeping into the lines of the superstructure as illustrated in Figure 2-g provide the most continuity of expression from the tallest to the shortest pier.

As these depths indicate, the superstructure of the bridge will appear very thin in proportion to its considerable length. To achieve a pleasing proportion, it is necessary to emphasize the depth of the superstructure. To do this, effects of light and shadow must be considered. For example, the superstructure in Figure (a) has a cantilevered edge which casts a shadow on the supporting box beam.

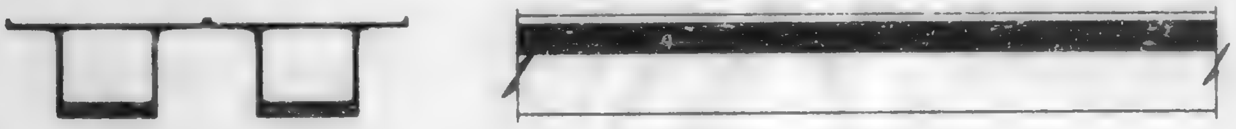


FIGURE (a)

The superstructure, seen in elevation, displays a band of light on the parapet, a band of shadow below the parapet and a band of light on the lower portion of the box beam. This light-and-shadow interplay accentuates the length of the bridge.

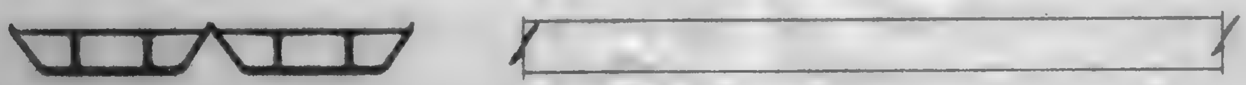


FIGURE – (b)

Alternately, the slope-sided cross section (Figure (b)) eliminates the elongating effects of light and shadow, emphasizes the depth of the superstructure and creates a design element visually stronger than the cantilevered structure.

3. Pier Design

The design of the piers to support the superstructure must provide a continuity of appearance and still be adaptable to a wide range of heights (30-to-180 feet).

The effect of this height variation on various pier designs is illustrated in Figure 2 and discussed briefly below.

If a large-radius uniform curvature is adopted for the edge of the main channel pier and utilized consistently on the shallower piers, as shown in Figure 2-c, the uniformity of treatment is lost as the superstructure comes closer to the water or ground. On the other hand, if a uniformly varying edge curvature is used from pier to pier, the shallower piers appear massive in comparison to the main channel unit. As a result, the heaviest part of the superstructure is supported by the most delicately proportioned piers as indicated in Figure 2-d.

When the above treatments are combined into a single pier with a web wall, the form is totally different for each pier and the result is visually objectionable at the shortest water piers. (See Figure 2-e.)

From the foregoing studies, it appears that a more effective approach would be to use uniformly shaped shafts, limiting the architectural treatment to the area directly below the superstructure. Figure 2-f depicts a single pier with a narrow shaft and hammer head carrying both roadways. This pier type results in an excessively heavy appearance at the tallest piers and an even heavier appearance at the shortest piers.

Uniformly shaped shafts with a curvature sweeping into the lines of the superstructure as illustrated in Figure 2-g provide the most continuity of expression from the tallest to the shortest pier.

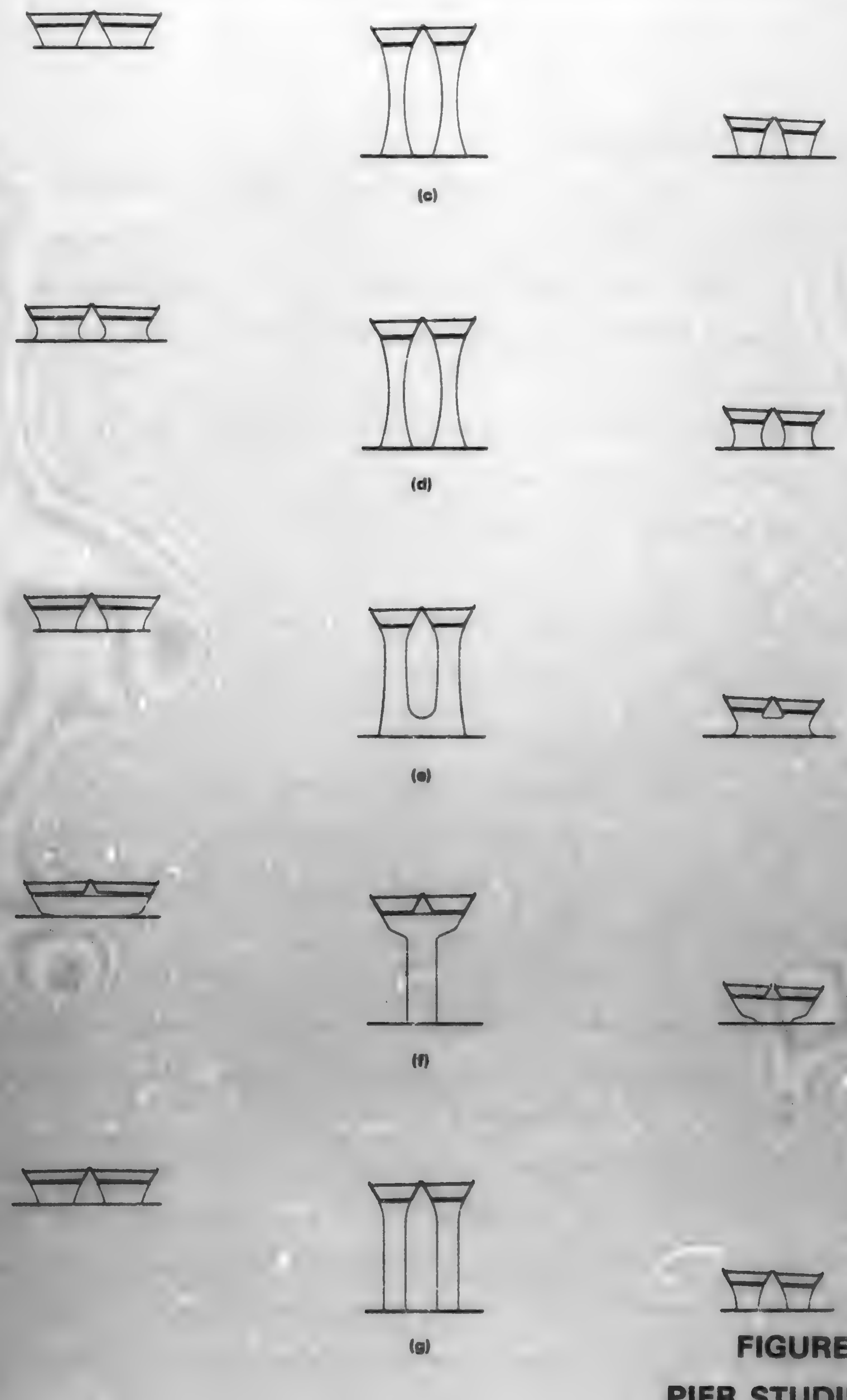


FIGURE 2

PIER STUDIES

B. STEEL SUPERSTRUCTURE

The depth required for a steel superstructure varies from 7 feet for the shortest span to a constant depth of 22 feet for the main span. A smooth transition between depths is accomplished by a straight taper extending the entire length of transition spans. The superstructure becomes a continuous ribbon curving gracefully across the river, growing gradually deeper at the highest piers and diminishing as it approaches the abutments. This superstructure has no single point of emphasis and requires a strong architectural statement in the piers.

For a steel structure, the pier in Figure 2-g is clearly preferable to the other alternatives discussed.

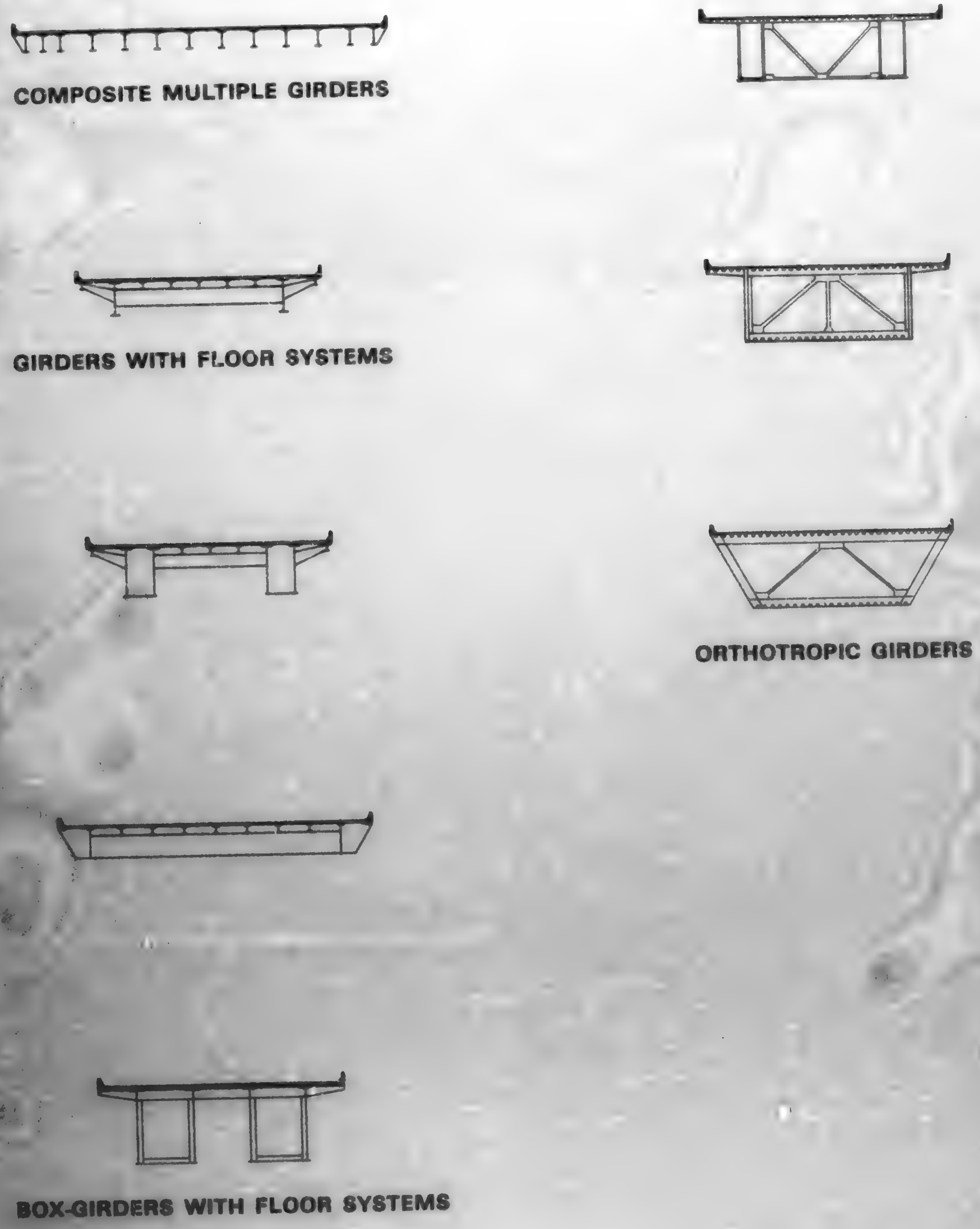
C. CONCRETE SUPERSTRUCTURE

The main span of a concrete superstructure must be haunched in order to clear the 500-foot wide shipping channel. This span, 34 feet deep at the haunches and 17 feet deep at the center, is a key architectural feature.

The haunch becomes the basis of a rhythmic architectural treatment when used at each pier. To provide continuity between pier and superstructure, it is necessary to use simple piers which curve gracefully into the haunches.

A more dramatic design approach is to emphasize the haunch at the main span by contrasting it with a constant depth superstructure on the approach spans. The main piers curve into the haunches while the smaller approach piers are set back from the face of the superstructure. This setback creates a shadow on the upper portion of the approach piers and further emphasizes the main span. The approach piers are simple shafts curving into the bottom of the superstructure.

The utmost simplicity is necessary in the approach piers to avoid detracting from the powerful architectural statement of the main span. The pier shown in Figure 2-g is equally suitable for a concrete superstructure.



COMPOSITE MULTIPLE GIRDERS

GIRDERS WITH FLOOR SYSTEMS

BOX-GIRDERS WITH FLOOR SYSTEMS

ORTHOTROPIC GIRDERS

FIGURE 3

STRUCTURAL STEEL CROSS SECTIONS

IV STRUCTURAL CONCEPTS

A. STRUCTURAL STEEL SUPERSTRUCTURE

An economic span arrangement for the Columbia River Bridge necessitates the use of span lengths varying from about one hundred feet to six hundred and fifty feet. Spans are shortest at the ends of the approaches and lengthen as they near the main navigation channel. The wide range of span lengths suggests the use of several different types of structural steel cross sections. Some of the cross sections considered are shown on Figure 3 and are discussed below.

1. Multiple Girders

For span lengths in the 100- to 150-foot range, multiple composite plate girders have an economic appeal. These girders can be made up of a single type of structural steel, or several types can be combined into a "hybrid girder" depending on the possibility of economic advantage.

2. Girders with Floor Systems

Span lengths in the range of two to four hundred feet are more efficiently provided by a cross section which employs a floor system. Girders or box-girders supporting floorbeams, stringers and the deck slab utilize less structural steel per square foot of roadway surface than multiple composite girders in this span range. The use of several different structural steels combined into "hybrid girders" again offers possible economic advantages.

For span lengths in the four hundred to six hundred and fifty foot range, box-girders supporting a floor system could be used; however, recent developments in design and construction of orthotropic girders suggest an economic justification for this type of system.

3. Orthotropic Deck Plate Girders

In an orthotropic deck plate girder, material can be utilized in an efficient manner since a high percentage of the structural components are used to carry the load from pier to pier. Considerable saving in dead weight is achieved with this type of unit since the conventional concrete deck slab is replaced with a steel deck plate and protective covering. In addition, heavy floorbeams and stringers are eliminated in favor of deck plate stiffeners and lighter floorbeams. The deck plate, acting as a transverse and longitudinal stress-carrying member, also serves as an upper lateral system, eliminating the need for additional members to fulfill this function.

The orthotropic deck plate girder structure is well suited to the efficient use of various strength steels. The deep webs, which require longitudinal splices, can be made of A36 material in the central low-stress area, and of A572 or A588 material in the more highly stressed upper and lower portions. Flanges carrying high stresses can be made of A588, A572 or higher strength steels such as A514.

Designing for a particular limit of live load deflection can result in a decreased economic advantage where this design feature controls. If the permissible live load deflection is limited excessively, the economic advantage of these various strength steels will be diminished. It is therefore recommended that allowable live load deflections as specified in AASHO (1/800 of the span) be utilized for the main spans in order to realize the maximum economy attainable with this type of construction.

The deck plate is 1/2" minimum thickness low-alloy steel. Local stresses due to wheel loads and longitudinal stresses from interaction with the girders are taken by the plate and longitudinal stiffeners. The plate is thicker than would be necessary for these bi-axial stresses in some instances, but it is considered a practical minimum to reduce local bending under the wearing surface.

The deck plate longitudinal stiffening shown on the drawings consists of bent plates welded to the deck plate. This is one of several longitudinal stiffening schemes that could be used. Some of the advantages of this method are an increased floorbeam spacing, less welding and greater torsional stiffness compared with open systems.

4. Combined Steel Superstructure System

When multiple girders, girders with floor systems, and orthotropic deck plate girders are combined into a complete integral structure, several considerations other than economics become important. For example, if girders or box-girders supporting a floor system are used for a major portion of the approach structure, it would be desirable to carry this same type of construction through the shorter spans in order to keep facia girders in alignment and maintain uniformity of appearance. If fabrication of one type of cross section is predominant, it is beneficial both in fabrication cost and construction time to utilize that cross section for a few additional spans rather than to substitute a different cross section of higher structural efficiency.

Two solutions in structural steel superstructure have been developed as part of this study. The first is a basic development with vertical web girders which utilizes all material to its most efficient structural capacity. The second solution utilizes sloped web girders, which provide a unit that is more pleasing aesthetically. Concept A indicated on Plate 3 and Concept C as shown on Plate 11 illustrate the structural cross sections used for these solutions.

It is intended that the steel superstructure will be articulated by providing two- and three-, and in some cases, four-span continuous units. Hinges or hangers will be provided some distance from the pier locations, and jointing of the roadway surfaces will be accomplished with transflex or multiple compression joint seal devices. Bearings will provide horizontal fixity at as many piers in a unit as would be structurally feasible; otherwise, expansion bearings allowing longitudinal movement only will provide the vertical support.

B. PRESTRESSED CONCRETE SUPERSTRUCTURE

1. General

Concrete is well-known for its high compressive strength and low tensile strength. The basic principle behind prestressed concrete is the utilization of its compressive strength by devising some means of precompressing the structural member in areas where tension will occur under load. The compressive stresses due to prestress counteract the tensile stresses, and thus the structural member is always in compression under service loading conditions.

Modern prestressed concrete construction probably started with Freyssinet's first application of high-strength steel wire for prestressing. Engineers were slow during the early years of its development to recognize the potentialities of prestressed concrete construction. During and after World War II, the shortage of steel in Europe for construction forced engineers to seek alternative types of construction. Prestressed concrete was thus given a great push in its development.

Since then many innovations in prestressing systems have been developed, new construction techniques advanced, better quality high-strength concrete (5,000 psi and higher) and high-strength steel bars and wires (120 ksi to 270 ksi) produced. And as research and actual construction gave a better understanding of the behavior of prestressed concrete, engineers had greater confidence in the design of this type of structure. Many long-span bridges have been built or planned, notable among which are:

Bridge Location	Main Span	Year Completed
Medway, England	500 ft	1963
Bendorf, Germany	682	1964
Eastern Scheldt, Netherlands	300	1965
Mission Valley Viaduct, Calif.	300	Under Construction
Pine Valley, Calif.	450	In Planning Stage
Three Sisters, D.C.	750	In Planning Stage

2. Design Considerations

a. Concrete

In long-span bridge construction, the dead load in many cases represents a large percentage of total load. The use of high-strength concrete can substantially reduce the weight of the structure because of the reduction in section due to higher allowable stresses. Other advantages of using high-strength concrete include: 1) greater modulus of elasticity and smaller elastic and creep strains resulting in less loss of the prestressing force and smaller deflections; and 2) avoidance of special anchorage design since all presently available prestressing system anchorages are designed for use with high-strength concrete.

Concrete strength of 5,000 - 6,000 psi is commonly used in prestressed concrete construction in this country. Although strengths higher than 6,000 psi can be obtained, additional cost and quality control may not justify their use. The final selection of concrete strength will depend on many factors such as methods of construction, properties of available aggregates and cost.

Since working conditions and quality control are generally better in a casting yard, it is reasonable to use higher concrete strengths for precast segments than for cast-in-place concrete. It is therefore recommended that 6,000 psi concrete be used for precast units and 5,000 psi concrete be used for cast-in-place construction. However, for the purpose of this preliminary design study, a concrete strength of 5,000 psi is used throughout.

b. Prestressing Steel and Systems

Prestressing steel is available in the form of wires (1/4 inch diameter or smaller) or bars (1/2 inch diameter or larger). The ultimate strength ranges from 240 ksi to 270 ksi for wires and 120 ksi to 160 ksi for bars.

Wires are generally used as strand or cable. Most of the prestressing systems using wires or strands utilize multiple wires or strands to make up the tendon. By varying the number of wires or strands in the tendon, the prestressing force can be varied to fit the design requirements. Wire tendons also allow greater flexibility in making the tendon profile layout.

The effective prestressing force of a high-strength bar system is limited since the maximum size of the bar is only 1-3/8 inch. It would require many of these units in areas where the design prestressing force is large. Because of its stiffness, the high-strength bar can be used only for tendons having minimal angular change in the tendon profile. However, these high-strength bars can still be used to great advantage in transverse prestressing of the deck slab and in vertical or diagonal prestressing of the girder webs, particularly because of the simple bar anchorage and jacking operations.

There are many commercial prestressing systems available on the market which have been successfully used in many projects. A partial list of these systems is given below:

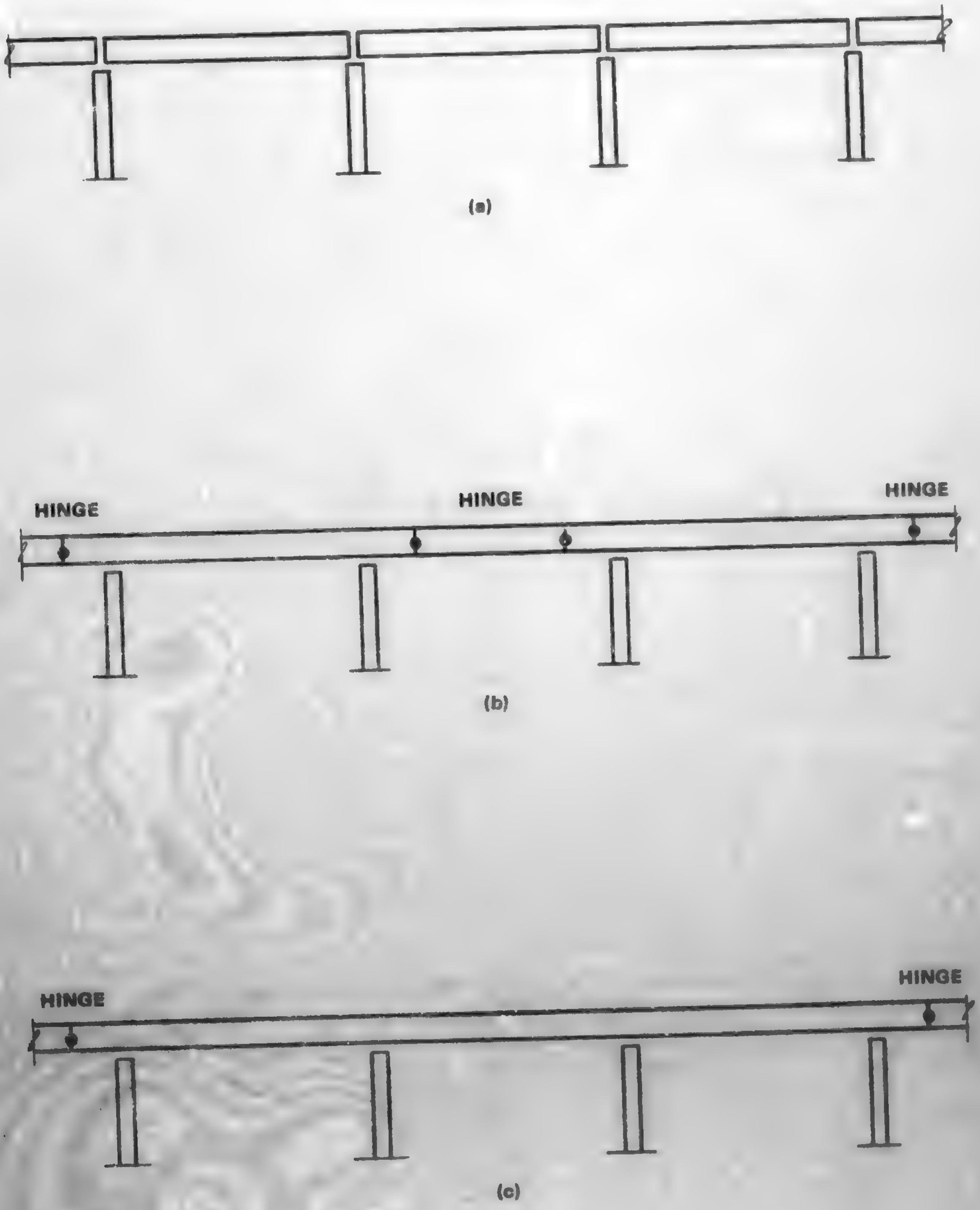
System	Company
Westrand, Multi-Strands	Western Concrete Structures, Inc.
VSL, Multi-Strands	VSL Corp.
Freyssinet, Multi-Strands	Freyssinet Co., Inc.
BBRV, Multiple Wires	Inland-Ryerson Construction Products Co.
Dywidag, Threaded Bar	Inland-Ryerson Construction Products Co.
Stressteel, Bar & Multi-Strands	Stressteel Corp.

Manufacturers or suppliers of any of the prestressing systems will provide complete information on recommended duct types and sizes, anchorage details, jacks, and all the appurtenances necessary for the successful installation of the system. The final plans should not restrict the contractor to any particular prestressing system. Rather, the contractor should be permitted to select the system which best suits his operation, subject to the engineer's review and approval.

Preliminary design and quantity estimates were made on two systems of prestressing. Multiple-strand tendons with an ultimate strength of 700 kips were used for longitudinal prestressing, and high-strength bars with an ultimate strength of 200 kips were used for transverse, vertical or diagonal prestressing.

c. Structure Types and Articulations

Rigid frames and girders were the two structure types studied. Figure 4 shows some of the many possible girder span arrangements, ranging from simple span, cantilevers with suspended span, to multiple continuous spans with hinges located in appropriate places for articulation. Figure 5 shows some of the ways of providing


(a)
HINGE
HINGE
HINGE
(b)
HINGE
HINGE
(c)

Oregon State Highway
Technical Library

FIGURE 4

GIRDER ARTICULATION

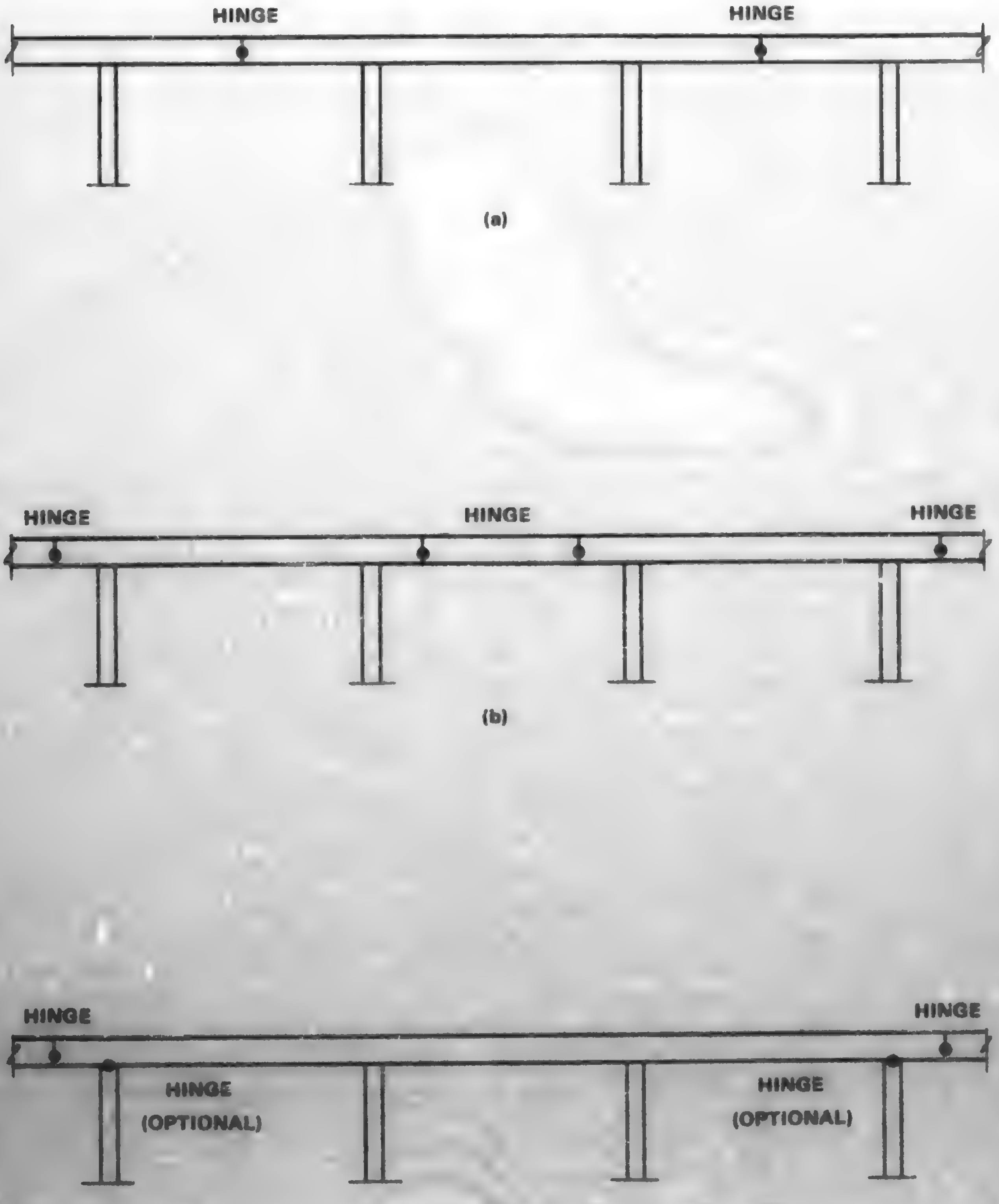

HINGE
HINGE
(a)
HINGE
HINGE
HINGE
(b)
HINGE
HINGE
HINGE
(OPTIONAL)
HINGE
(OPTIONAL)
(c)

FIGURE 5

RIGID FRAME ARTICULATION

articulation in rigid frame structures, center hinge in alternate spans, suspended spans, multiple continuous spans with hinges in the superstructure and, if necessary, with additional hinges at the tops of some of the pier columns.

In concrete construction, the advantages of rigid frames over girders are many. The monolithic construction of a rigid frame structure offers the freedom in aesthetic treatment of blending the superstructure into the substructure without the interruption of bearings for girder construction. It takes full advantage of the flexural strength of the pier columns to make the structure more rigid and permits use of the free cantilever construction method without having to use falsework bents.

Articulation joints are provided to keep secondary stresses within allowable levels. In order to avoid poor riding quality of the roadway caused by rotational discontinuity of the structure and frequent maintenance problems at these joints, it is desirable to use as few joints as possible. Multiple-span rigid frames best meet this requirement. In addition, they provide maximum structural rigidity, which is particularly important for long-span bridges located in areas of seismic activity.

d. Types of Cross Sections

One of the major considerations in planning the design of this bridge is to create a pleasing structure. The type of cross section that is selected for the main span over the navigation channel must be carried through in the approach spans so that there will be continuity in appearance of the entire bridge. This aspect of design was presented in Section III.

The bridge deck is designed to carry two 68-ft roadways with a median barrier and a curb barrier on each side, making the total bridge width about 142 feet. An opening in the median divides the bridge into two structures, each independent of the other.

A number of superstructure cross sections were considered, some of which were abandoned because of obvious deficiencies in economy or appearance. Cross sections selected for investigation are shown in Figure 6. These sections include variations in shape and number of cells, and utilize closed boxes which are noted for their superior torsional strength.

For each of these cross sections the top slab, the girder webs and bottom slab are arranged and sized for the efficient use of material. Girder depths are held a constant for any given span length, except for the main channel spans where the girders are haunched. A transitional span is provided between spans of different girder depths.

Preliminary studies indicate that the single-cell box section (see Figure 6(a) or 6(b)) with cantilever roadway slab is the most economical of all the sections investigated. The girder webs are located so that the maximum negative moments in the roadway slab on each side of the web are nearly equal, and the transverse bending moments in the girder webs are minimized. Top slab thickness along the span remains constant, but the thickness of girder webs and bottom slab varies to meet the stress requirements. Of the two

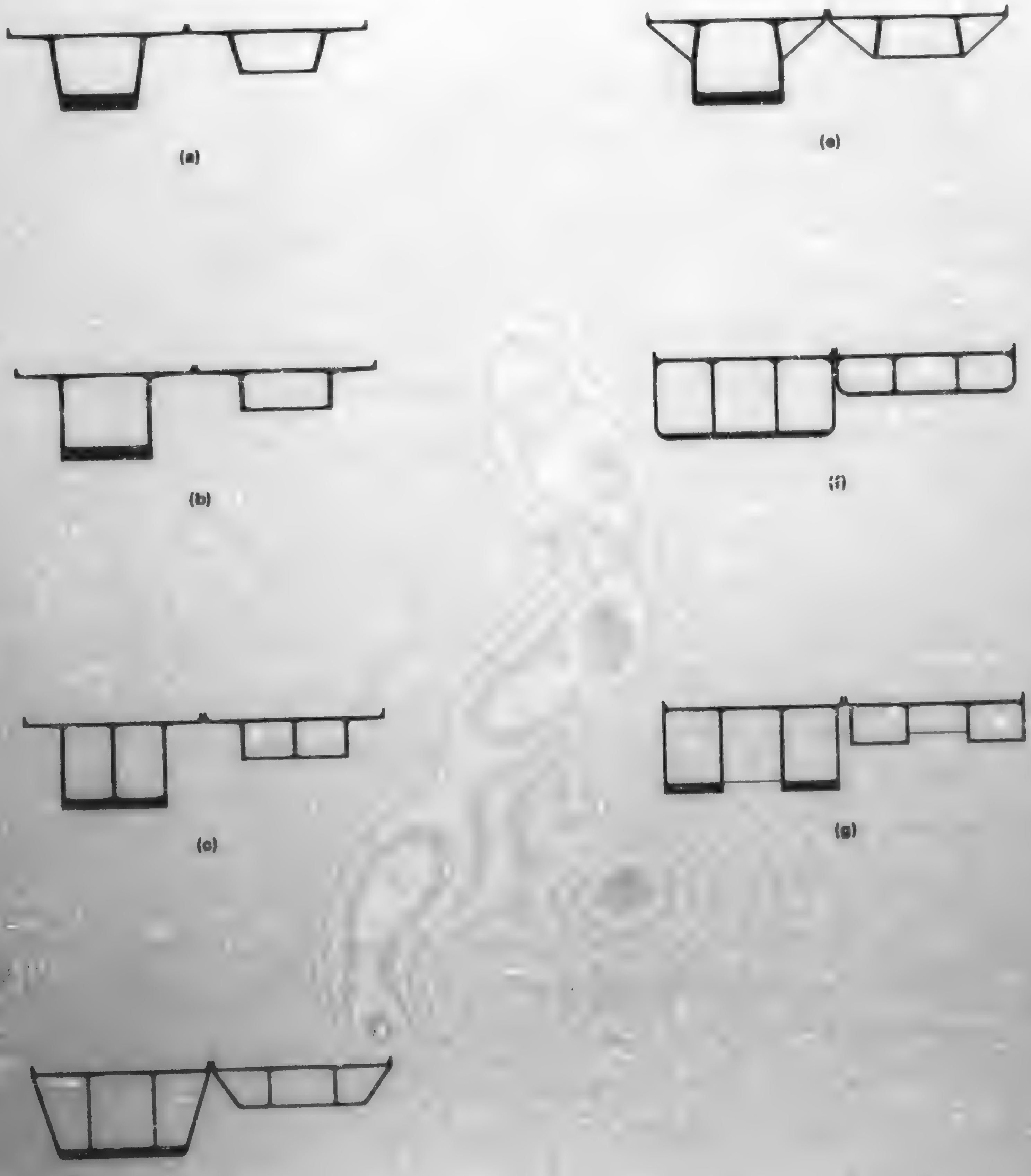


FIGURE 6

PRESTRESSED CONCRETE CROSS SECTIONS

single-cell box sections studied, the one with gently sloping webs was considered preferable from the standpoint of appearance.

A two-cell box section (see Figure 6(c)) was considered; however, more material and an increased amount of formwork made this more expensive.

The three-cell box section is heavier than either the single-cell or the double-cell. This shape of section, which gives the bridge an impressive overall appearance, is discussed in greater detail in Section III.

Girder depths vary from 17 feet to 34 feet in the main span. A constant slope on the exterior girder webs results in a variable width of the bottom of the box. Several solutions were considered to eliminate this undesirable feature. One solution is to use a variable slope of the exterior face by maintaining a constant width at the bottom of the box, as is shown in Figure 6(d). An alternative treatment of a sloping exterior face is to use a constant slope down to the minimum girder depth and a vertical surface in the deepened portion of the girder, as shown in Figure 6(e). A third solution, as shown in Figure 6(f), is another three-cell section with the exterior surfaces being vertical at the full width of the bridge, but this cross section is considered too bulky.

Figure 6(g) shows a cross section with two single-cell box-girders connected by the deck slab. The lateral distribution of loads from one box-girder to the other depends on the flexural strength of deck slab unless adequate diaphragms are provided. This section can be viewed as a three-cell box-girder with the center cell's bottom slab omitted, which greatly diminishes torsional strength. The chief advantage of this section, particularly in precast construction, is the smaller unit which the contractor has to work with.

Two basic cross sections were given detailed study: 1) a single-cell box-girder with inclined webs, as shown in Figure 6(a) and designated as Concept B, which makes maximum use of all material and minimizes the size of the slip-form pier shaft; and 2) a multi-cell box-girder, as shown in Figure 6(d) and designated as Concept D, which with sloping webs and shaped pier shafts, emphasizes the boldness of the main channel spans and offers a valid architectural solution in prestressed concrete.

e. Construction Methods

In discussing concrete construction methods, it is necessary to examine two aspects of the construction process: 1) the location in which concrete is being placed; and 2) the manner of providing temporary support for the structure until it becomes self-supporting.

Cast-in-place construction has been used almost exclusively for long-span bridges. However, precast construction is gaining popularity in Europe as better and more reliable techniques of joining segments are developed.

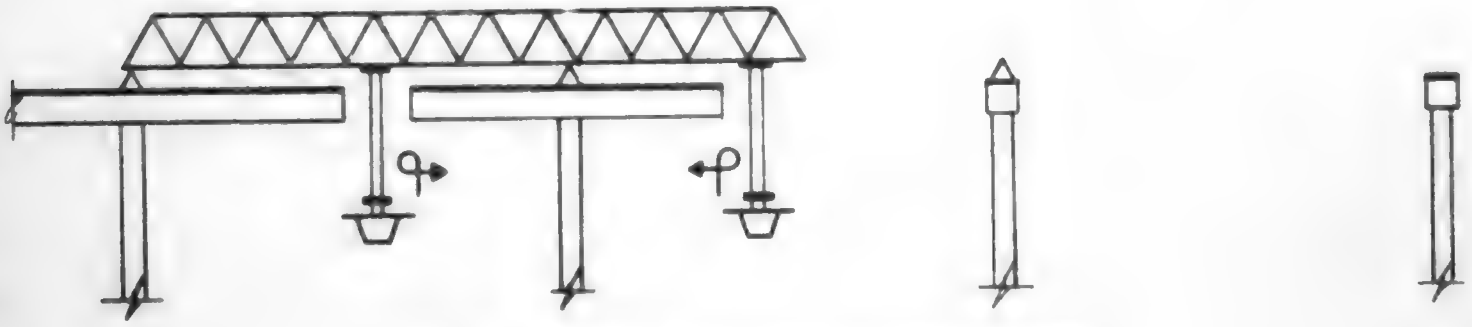
The advantages of precast construction are: 1) better quality control; 2) reduction of field erection time and labor; 3) minimization of prestress loss and deflection of the structure due to shrinkage and creep; and 4) utilization of mass production techniques when great volume is needed and standard sections are used.

On the other hand, cast-in-place construction is readily adaptable to great variations in structural shapes and forms and results in a more homogeneous structure due to the continuity of non-prestressed reinforcement.

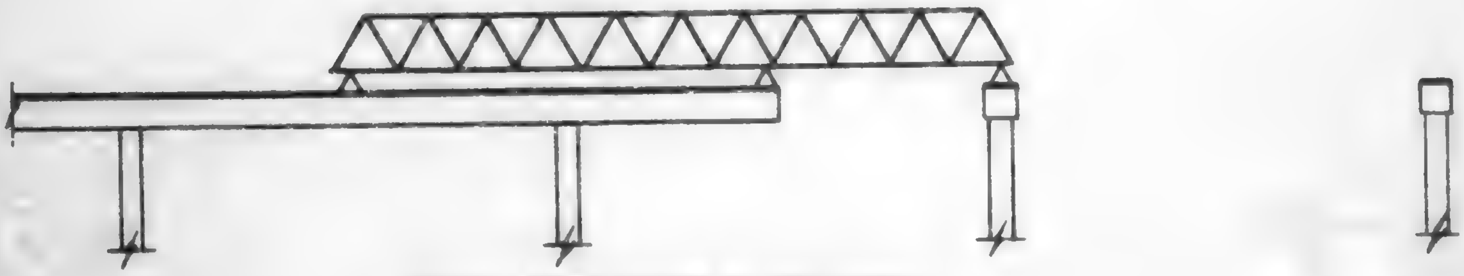
Probably more concrete structures have been built on falsework than by any other type of erection method, but when conditions prohibit or limit the use of falsework, other means must be used to support the structure (see Figure 7). This can be achieved through the use of 1) completed portions of the structure as in free cantilever construction; 2) auxiliary girders or trusses; or 3) a combination of any of these devices.

Site conditions, project layout and other requirements all have influence on the selection of construction methods. Preliminary studies for the proposed bridge are based on the following methods: 1) cast-in-place on falsework for the Washington Approach spans; 2) precast or cast-in-place free cantilever method for the three main spans; and 3) precast free cantilever with auxiliary trusses for the Oregon approach spans.

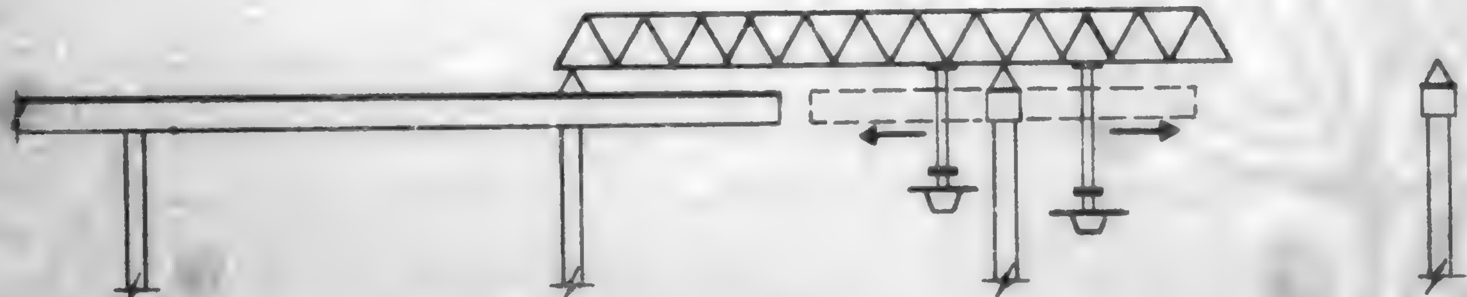
The importance of a construction method as it relates to the design of a prestressed concrete structure cannot be overemphasized. Unlike steel construction, where the strength of the material is about the same in tension and compression, if buckling is not a problem, prestressed concrete members must rely totally on prestressing



STAGE 1 POSITION SEGMENTS AND POST-TENSION
REPEAT UNTIL CLOSURE IS MADE

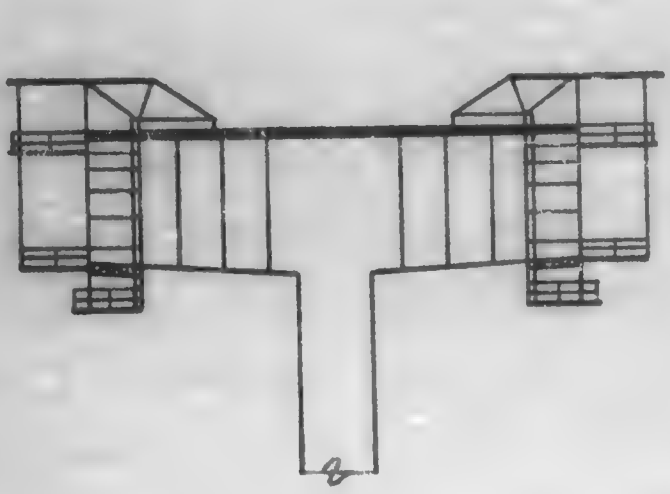


STAGE 2 MOVE TRUSS TO NEXT SPAN



STAGE 3 PROCEED AS FOR STAGE 1

CANTILEVER WITH AUXILIARY TRUSS



FREE CANTILEVER

FIGURE 7

PRESTRESSED CONCRETE ERECTION

force to resist tensile stresses, not only after completion, but during all stages of erection. As discussed in the preceeding section dealing with prestressing systems, it is equally important to leave the option of construction methods to the contractor, requiring him to submit for the engineer's review and approval detailed design computations including stresses and the proposed construction procedure. The final completed structure must, of course, conform to the design plans and specifications.

f. Structural Analyses

The following discussion is a brief summary of some of the major structural items investigated during the course of preliminary design. It is believed that these investigations have provided sufficiently accurate and reliable results and data from which conclusions can be made in regard to the feasibility of prestressed concrete construction for the proposed bridge. Stress investigations were made for all stages of loading, including the construction stage.

Primary bending moments are computed on the basis of conventional elastic frame analysis, taking into account the loading, boundary conditions of the structure, and erection procedures. Secondary moments due to creep and prestressing forces are evaluated and combined with the primary moments to obtain final moments.

Since the horizontal curvature of the bridge is very small, with no span having a subtended angle larger than 3°, its effect on the longitudinal bending moments is neglected. However, in the analysis of torsional moments, the effect of horizontal curvature is included, along with eccentric live loads and other lateral forces.

The pier columns are assumed to elastically restrain the torsional moments of the superstructure.

The full section of the box-girder is assumed to be effective in computing section properties for flexural strength. Investigations by others have indicated the validity of this assumption for girders with large span-to-width ratios. Adequate buckling strength of each element of the section and full effectiveness of the connections between elements are provided to insure an efficient section.

Present AASHO Specifications do not require shear stress investigations for working load conditions, and the shear reinforcement design therefore is based on the ultimate strength method. Under these criteria, there is no control of shear cracks in the girder webs under service loading conditions. Shear cracks are caused by principal tensile stresses. The British Code specifies certain limits of principal tensile stresses under working load and ultimate load conditions. The German Code takes a slightly different approach to shear design. It specifies that the principal stresses should not exceed certain limits under working load conditions. Furthermore, when principal tension under ultimate load conditions exceeds one-half of the ultimate limit, shear reinforcement would be required to carry a specified portion of the external shear. Shear reinforcement should be provided in accordance with these codes when principal tensile stresses exceed these limits.

The two types of shear stresses acting on the section are caused by vertical and lateral forces and by torsional moment. The distribution of shear stresses over the cross section can be calculated on the basis of an assumed thin-walled closed section. Longitudinal and transverse bending stresses are determined. Principal tensile stresses may then be computed from the shear and biaxial bending stresses by the classical method of determining the states of stress for an element. Theoretically, the principal tensile stresses thus computed are incorrect if the section is cracked. However, the British and German codes cited above disregard the cracked section by permitting principal tensile stress computations to be made on the basis of an uncracked section.

Principal tensile stresses may be reduced by diagonal or vertical prestressing in the webs or by increasing the cross sectional area of the webs. The design for shear should be investigated similar to the recommendations of the British and/or German codes.

The cross section is a transverse frame, with each part acting to support the weight of the top and bottom slabs and the live loads on the top slab. The frame will vary along the length of the girder with respect to geometry and section properties of the members, so that it is necessary to analyze a number of these frames to optimize the design.

In analyzing the transverse frames, each girder is assumed to be elastically supported, thus allowing differential deflections for different positions of live load. The roadway slab design, because of the large span, is beyond the empirical provision of AASHO specifications for wheel load distribution. It will be designed on the basis of elastic theory or the theory by H. M. Westergaard, presented in a paper entitled "Computation of Stresses in Bridge Slabs Due to Wheel Loads," Public Roads, March 1930. The yield line theory for slab design could be used to check the adequacy of the design.

The vertical girder stirrups provided for shear in the longitudinal direction also serve as flexural reinforcement of the girder in the transverse direction. The combined effect on the reinforcing steel should be taken into account.

The effects of temperature on the superstructure can be classified into two types. First is the change in superstructure length resulting from change in temperature. This produces stresses in the entire structure due to restraint by the pier columns. Second is the temperature differential between the exterior and interior of the box and the temperature variations in the elements, which are applied only to the transverse frame.

When shrinkage of superstructure concrete is combined with the effect of temperature variation, total contraction exceeds total expansion. Consequently, in prestressing the superstructure, it should be done in such a way that the differential motion of the piers is equalized.

Camber should be provided for the elastic and creep deflections of the superstructure due to all dead loads and prestressing forces. Deflection computations must take into account the various possible construction procedures, the concrete modulus of elasticity, creep coefficient and age of concrete when load is applied. Provision for adjusting deflections could be made by means of auxiliary tendons. Live load deflection will not be any problem because of the large ratio of dead load to live load. Maximum live load plus impact deflection in the main span is estimated to be about 3 inches.

The subsurface investigation report indicates that properly designed foundations will experience little if any settlement after completion of the structure. Differential settlement of supports will therefore not be considered in the analysis.

For earthquake analysis, horizontal forces as specified in Section II are used. These forces are considered acting either longitudinally or transversely.

In prestressed concrete structures, the structural member is subject to both internal and external loads. Within the range of working loads as used in elastic analysis, stresses due to internal loads remain fairly constant, and stresses due to external loads vary in direct proportion to the loads. Consequently, the resultant stresses are not proportional to the applied load. Moreover, when the concrete section begins to crack under overload condition, a redistribution of stresses within the section takes place. The section behaves like reinforced concrete for additional moment beyond the cracking moment. To insure that the section has sufficient reserve strength for overloads, an ultimate strength investigation is required. AASHO Specifications require that the ultimate strength of the section in flexure and shear be at least 1.5DL plus 2.5 (L+I). This provision apparently is intended for use in a statically determinate structure. For a statically indeterminate structure such as is proposed for this bridge, moments and shears caused by temperature, shrinkage and creep should be included in the most unfavorable combination. Ultimate strength for combined moment and shear and limit design should also be investigated.

The problem of fatigue was reviewed for the transverse frame design. Investigations by others[4] show that under working load conditions, when the section is not cracked, there is ample margin of safety against fatigue failure.

3. Structural Details

a. Cross Sections

Concept B cross section (see Plate 6) is designed as a single-cell box with cantilever slab on each side to fully utilize the strength of each element and to permit repetitive use of formwork with minimum adjustment required. This results in a most economical section. The thickness of each element is designed to meet the stress requirements and permit ease of placement of prestressing tendons, reinforcing steel and concrete.

Concept D cross section (see Plate 14) is a 3-cell box. The width of the bottom slab is increased, and although the thickness of each element in this section is reduced, there is an overall increase in the cross sectional area needed. Thus, the cost of constructing this section is more than that of the Concept B cross section.

---

[4] C. E. Ekberg, R. E. Walther, and R. G. Slutter, "Fatigue Resistance of Prestressed Concrete Beams in Bending," ASCE Structural Division Journal (Vol. 83, ST4), July 1957.

b. Prestress Tendons

Plates 8, 9 and 16 show typical layouts of the prestressing tendons. The prestressing tendons are divided into four groups: cantilever tendons, continuity tendons, diagonal or vertical web tendons and transverse tendons. Each tendon is placed in a rigid duct which is grouted after prestressing.

c. Mild Steel Reinforcement

Mild steel reinforcement is placed in all faces of concrete to control cracks, to distribute loads, to reinforce sections where prestressing is not used, to resist handling stresses, etc., and in general to improve the overall efficiency of the member. Although much of the reinforcing steel is lightly stressed under working load conditions, its contribution to the ultimate strength of the member may be substantial. Grade 40 reinforcing steel is used except where stress requirements warrant the use of Grade 60 high-strength reinforcing steel.

d. Construction Joints

Horizontal construction joints are not permitted except where the barrier curbs are connected to the box-girder. Concrete placement for each segment of the box-girder will be made in one continuous operation whether the segment is cast-in-place or precast.

For cast-in-place construction, joints between segments are made in a conventional manner with all longitudinal reinforcing steel properly spliced.

For precast construction, two standard types of joints are epoxy resin and concrete. Epoxy resin joints are made by applying a thin film of epoxy resin on the end of the segments and post-tensioning the segments together after the material is cured. Concrete joints are made by placing concrete 2 inches to 4 inches thick between the segments and post-tensioning when the concrete is properly cured.

Close tolerances on the contact surfaces of the segments are necessary for the epoxy resin joints. This can be achieved by casting one segment against the other. Epoxy joints require considerably less time to complete than the concrete joints. However, concrete joints allow adjustment to be made should there be some minor construction discrepancy.

In all construction joints, adequate shear keys will be provided for shear transfer. These shear keys also serve to align precast segments.

e. Diaphragms

Reinforced concrete diaphragms are provided throughout the structure, at the piers and hinges, and in the span to help distribute the loads and to control distortion of the section. It is planned to place a diaphragm at mid-span and at other locations as are warranted in the final design analysis. For the purpose of preliminary quantity estimates, maximum diaphragm spacing is assumed to be approximately 10 times the girder depth.

f. Curb and Median Barriers

The cross sections of the curb and median barriers will in general conform to the standard barriers used by the Oregon State Highway Commission except that the height of the curb barriers will be increased 4 inches. This permits the elimination of railings atop the barriers, without impairing safety, and enhances the view of the traveling public.

It is planned to have these barriers cast-in-place. However, the possibility of precasting the barriers will be considered in the final design.

g. Access

Access to the interior of the box-girders will be provided for inspection.

h. Drain and Vent Holes

Screened holes will be provided at the low point of each cell of the box-girder so that moisture will not be collected within the box. These holes will also serve to vent the interior of the box-girders.

i. Expansion Hinges

Expansion hinges are provided for articulation of the continuous structure. These are located near the dead load points of contraflexure, which are near the quarter points of the interior spans. The hinge bearings are designed to transmit shear forces, both vertical and lateral, and to allow longitudinal and transverse rotations and longitudinal movements of the superstructure. Special details to effect temporary continuity through the joint are required if cantilever construction technique is to be carried through the hinge.

A multiple-module precompressed joint-sealing system is planned for the roadway expansion devices. This will provide a water-tight and relatively maintenance free joint.

C. SUBSTRUCTURE

1. Subsurface Conditions

A complete soils report for this structure has been prepared by the firm of Cornell, Howland, Hayes & Merryfield. This is being submitted under separate cover and is titled "Preliminary Foundation Investigation For I-205 Columbia River Bridge." A brief description of the soils profile is included here for convenience.

For the river portion of the structure, fairly clean, fine to very fine, poorly graded sand overlies a very dense conglomerate. These sands vary in thickness from a few feet at the northerly edge of the main channel to sixty feet at the southerly edge of the main channel to eighty or ninety feet near the Oregon shore.

Along the alignment on the Washington shore, silty-clayey-well-graded weathered sand, gravel and boulders overlie a very dense conglomerate. This stratum varies in thickness from twenty feet on a major portion of the overbank structure to eighty or ninety feet at the Lewis and Clark Highway. On the flood plain, at the Washington shore, the conglomerate is exposed.

This very dense conglomerate, known as Troutdale formation, is capable of supporting the structure. Spread footings can be utilized where the stratum is close to the surface, and piling can be driven to or slightly into it where this would be more economical. Near the Lewis and Clark Highway, where the conglomerate dips to a great depth, spread footings on the weathered sand and gravel appear to be acceptable.

The allowable design bearing pressures and pile loads are indicated in Section II (Design Criteria) of this report.

2. Scour and Scour Protection

The riverbed sands are subject to general erosion during time of heavy flow and will be subject to local erosion around the bridge piers after they are constructed. This type of erosion or scour has had detrimental, and sometimes catastrophic, effects on other bridges.

In order to protect the bridge piers from scour, the depth of erosion should be limited by a rock blanket, by a weighted timber mattress or by placing the foundation at an elevation well below the maximum anticipated scour depth. The decision whether to provide for scour problems through a protective system or by embedment of foundations is a matter of economics. To arrive at a reasonable solution to the problem, a method of predicting maximum scour was used based on the results of an investigation at the Iowa Institute of Hydraulic Research.[5] It appears that scour depths of 35 to 50 feet below the riverbed could occur as pier shaft size, skew angle and water depth vary between the Oregon shore and main channel.

If a rock blanket or weighted timber mattress is selected to protect the piers from anticipated scour at these depths, it should be constructed as a rectangle extending out from each side of the pier shaft a distance equal to the anticipated scour depth. This will enable the blanket or mattress to intercept scour on a theoretical one-on-one slope to the maximum anticipated depth.

---

5. "Scour at Bridge Piers and Abutments," Bulletin No. 4, Iowa Highway Research Board, May, 1956.

To prevent general scour, a blanket or mattress approximately three feet thick should be placed in a preformed scour hole that is five to ten feet below the riverbed. If the blanket or mattress is protected in this manner, rock varying in size from 6 inches to one foot can be used with confidence that it will remain in place.

The other possibility of setting the pier base well below the maximum depth of anticipated scour is feasible but neither economical nor practical. The additional open excavation required to set a prefabricated concrete or steel pier base at that depth, and the extra effort required to keep the excavation open during pile driving and the setting of the bell appear to be unjustified. Also the additional bracing, sheeting and depth of seal required in a cofferdam pier would be economically prohibitive. The blanket or mattress is therefore considered the most economical and practical approach to scour control. With an adequate supply of rock in the area and considering all other factors, a rock blanket appears to be the best solution.

This scour protection will safeguard the final in-place bridge. Scour during construction is a separate problem and should be made a contractor responsibility.

3. Pier Bases

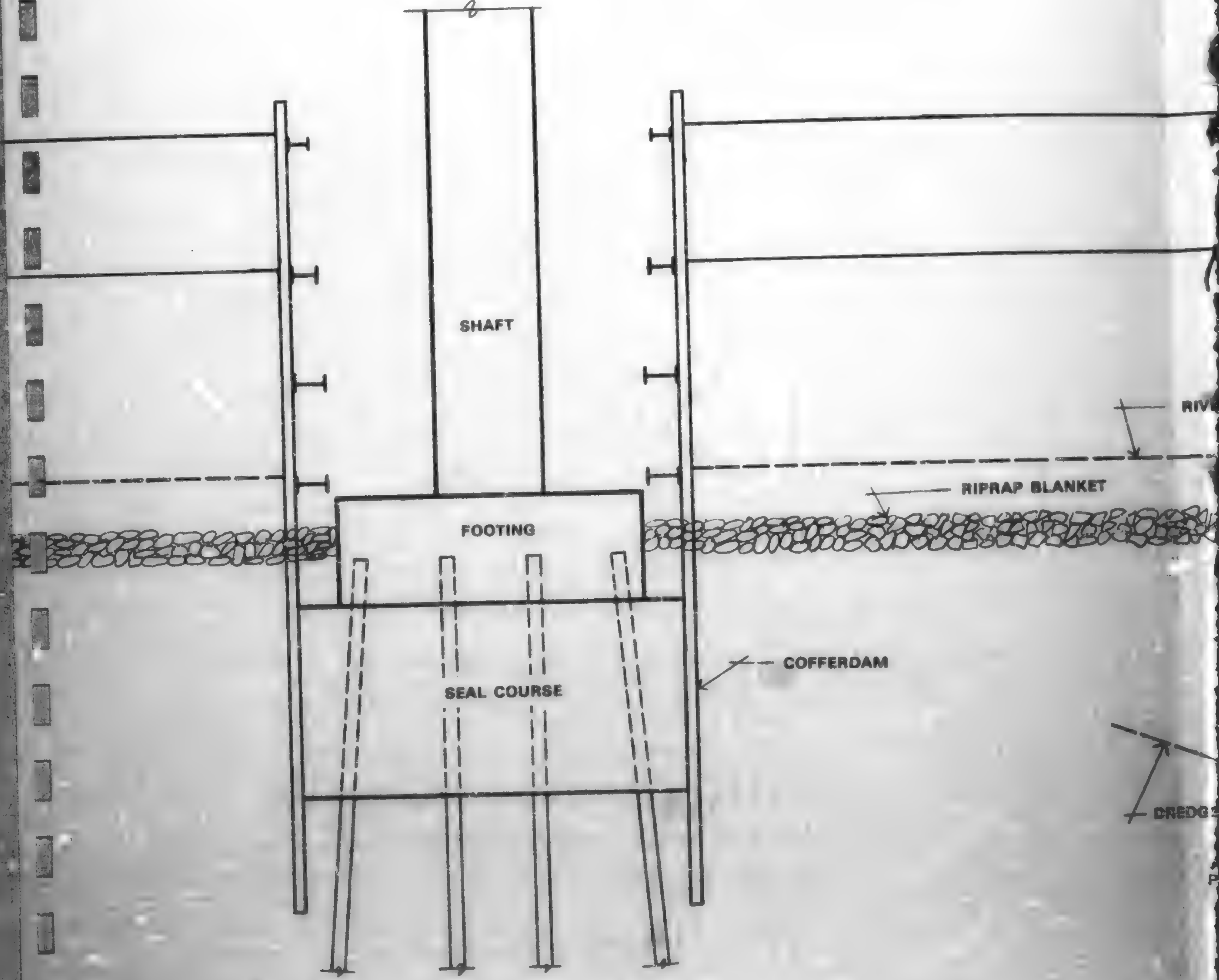
a. Overbank Piers

For the overbank portion of the structure in the State of Washington, it is planned to provide spread footings set into the Troutdale formation or, where this is impractical, pile-supported footings with the piling driven to that formation. In a few instances, spread footings on the compact weathered sand and gravel will be feasible. At some pier locations the depth of excavation required to reach firm foundation material may require shoring, cribbing, etc., and the presence of ground water will in all probability necessitate pumping. No unusual or insurmountable design or construction problems are anticipated for these land-based piers.

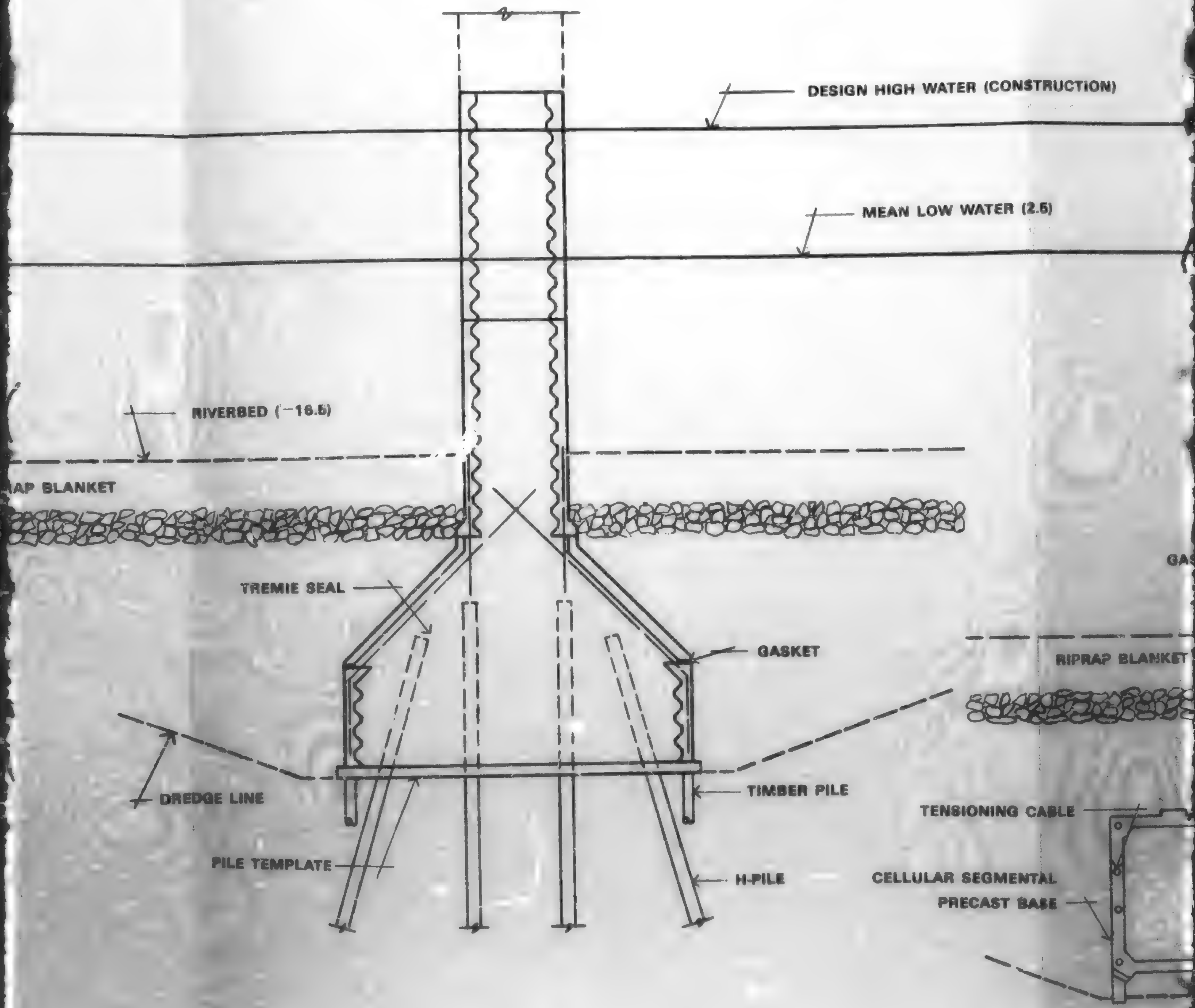
b. Water-Based Piers

The major portion of the structure will be supported on water-based piers, which will in most cases be founded on piles. The one exception will be the north main channel piers, which will be set at an elevation well below the top of the Troutdale formation and will therefore be considered as spread footings resting on that conglomerate.

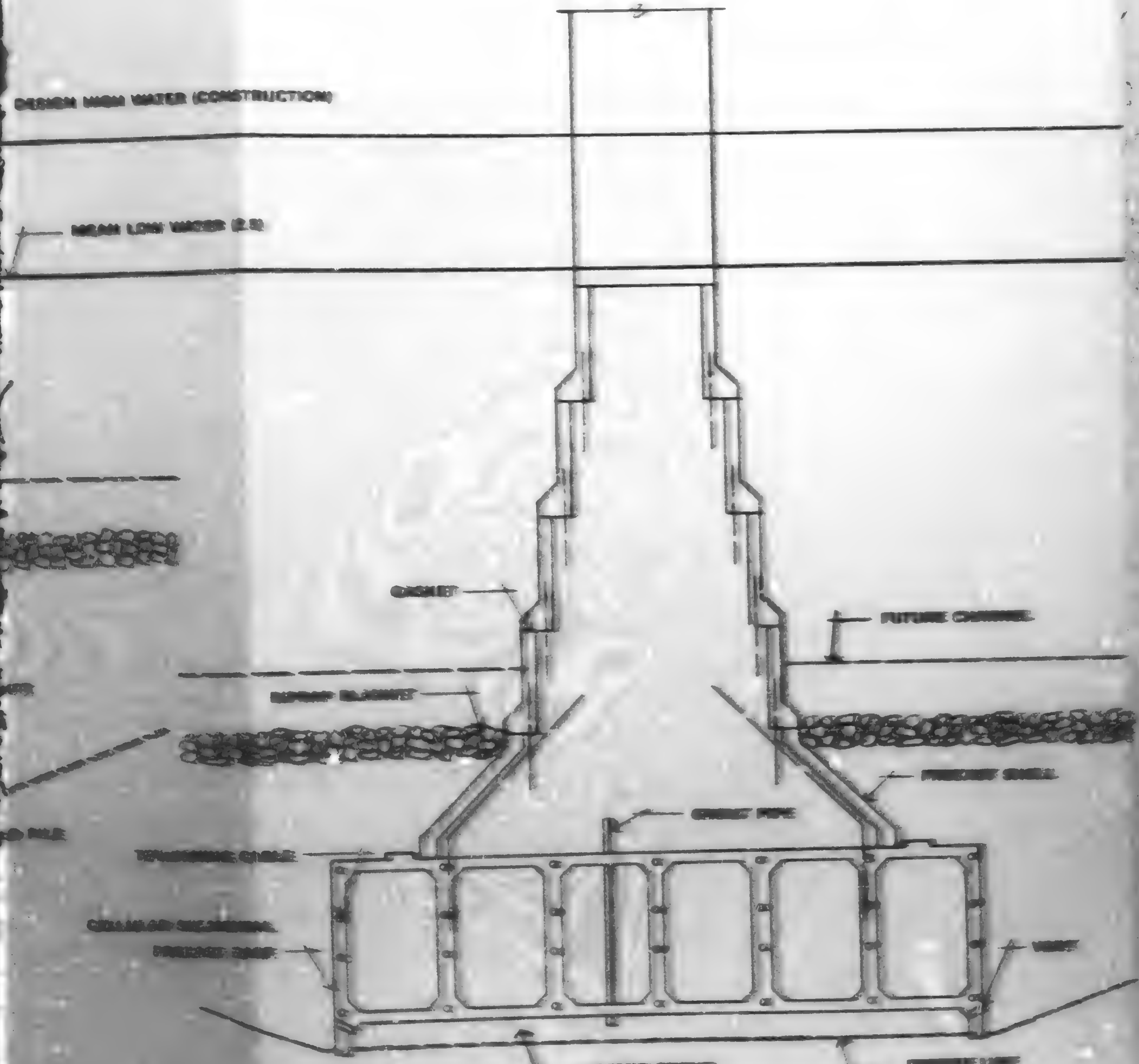
Several methods of construction are suitable for the construction of the pier bases in water. With the exception of the north main channel piers, cofferdam and seal course construction has some appeal (see Figure 8). The riverbed materials are of adequate quality to support a sheet pile cofferdam with the use of normal techniques. Sheet piling would be a maximum of seventy feet in length with the top of sheets being set with some freeboard to Elevation +12.0. Excavation would be minimized for this type of construction when compared with others, and there would be little or no problem from silting. After the pile-driving and seal course placement are completed, all footing and shaft work could be completed in the dry.


SHAFT
RIV
RIPRAP BLANKET
FOOTING
COFFERDAM
SEAL COURSE
DREDG
P

COFFERDAM


DESIGN HIGH WATER (CONSTRUCTION)
MEAN LOW WATER (2.5)
RIVERBED (−16.5)
AP BLANKET
TREMIE SEAL
GASKET
GAS
RIPRAP BLANKET
DREDGE LINE
TIMBER PILE
TENSIONING CABLE
PILE TEMPLATE
H-PILE
CELLULAR SEGMENTAL
PRECAST BASE

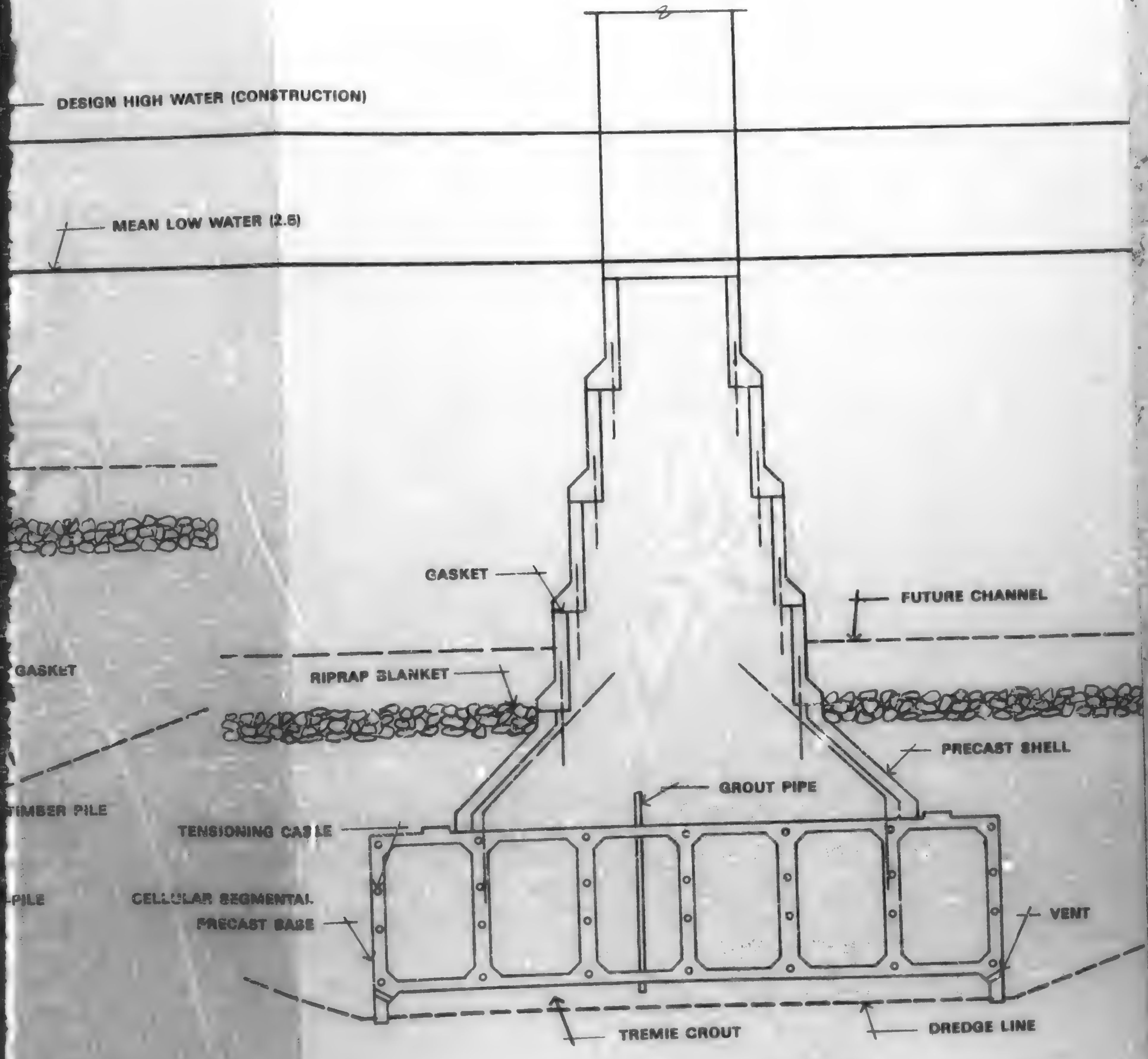
PRECAST SHELL


DESIGN HIGH WATER (CONSTRUCTION)
MEAN LOW WATER (2.5)
GASKET
FUTURE CHANNEL
RIPRAP BLANKET
PRECAST SHELL
GROUT PIPE
TENSIONING CABLE
CELLULAR SUBGRADE
PRECAST BASE
VENT
TREMIE GROUT
DREDGE LINE

PRECAST SHELL AND BASE

FIGURE 8

FOUNDATIONS



DESIGN HIGH WATER (CONSTRUCTION)
MEAN LOW WATER (2.5)
GASKET
FUTURE CHANNEL
GASKET
RIPRAP BLANKET
PRECAST SHELL
GROUT PIPE
TIMBER PILE
TENSIONING CABLE
PILE
CELLULAR SEGMENTAL
PRECAST BASE
VENT
TREMIE GROUT
DREDGE LINE

PRECAST SHELL AND BASE

FIGURE 8
FOUNDATIONS

Another accepted construction method is the use of prefabricated steel or concrete shells that are set in an open dredge excavation on a prepositioned pile template (see Figure 8). The dredged excavation of necessity is extensive with slopes of about 3 to 1. Timber piles for supporting the submerged weight of a pile template, the prefabricated shell and a seal course are driven into the riverbed and cut off at the predetermined elevation of the bottom of the template. After the pile template is set, the bearing piles are driven and the prefabricated shell is positioned, the base is sealed with tremie concrete, and subsequent work is carried on in the dry.

If steel shells are utilized, it is preferable to keep the top of the shell below low water, and to attach a temporary follower cofferdam to the top of the shell to permit work to continue with water surface elevations up to Elevation +12.0. With prefabricated concrete shells a follower cofferdam could also be used, or the shell could be extended to a height above Elevation +12.0.

The following tabulation compares the advantages and disadvantages of these two construction methods:

SHEET PILE COFFERDAM AND SEAL COURSE

Advantages	Disadvantages
No unusual construction techniques required.	A number of units would have to be provided for the large number of piers to be built.
Most contractors have equipment readily available for this type of construction.	System does not lend itself to production line fabrication.

SHEET PILE COFFERDAM AND SEAL COURSE
(Cont'd.)

Advantages	Disadvantages
Minimum amount of excavation required.	Depending on the number of units supplied, construction time required may be longer.
No silting of excavation anticipated.	Maximum amount of falsework required.
Slight adjustments in horizontal and vertical alignment possible after dewatering.	
Facilities other than concrete plant and storage yard not required.	

PREFABRICATED STEEL OR CONCRETE SHELL

Advantages	Disadvantages
Production line fabrication possible.	Heavy equipment required for handling.
Units are prepared as excavation and pile driving is in progress.	Fabrication yard and launching equipment required.
Faster construction rate possible.	Large excavation required with possible silting occurring.
Minimum amount of falsework needed.	Alignment adjustments must be built into units.

For all considerations, other than economic, one system of construction does not appear to have a decided advantage over the other. Preliminary estimates indicate that the use of a prefabricated concrete shell might permit an average saving, compared with a sheet pile cofferdam, of $20,000 to $50,000 for each water-based pier. However, the most economical approach might be to leave the choice of construction technique to the contractor. In this case, alternate design details would be required.

The use of a prefabricated steel shell was omitted from the economic comparison for several reasons. The steel shell would perform no function other than to serve as a form for concrete and a framework for attaching a reinforcing bar cage. The bars attached to the steel form create a trap for tremie concrete, and with each interruption or disturbance of concreting, additional laitance can form.

In addition, the cost of fabricated steel versus reinforced concrete does not appear to justify its use. The precast concrete shell contains the reinforcing bars within its dimensions, and although reinforcing steel projects from one tier to another the interruption to flow of the tremie concrete is minimized, thus reducing the likelihood of laitance formation. The main advantage in the use of a prefabricated steel shell is the reduction in handling weight.

c. North Main Channel Piers

The north main channel piers will of necessity have to be set into the Troutdale formation. This conglomerate will resist efforts to drive piling or sheet piling and in all probability will have to be broken up by explosives in order to excavate to the desired base elevation. The allowable bearing pressure on this conglomerate dictates the use of a much larger base than for the pile-supported units and therefore requires that consideration be given to modified construction techniques to reduce the handling weight of the precast shells.

A unit as indicated in Figure 8 can be used for the base, which will enable the remainder of the pier to be built in conjunction with other substructure units. This base would be made up of conventionally reinforced cellular concrete units floated into position, post-tensioned into one complete unit and sunk into the excavation. After leveling, the base could be grouted, all chambers filled with water and the remainder of the pier constructed.

As an alternative a steel shell can be used for this unit as the decreased handling weight might override other mitigating factors.

4. Pier Shafts

The treatment of the shape and texture of the pier shafts is an aesthetic problem, and as such has been discussed in Section III of this report.

The structural considerations for the pier shafts permit limiting their width normal to the roadway alignment to between one-third and one-half of the roadway width. The breadth along the roadway alignment should be limited to a dimension between one-tenth and one-twentieth of the clear height of the pier.

On this basis, shaft sizes will vary from about 4 by 30 ft to 16 by 30 ft, and as such, should be provided with a hollow core to reduce the dead weight. Selected pier shapes and sizes for different schemes are shown on Plates 4, 7, 12 and 15.

5. Pier Location and Orientation

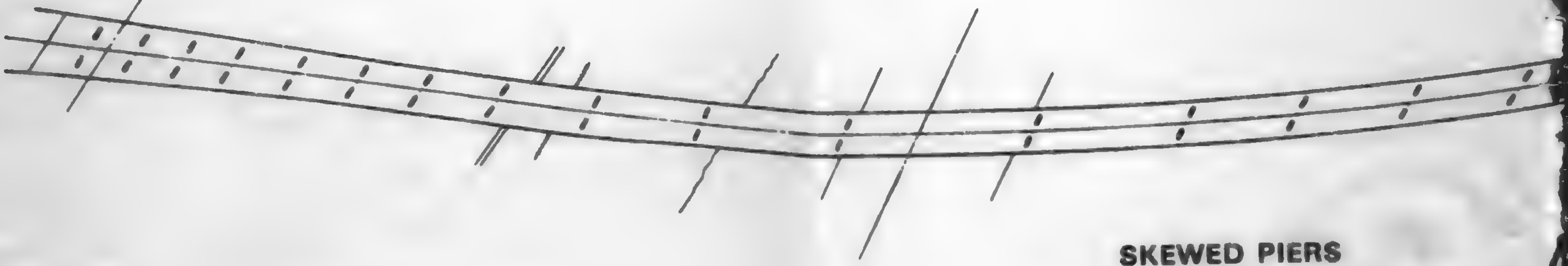
a. General

For the river portion of this structure, the selection of the pier locations and the pier shaft orientation with respect to the superstructure and the direction of the river flow are influenced by several factors. In addition to economic span arrangement and appearance, which are discussed in other sections of this report, the restriction of the waterway opening, provision for unimpeded flow of river navigation, and the minimizing of scour-contributing elements are considerations which must be taken into account.

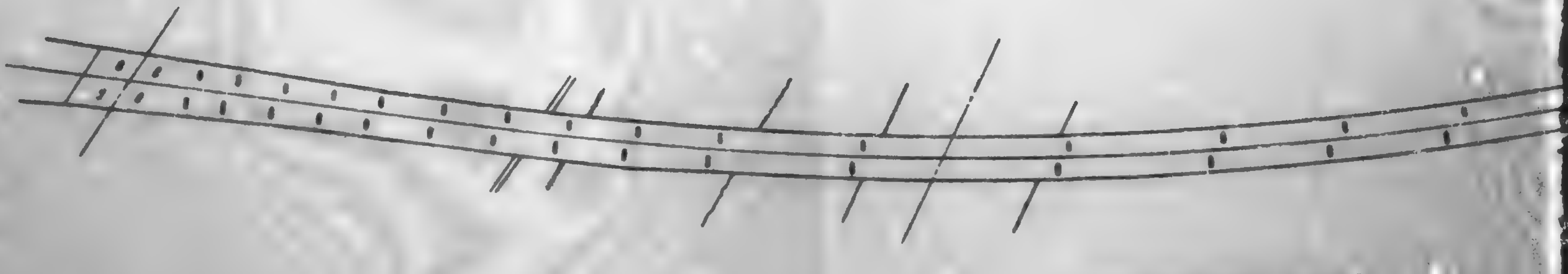
b. Waterway Opening

The construction of these river piers will restrict the waterway opening to a degree. The least restriction can be achieved by aligning the pier shafts with the direction of flow (see Figure 9 - Skewed Piers) and minimizing the width of all shafts. This will create a skewed alignment with respect to the superstructure of angles varying from 27° to 49° left advance. It is felt that this arrangement is feasible for a structural steel superstructure but should not be considered in the design and construction of a prestressed segmental concrete superstructure.

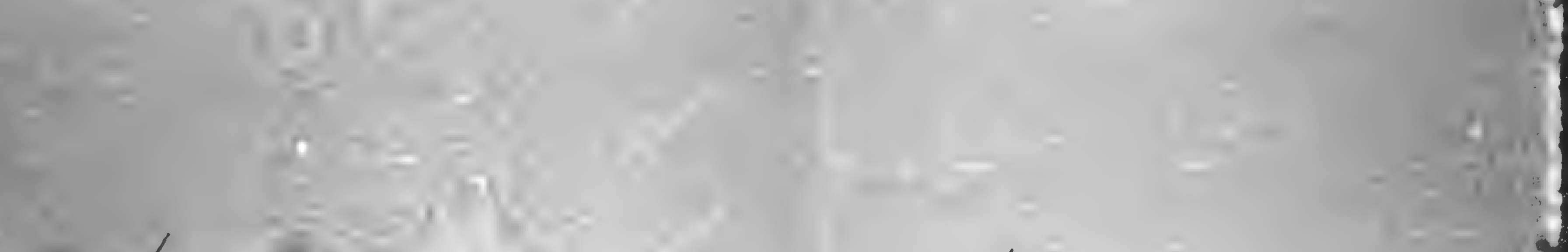
An acceptable alternate to skewed piers is an arrangement wherein the piers for each roadway are set normal to the superstructure and aligned with each other with respect to the direction of flow in the river (see Figure 9 - Staggered Piers). This would result in a staggered effect as the pier for one roadway would precede the pier for the other roadway by some 30 to 70 feet. Although the restriction of waterway opening is greater than for skewed piers, this scheme is more acceptable for the design and in particular the construction of a prestressed segmental concrete superstructure.



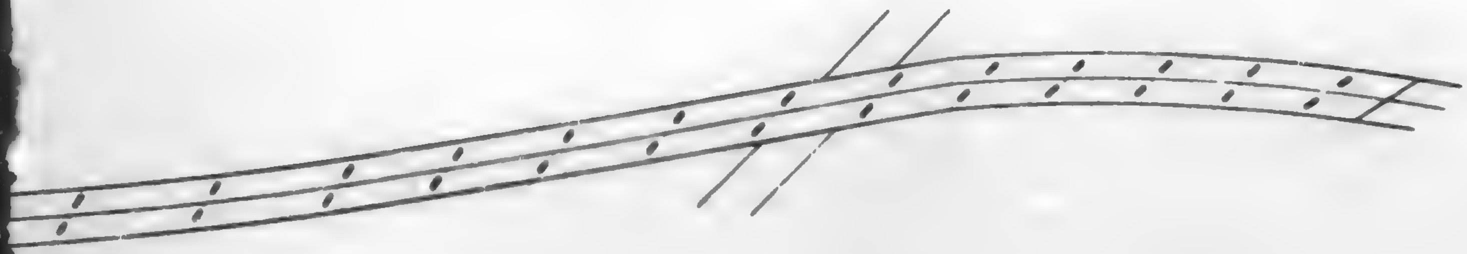
SKEWED PIERS



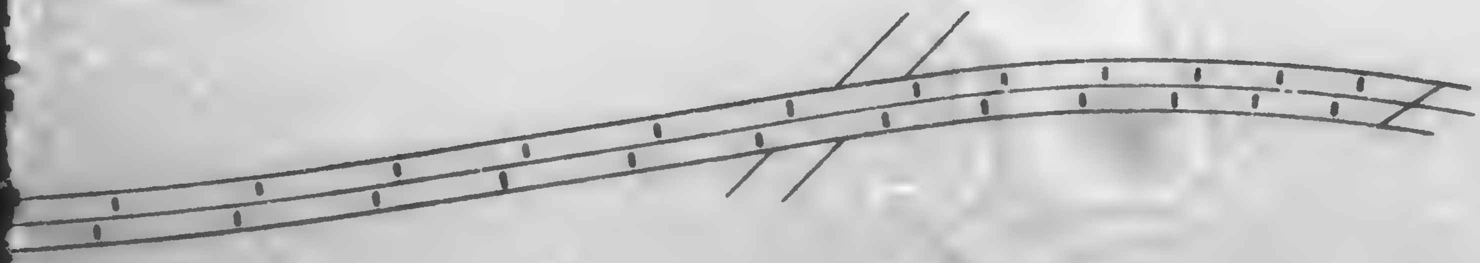
STAGGERED PIERS



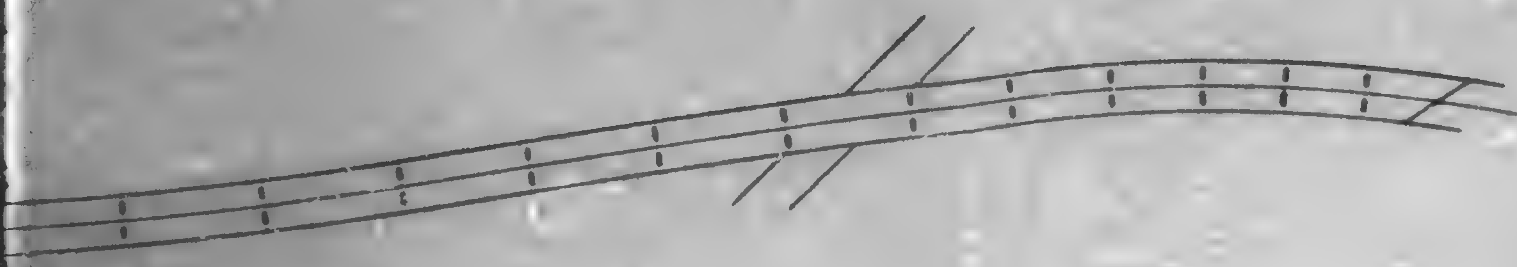
ALIGNED PIERS



PIERS



PIERS



PIERS

F

PIER LOCATION AND ORIE

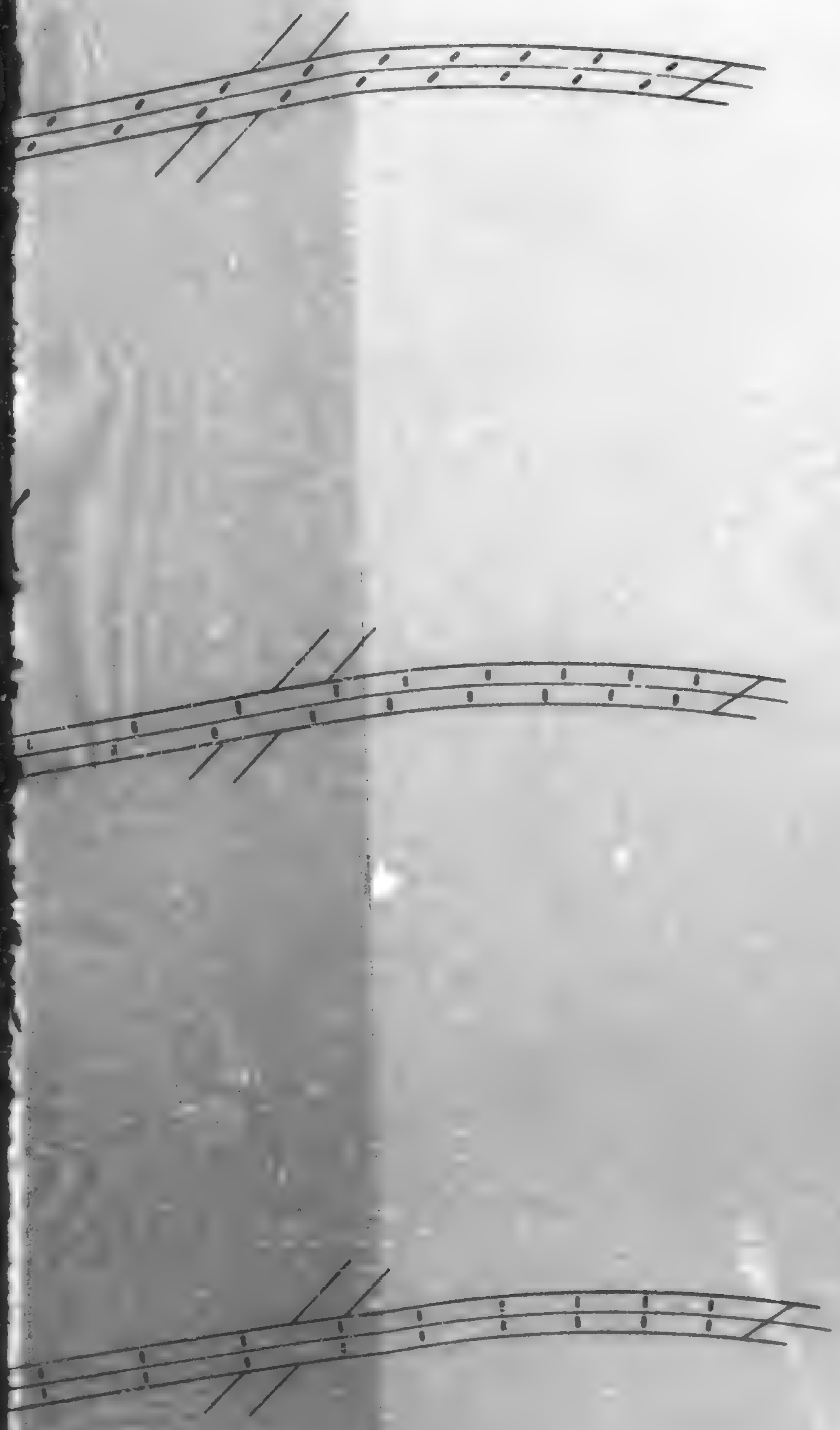


FIGURE 9

PIER LOCATION AND ORIENTATION

From an appearance standpoint, especially as viewed from Marine Drive, it is desirable to align adjacent piers in each roadway and to set them normal to the superstructure (see Figure 9 - Aligned Piers). However, this arrangement of piers creates the most restriction to the waterway opening of any scheme.

The effect of restriction of the waterway opening by the piers in causing increased backwater elevation and possible increase in the velocity of the water through the bridge opening could be a subject for additional investigation.

c. Navigation

The location and orientation of the river piers can have an effect on the ease of navigation through the bridge opening. If pier shafts are aligned with the designated river channel openings, they tend to have a guiding influence on the passage of river traffic. The arrangement of piers to achieve this guiding effect would be in the same order of preference as for the restriction to waterway opening.

d. Scour

Among the elements contributing to riverbed scour are the alignment of the pier shaft with respect to the direction of flow and the length-to-width ratio of the shaft itself. As either or both of these factors are increased, additional scour can be expected. On this basis, the optimum pier orientation is pier shafts aligned with river flow.

6. Abutments

The abutments at the north and south ends of the structure will be placed on roadway embankments. It is intended that friction piles will be used to support these units if the fill has been in place long enough for settlement to occur.

The abutments provide seats for the superstructure and roadway approach slab and a backwall and wingwalls to retain the approach roadway fill. These wingwalls follow the alignment of the roadway and provide for the retention of the approach roadway fill, the continuation of the parapet barrier and a terminus for the attachment of approach roadway guardrail.

Suggested details for the abutments are shown on Plate 18.

D. ECONOMIC SPAN LENGTHS

With the exception of the spans over the main channel and possibly the small craft channel, the selection of a span arrangement for this structure should be based on the economic advantage of one span length over another with respect to any given pier height. Another consideration is the appearance of the structure, which dictates the need of decreasing the span lengths as the pier heights decrease.

As a guide to the selection of an economic span arrangement, current construction prices were applied to preliminary design quantities for the basic schemes developed in this report for a structural steel superstructure (Concept A) and a prestressed segmental concrete superstructure (Concept B). It is realized that escalation will affect the total cost; however, the relationship of one unit cost to another should remain in general balance.

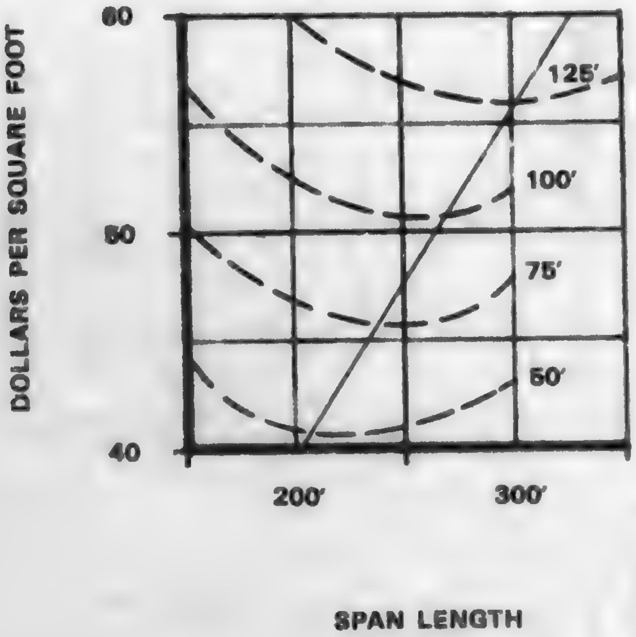
Because of the divergence of types of construction between the Oregon approach, where water-based techniques will be used, and the Washington approach where land-based techniques will be used, separate solutions were pursued for those cases.

The results of this study are presented in graphic form in Figures 10 and 11. It is to be noted that span lengths are plotted against the costs per square foot of roadway surface. A curve of total construction cost, including substructure and superstructure, is plotted for a given pier height. The point on the curve where the slope is equal to zero represents the optimum span length for the expenditure of construction dollars. If curves are drawn for various pier heights and the points of zero slopes are connected by yet another curve, an approximation of the optimum span lengths can be made.

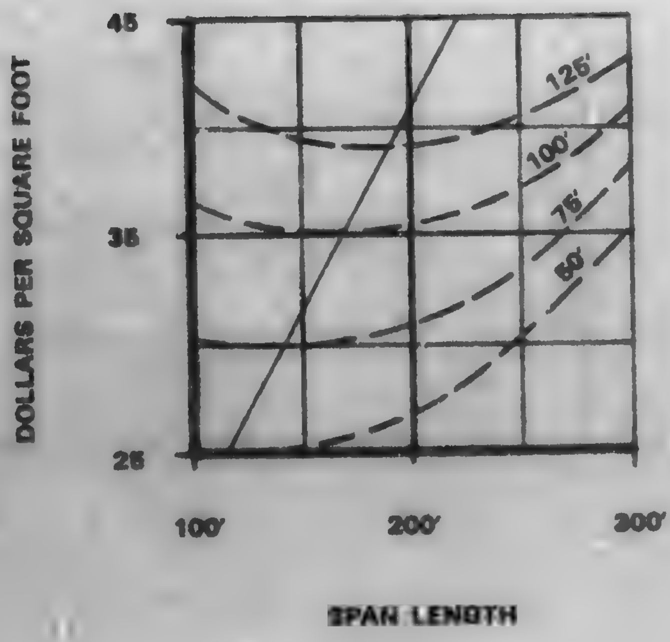
If these charts are utilized as a guide to layout of the spans and a slight readjustment of these spans is made for appearance, it is felt that an economical and generally appealing structure should be realized. The general plans and elevations shown on Plates 2, 5, 10 and 13 have been developed in this manner.

E. RELOCATED MARINE DRIVE

Marine Drive is presently located on the riverbank north of the Portland International Airport. When extensive dredging and filling work is accomplished by others to extend the airport, this drive will be relocated to again provide a scenic drive along the river's south bank. As the end of the bridge will be in the vicinity



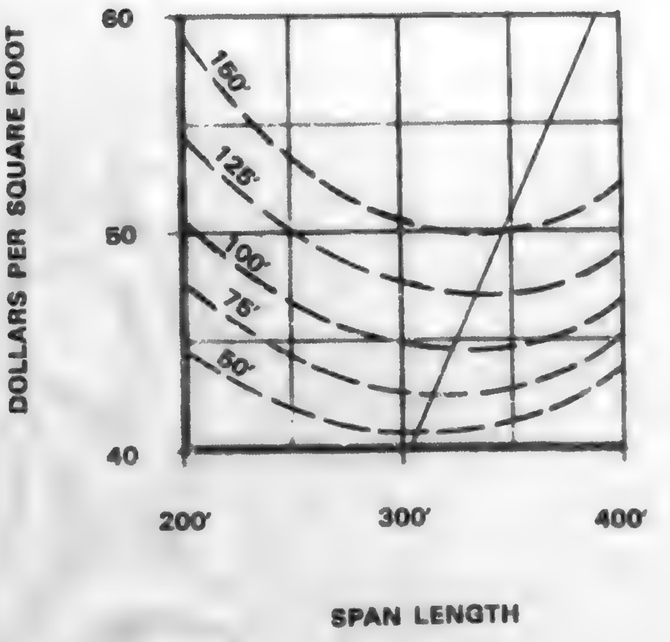
WATER PIERS



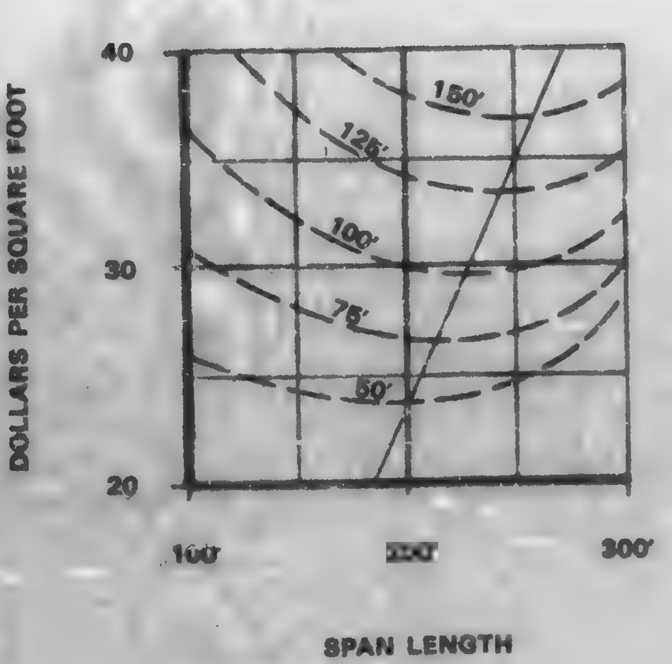
LAND PIERS

FIGURE 10

ECONOMIC SPANS – STRUCTURAL STEEL



WATER PIERS



LAND PIERS

FIGURE 11

ECONOMIC SPANS — PRESTRESSED CONCRETE

of the I-205 intersection with relocated Marine Drive, the crossing will have to be incorporated into the end of the bridge or provision must be made for a separate grade separation structure.

Both of these possible solutions are presented for consideration by the agencies that will be involved in the ultimate decision for locating this crossing.

Plans by others indicate that Marine Drive will have a width of fifty-six feet curb-to-curb and will follow a profile grade of about Elevation 25.0±. Fifteen feet of vertical clearance must be provided as a clear height between the drive and the underside of the separation structure.

If this crossing is to be made within the limits of the river bridge, a bench for Marine Drive can be made in the embankment slope. The bridge abutment would have to be moved some one hundred feet further to the south, with the deck depth limited to approximately seven feet plus or minus, to accommodate the necessary clearances.

In the event a separate grade separation structure were to be provided for this crossing, it would be located south of the proposed bridge abutment, and depending on the angle of crossing, the necessary roadway surface area of this structure would be generally equal to or somewhat larger than that required at the main structure. This separate bridge could be composed of: 1) full depth abutments with wingwalls and a slab span; 2) a three-span continuous slab span with stub abutments and bents; or 3) a three-span bridge of prestressed concrete girders made continuous for live load.

Several schemes are presented on Plate 17, and the provision for Marine Drive for either scheme is shown in the presentation of the river crossing on Plates 2, 5, 10 and 13. Where cost estimates are made and a separate structure is required, the price of that structure is included for comparison purposes.

From the standpoint of appearance, the Marine Drive crossing might best be accommodated by a separate structure. If this separate bridge were provided, it would be possible to coordinate all aesthetic values of the river crossing into one complete unit without compromising the southernmost span, approach fills and abutment to accommodate this crossing.

V AUXILIARY INSTALLATIONS

A. BRIDGE DECK WATERPROOFING AND WEARING SURFACE

The study of structural steel girders supporting reinforced concrete decks, orthotropic girders with steel deck plates, and prestressed segmental concrete construction leads to the investigation of several aspects of deck protection.

1. Concrete Deck

Conventional steel-supported concrete bridge decks have in the recent past been the subject of intensive studies by many agencies of measures to prevent their deterioration. Cracking, scaling, and spalling are the most commonly reported failures of the riding surface. Spalling, the most serious failure, is mainly the result of corrosive influences, such as moisture and chlorides, reaching the reinforcing steel.

High-quality air-entrained concrete, greater cover over reinforcing steel, periodic applications of linseed oil, or an immediate or eventual layer of membrane waterproofing protected by an asphaltic wearing surface are some of the preventative or protective measures being used.

The membrane waterproofing could be a built-up system of coal-tar emulsion and fiberglass fabric or any of several proprietary systems now available, some of which have experience records. The costs of these systems vary from about $0.40 to $2.00 per square foot. The time required to place these systems and properly cure them varies from a few hours to several days.

Some agencies advocate the early placement of a waterproof membrane and its protective wearing surface. In a number of instances this installation has been made prior to opening the structure to traffic. There is presently no way to evaluate quantitatively the pros and cons of providing deck protection initially or at some future date. The additional cost of providing deck protection during initial construction must be weighed against the cost, curtailment of traffic and necessary repair work that would accompany placement of a protective system at a later date. For this structure it is recommended that a non-participating additional inch of integral concrete be added to the slab as a wearing surface, and that allowance be made for the additional dead load of a future waterproof membrane and asphalt wearing surface.

2. Orthotropic Deck

Several orthotropic girder installations have been completed in this country in the recent past, and in one case the selection of a wearing surface was based on the performance of a test bridge installation.

The wearing surface installations tested included a 2-1/2 to 5 mil layer of inorganic zinc applied on the sandblasted deck plate, two applications of coal-tar epoxy, each 8 to 10 mils in thickness, stone chips spread at the rate of 5 to 8 pounds per square yard while the coal-tar epoxy was still tacky, and two courses of asphaltic concrete totaling about 2 inches in thickness. Epoxy asphalt or an addition of rubber latex to the asphalt at the rate of 5 percent by weight assists in reducing water seepage through the asphalt.

If an orthotropic girder design is adopted for the longer spans on this project, a wearing surface over the deck plate, as described above, would be recommended. The total cost of this protective surface is estimated to be about $3.00 to $4.00 per square foot.

3. Prestressed Segmental Concrete Construction

Deck protection in the form of membrane waterproofing and the installation of an asphaltic wearing surface is strongly recommended as a first order of work following the completion of this structural type. The installation could follow procedures as outlined in part A. 1. of this section.

In the case of prestressed segmental construction the deck performs the function of being an enclosure of the all important longitudinal tendons, acts as a transverse distributor of applied loads and functions as a longitudinally stressed member when compression exists in the top flange. Cracking, scaling, and spalling of the deck becomes much more detrimental to the integrity of this structure, compared to a conventional girder-supported concrete deck. Consequently, the additional initial construction cost of $0.40 to $2.00 per square foot for the installation of deck protection on a prestressed segmental concrete bridge becomes a minimal insurance cost for the continued structural performance of the deck. The European pioneers of this type of construction have in most cases provided for initial deck protection, in some instances with a most elaborate system weighing up to 70-plus pounds per square foot.

It is considered essential that a protective membrane and wearing surface be installed to insure structural integrity and to provide a smooth riding surface over the jointed structure.

B. DRAINAGE

The drainage system on the proposed structure must dispose of a rainfall intensity of approximately 1.6 inches per hour without flooding more than about one-half of the shoulder width. A system which discharges immediately below the deck can be used except as required over the vicinity of roads or railroads where a collector system would be necessary.

If a structural steel superstructure supporting a reinforced concrete deck is selected for this bridge, standard drains and grates could be set into the deck to intercept the runoff. The spacing of these drains could be several hundred feet and would not have to be placed near transportation facilities under the bridge, thereby eliminating any need for a collector system.

If segmental prestressed concrete construction is adopted for the superstructure, the close spacing of prestressing tendons near the surface of the deck leads to the selection of a drainage system which would minimize interruption of these structural elements. A small rectangular galvanized steel box set in the roadway surface and discharging below the deck would provide the necessary drainage. This box could be 5 x 12 inches with the 12-inch dimension paralleling the curb with a 1-inch bar set at its centerline. The spacing center-to-center would have to be about 15 feet on the portion of the bridge with slight gradients to about 50 feet as the gradient increases. The location of these boxes might necessitate a collector system near other transportation facilities.

C. SIGNING

Proposed signing to be located on the bridge is shown on Plate 19. The signing has been developed in accordance with the "Manual for Signing and Pavement Marking of the National System of Interstate and Defense Highways" published by the American Association of State Highway Officials. The number of bridge-mounted signs is held to a minimum in order to reduce clutter; supplementary signs such as State boundary markers will be located on the approach fills.

Overhead illuminated signs are required at four locations, as shown on Plate 19. The supports are rectangular, steel box-sections fastened to the top of bridge parapets. Support legs are tapered in the direction of traffic for stability and tapered in the opposite direction to fit the narrow median parapet barrier. Although the narrow median precludes the desired setback of sign support from edge of shoulder, the sloped parapet barrier faces will minimize the possibility of vehicles striking the supports.

The estimated cost of the four overhead sign supports is $24,000, exclusive of sign panels and illumination, compared to an estimated cost of $18,000 for the conventional truss-type sign supports in common use. This additional expense is believed warranted in view of the improved appearance of the sign installation. Utilizing the curved and tapered single member as a sign support is more in keeping with the character of the bridge than are truss-type supports. The proposed sign support design is also recommended to be used in the interchange with SR-14 at the north end of the bridge.

D. ELECTRICAL

1. Roadway Lighting

a. Criteria

Roadway lighting will be designed in accordance with the American National Standards Institute's Publication D12.1-1963-"American Standard Practice For Roadway Lighting." Under the classification of "Expressways and Freeways - Continuous Urban," the minimum average horizontal footcandles will be 1.4. Uniformity, the ratio of the lowest footcandle value at any point on the pavement to the average value, will not be less than one to three.

b. Methods

Two general methods of roadway lighting are considered applicable to this structure: 1) a conventional system of poles and bracket arms supporting overhead luminaires with high intensity discharge type lamps located on parapets and median; and 2) a system of specially designed flourescent luminaires, low-mounted in continuous rows along parapets and median.

c. Type and Height of Source

Modern overhead systems employ one of the high intensity discharge (HID) lamps which include mercury vapor, sodium, and metal halide. HID lamps are characterized by qualities of high luminous efficiency (ratio of light output to electric power input), long life, and maintain a good light output resulting in favorable economics.

Since this light source is very intense, it must be mounted high in the air to avoid glare. Because of the relationship of this structure to the airport, a maximum height of 30 feet above the roadway has been imposed. This factor of relatively low mounting height for a high intensity source, combined with the considerable width of the structure offers some design problems in obtaining good lighting uniformity on the roadway surface.

Poles would be mounted on each of the three parapet barriers at a spacing of about 200 feet. The poles on the median barrier would be alternated with those on the outer barriers by one-half this spacing or about 100 feet. The construction cost of this installation would be about $160,000.

d. Low-Mounted Systems

Low-mounted systems, such as parapet lighting, are not new in concept, but have not found wide acceptance. This is probably due in large measure to economics. Experience has shown that these lights must be virtually continuous to be effective. For the wide roadways on this structure, lights would be necessary on both outer parapets and "back-to-back" in the median. The construction cost of a low-mounted system of roadway lighting is estimated to be approximately $460,000. Maintenance costs will be greater than for an overhead system, because of the greater number of lamps, greater vulnerability to damage and frequent cleaning of the luminaires.

A low-mounted system would provide a better lighting system for this structure from the point of view of the traveling public and navigation of aircraft and rivercraft.

Another evident difference in the systems is in appearance. Many see poles and overhead luminaires as objectionable, particularly during daylight hours. Low-mounted luminaires are much less conspicuous and offer no visual obstruction to the motorist since they are below eye level.

e. Comparison

Because the two systems are so different, objective comparison is difficult. However, it is concluded that for this structure advantages provided by a low-mounted system come at too high a price. The system further suffers from lack of predictable quality based on precise data gathered from reliable authorities.

A high-mounted system with HID lamps is therefore recommended. The exact lamp type (mercury, sodium, metal halide) and distribution will be determined during the final design phase.

2. Navigation Lighting

Navigation lighting will be provided for this structure in accordance with Coast Guard requirements. For this structure, navigation lighting must be approved by the Commander of the Thirteenth Coast Guard District located at Seattle, Washington.

3. Grounding

An adequate grounding system is essential to protect personnel from shock, prevent outages of navigation and roadway lighting, and prevent damage to electrical equipment and bridge structure.

Details of grounding will be developed as a part of final design. In general, the system will consist of a horizontal bus extending the length of the bridge, with connections to steel foundation piles or driven rods. All electrical equipment will be connected to the ground bus.

4. Communication System

It is recommended that some type of call system for emergency use of motorists be provided. Such a system may be voice or signal and may be used to summon a tow truck, fire department or ambulance.

Criteria for such a system should be developed, including a suitable location where incoming calls would be monitored and appropriate response initiated on a 24-hour basis.

5. Miscellaneous

It is recommended that the interior of the superstructure be utilized for installation of electrical distribution equipment and that a minimum lighting system be provided for safety of personnel engaged in servicing and inspection.

Consideration will be given during final design to the installation of lighting at the locations where roadways pass under the I-205 structure.

Aircraft warning lights are not required on the bridge.

E. FENDER SYSTEM

Because of their slenderness, the bridge piers flanking the main navigation channel must be protected from serious collision damage and possible destruction by a suitable fender system. Fender systems studied include rock-filled steel sheet-pile cells, rock-filled timber crib walls, and fixed and floating structures attached to the piers.

1. Criteria

The criteria used to determine the recommended size and type of fender are summarized as follows:

a. General

1) The set-back of the pier from the channel limit line, to provide space for fender, should be held to a minimum to permit the shortest practicable bridge span.

2) The fender should have both elastic and "crushable" properties to provide "spring" action for minor impacts and to be capable of absorbing the kinetic energy of heavy impacts by crushing, without exerting damaging forces on the pier.

3) Shape and appearance of the fender should, as far as possible, harmonize with architectural features of the bridge.

b. Waterway

1) Water surface elevation for analysis, Elevation 28.0 (predicted 100-year flood).

2) Maximum current velocity, 5.0 fps.

3) Dredged channel depth, Elevation -37.5

c. Watercraft

1) Displacement, 50,000 long tons maximum. May consist of a tow of barges or a ship.

2) Velocity, 5 fps (maximum river current)

3) Angle of impact, 30° relative to face of fender except at upstream end where head-on collision is assumed.

d. Basic Equation

$$K.\ E. = \frac{CW(V \sin \phi^2)}{2g} = \frac{F_1 d_1}{2} + F_2 d_2$$

Where K. E. = Energy to be absorbed by fender system and vessel

W = Vessel displacement, tons

V = Velocity of vessel, fps

ϕ = Angle of impact

g = Acceleration of gravity = 32.2 fps

C = Correction factor, involving coefficients applicable to eccentricity, geometry, and deformation of vessel; fender configuration; virtual mass

F_1 = Maximum force acting on elastic portion of fender

d_1 = Elastic deflection of fender

F_2 = Average force crushing fender and ship

d_2 = Distance through which F2 acts

For minor collisions, the elastic components of the fender are assumed to absorb the energy. For major destructive collisions, the energy is absorbed by permanently deforming the fender and vessel hull structure.

Application of above formula involves considerable approximation and judgment, especially for inelastic action. In making comparative cost estimates, the sizes of the various types of fender structures were established largely on the basis of prior experience.

2. Fender Types

Three rock-filled sheet-pile cells, 40 ft in diameter, and about 85 ft high above dredge line, with sheet pile penetrations of

15 to 18 ft would be required to protect each main pier. The cost of six such cells is estimated to be about $1,250,000.

If rock-filled timber crib walls were used, they would have to be sunk to the river bottom and would extend to about 85 ft high above the dredge line. The crib walls would vary in width from approximately 30 ft at the river bottom to about 10 ft at the top. The total cost to protect the main channel piers in this manner is estimated to be approximately $2,000.000.

Floating fenders, in the form of a boat, would encompass each pier. This system would be of steel box-girder construction, timber-faced, and with rubber tube cushioning against the pier to resist smaller impacts without damage. Floatation chambers would be filled with styrofoam. The estimated cost of floating fenders for the main channel piers (staggered) is approximately $850,000. For other pier arrangements, the price would increase.

3. Comparison

The effectiveness of steel sheet-pile cells is limited because adequate penetration into the riverbed is not attainable, due to the hard strata. However, even under favorable driving conditions, replacement of damaged or turned-over cells would be very costly. Also, the considerable portion of the cells exposed to view does not harmonize with the bridge structure. Rock-filled timber cribs have disadvantages similar to those of the cells, and would, in addition, require considerable maintenance. Because of water depth and considerable variation in water level, all types of fixed fender structures are comparatively costly and would conflict with the uniform appearance of the bridge piers at normal river stages. However, an advantage of the free standing, independent structures is that the piers are not subjected to ship impact forces as long as the fender piers are fully effective. With attached fenders, the piers must sustain the force which produces the deflection or crushing of the fender.

The symmetrical floating fender, as shown on Plate 20, is recommended for use on the piers adjacent to the navigation channel. The fenders should have covered top surfaces to prevent collection of debris and drift within the fender structure.

F. INSPECTION ACCESS

The continued trouble-free service life of a structure is of concern to the owner, the designer, and the traveling public. In addition to the proper selection of construction materials, the development of trouble-free details, and the application of protective coatings to steel and concrete surfaces, access for inspection, routine maintenance and minor repair or replacement is an important consideration.

For a prestressed concrete structure, access to the interior of the box-girders can be provided through manholes in the deck, doorways and ladders in a few selected piers, or trap doors in the bottom of the box near the abutments. A continuous route through the interior of the box-girder can be achieved by providing openings through diaphragms, and in the instance of the multi-cell box-girder, openings can be provided through the interior webs at selected locations.

For a structural steel superstructure, access to the interior of box-girders and bridge seats can be accomplished by means of manholes and ladders.

The navigation lighting system will have to include mounting details that will permit maintenance access from the deck or watercraft. Ladders and platforms would supplement these details where necessary.

It is felt that an installation comprised of ladders, platforms and manholes can provide the means of gaining access to problem areas which would otherwise go unnoticed.

VI CONSTRUCTION

A. CONSTRUCTION SCHEDULE

The construction schedules for the proposed bridge, shown on Figures 12 and 13, are based on five separate but coordinated phases of work. These are substructure for overbank and marine installations, and superstructure for overbank erection and, for marine installation of approach spans and for main channel spans. The main channel spans superstructure has been separated from other work since these longer spans require different types of construction operations than do the marine approach spans.

It is anticipated that the substructure contractor would make the main channel span piers his first order of business, with the other river piers to follow. During periods of high water, when construction of certain river piers would be affected, the contractor should concentrate his efforts on the overbank piers.

Upon completion of the main river piers and with the construction of the approach piers well under way, the superstructure contractor can commence his field operations. All phases of work at that time must be coordinated to insure that units are available when needed.

The structural steel superstructure schedule (see Figure 12) gives due consideration to the differences in overbank and marine erection and to orthotropic girders versus approach span girders.

The prestressed concrete superstructure schedule shown in Figure 13 has been based on the assumption that the overbank approach spans would be cast-in-place on falsework, the main channel spans

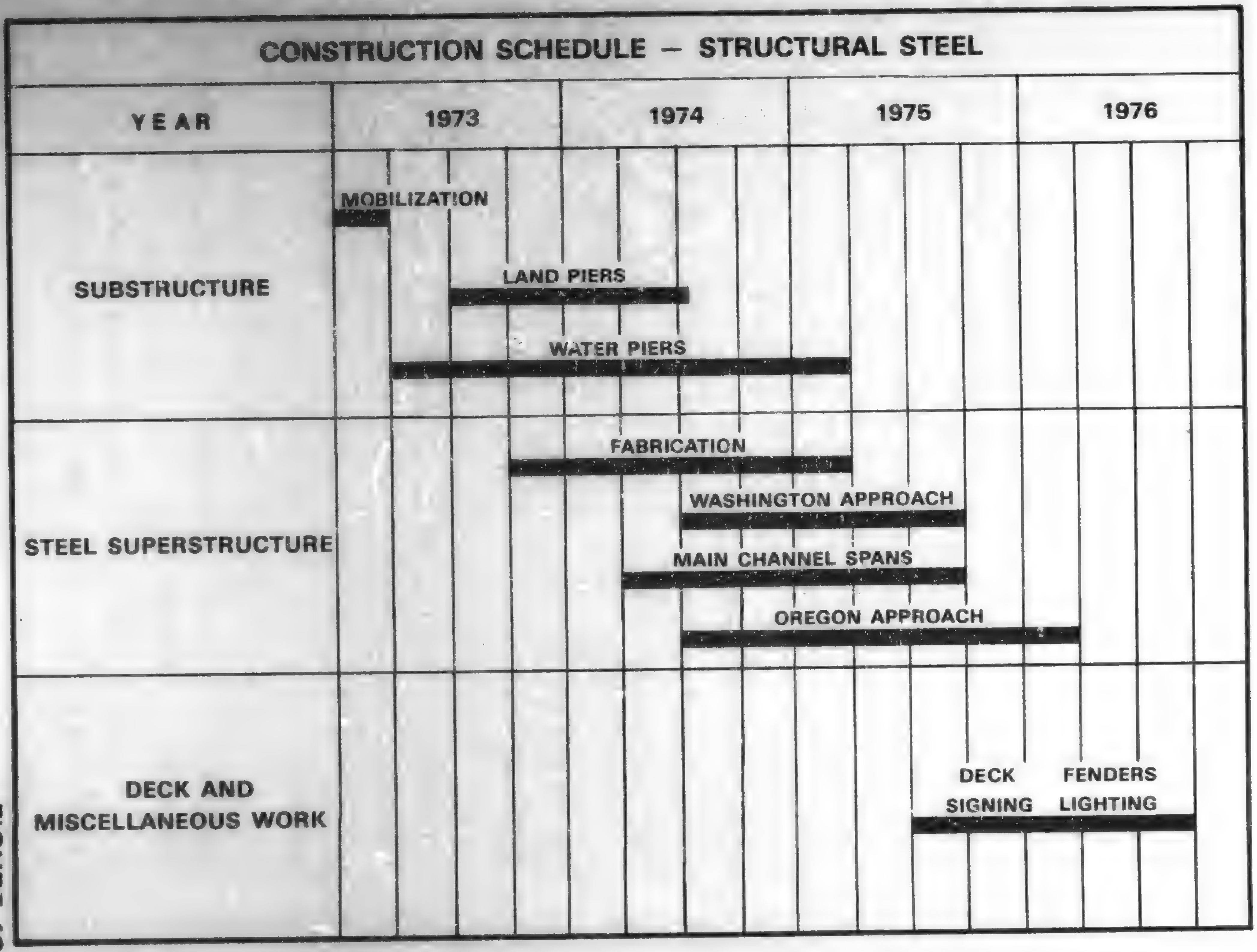
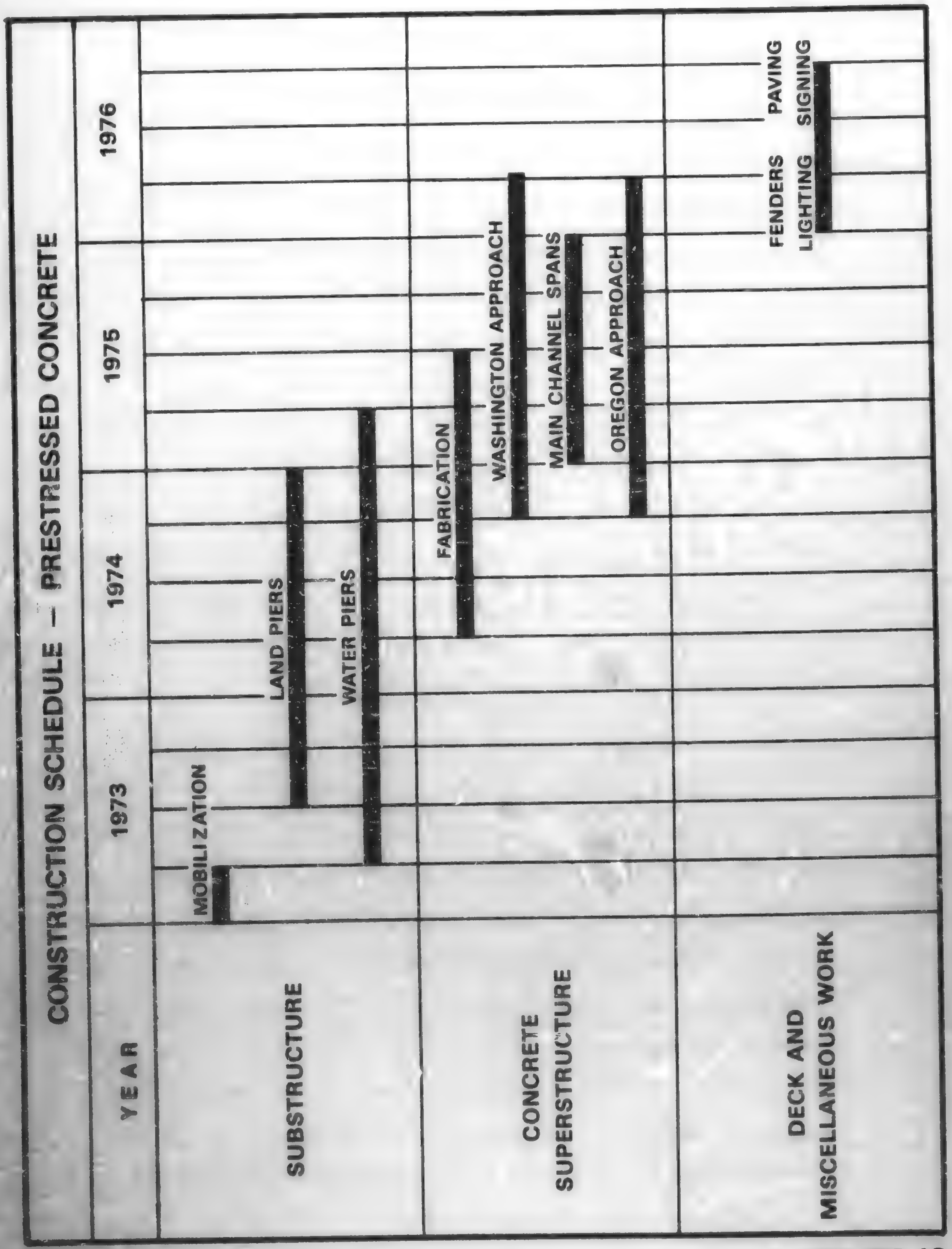

CONSTRUCTION SCHEDULE – STRUCTURAL STEEL
YEAR
1973
1974
1975
1976
SUBSTRUCTURE
MOBILIZATION
LAND PIERS
WATER PIERS
STEEL SUPERSTRUCTURE
FABRICATION
WASHINGTON APPROACH
MAIN CHANNEL SPANS
OREGON APPROACH
DECK AND MISCELLANEOUS WORK
DECK
SIGNING
FENDERS
LIGHTING

FIGURE 12



CONSTRUCTION SCHEDULE — PRESTRESSED CONCRETE

FIGURE 13

would be precast, post-tensioned, segmental free-cantilever construction and the water-based approach spans would be precast, post-tensioned cantilever construction with the use of an auxiliary erection truss. All three phases of this work could be in progress at the same time. Other types of construction such as cast-in-place cantilever erection could be used, but it is felt that any difference in time consumed for this operation or in construction costs would be minor.

It is estimated that about 45 months will be required to complete the construction of the structure, be it of prestressed concrete or structural steel. This construction period includes any lead time necessary for mobilization and for approvals of procedures and installations. The schedules assume that multiple shifts will be implemented for most phases of work, and that in some instances efforts beyond normal working hours will be necessary.

B. CONSTRUCTION COSTS

Detailed cost estimates have been prepared for each of the concepts developed in this report and are presented on the following pages. For purposes of comparison, a summary of costs for all concepts is also shown.

Estimated quantities shown are based on preliminary designs and comparisons with existing facilities of like nature. Unit prices used represent our estimate of construction costs at the current price level and are kept as consistent as possible to present a realistic comparison. A 10% contingency is included in the estimates to provide a margin for possible variation in quantities and to cover miscellaneous items which cannot be estimated at this time. Allowances for escalation have not been included.

The construction costs include the installation of a membrane waterproof barrier for concrete box-girder construction and a wearing surface for orthotropic girder decks, consistent with the provisions of Section V, but installations of this type are not included for structural steel superstructure concepts utilizing concrete decks.

In the development of construction costs for this structure, it becomes evident that facilities for a precasting yard are necessary, particularly if precast segmental concrete construction for the superstructure is adopted. It is suggested that a specific site be named in the contract documents for this installation, to be available at a rental rate of X dollars per month to the successful bidder, at his option. This would put all prospective bidders on an equal basis in this regard.

ESTIMATED CONSTRUCTION COST--CONCEPT A
(Structural Steel Superstructure - Staggered Piers)

SUBSTRUCTURE

Item	Unit	Quantity	Unit Price	Amount
Washington				
Structure Excavation	CY	21,160	$ 30	$ 634,800
Bases of Pier 14:				
Furnish Reinforced Steel Shells	Ton	95	580	55,100
Class A Tremie Concrete	CY	2,910	85	247,350
Volume in Bases	CY	2,950	125	368,750
Prestressed Concrete Piles	LF	6,000	10	60,000
Steel H-Piles (HP14X73)	LF	4,320	12	51,840
Class A Footing Concrete	CY	8,490	60	509,400
Class A Abutment Concrete	CY	660	75	49,500
Class A Concrete above Footings and Pier Bases	CY	13,340	230	3,068,200
Reinforcement	Ton	1,080	300	324,000
Riprap (Scour Protection)	Ton	7,100	15	106,500
			Sub-total	$ 5,475,440
Oregon				
Bases of Piers 15 thru 31:				
Furnish Prestressed Reinforced Concrete Shells	CY	9,710	$ 200	$ 1,942,000
Class A Tremie Concrete	CY	9,660	80	772,800
Class A Fill Concrete	CY	22,560	70	1,579,200
Volume in Bases	CY	41,930	30	1,257,900
Prestressed Concrete Piles	LF	4,080	10	40,800
Steel H-Piles (W14X158)	LF	55,400	25	1,385,000
Class A Abutment Concrete	CY	430	75	32,250
Class A Concrete above Pier Bases	CY	10,840	290	3,143,600
Reinforcement	Ton	920	300	276,000
Riprap (Scour Protection)	Ton	116,000	15	1,740,000
			Sub-total	$12,169,550
			[illegible] Total	$17,644,990
			Contingencies 10%±	1,765,010
			TOTAL SUBSTRUCTURE	$19,410,000

ESTIMATED CONSTRUCTION COST--CONCEPT A
(Structural Steel Superstructure - Staggered Piers)

Item	Unit	Washington Quantity	Washington Unit Price	Washington Amount	Oregon Quantity	Oregon Unit Price	Oregon Amount
SUPERSTRUCTURE							
Structural Steel (Approach Spans)							
Carbon	Cwt	107,470	$ 46	$ 4,943,620	262,010	$ 56	$14,672,560
Low-Alloy	Cwt	17,380	54	938,520	31,660	65	2,057,900
High-Yield Strength	Cwt	2,400	60	144,000	7,840	70	548,800
Structural Steel (Main Spans)							
Carbon	Cwt	42,500	55	2,337,500	58,000	55	3,190,000
Low-Alloy	Cwt	54,940	62	3,406,280	68,940	62	4,274,280
Bridge Bearings	Cwt	3,000	95	285,000	3,000	95	285,000
Class A Concrete - Bridge Slab	CY	8,300	100	830,000	14,760	100	1,476,000
Reinf. Conc. Parapet Barrier	CY	950	260	247,000	1,730	260	449,800
Reinforcement	Ton	1,160	300	348,000	2,060	300	618,000
Deck Wearing Surface (Main Spans)	SY	10,400	36	374,400	14,000	36	504,000
			Sub-total	$13,854,320		Sub-total	$28,076,340
						Total, Both States	$41,930,660
						Contingencies 10%±	4,189,340
						TOTAL SUPERSTRUCTURE	$46,120,000
MISCELLANEOUS							
Fenders	LS	1	--	$ 425,000	1	--	$ 425,000
Electrical	LS	1	--	110,000	1	--	180,000
Signing	LS	1	--	8,000	1	--	16,000
			Sub-total	$ 543,000		Sub-total	$ 621,000
						Total, Both States	$ 1,164,000
						Contingencies 10%±	116,000
						TOTAL MISCELLANEOUS	$ 1,280,000
						TOTAL COST, CONCEPT A	$66,810,000

ESTIMATED CONSTRUCTION COST--CONCEPT B
(Prestressed Concrete Superstructure - Staggered Piers)

SUBSTRUCTURE

Item	Unit	Quantity	Unit Price	Amount
Washington				
Structure Excavation	CY	34,310	$ 30	$ 1,029,300
Bases of Pier 12:				
Furnish Prestressed Reinforced Concrete Shells	CY	2,330	130	302,900
Class A Tremie Concrete	CY	2,600	85	221,000
Volume in Bases	CY	4,000	125	500,000
Prestressed Concrete Piles	LF	10,100	10	101,000
Steel H-Piles (HP14WX73)	LF	20,700	12	248,400
Class A Footing Concrete	CY	14,690	55	807,950
Class A Abutment Concrete	CY	640	75	48,000
Class A Concrete above Footings and Pier Bases	CY	15,780	180	2,840,400
Reinforcement	Ton	2,600	300	780,000
Riprap (Scour Protection)	Ton	7,400	15	111,000
			Sub-total	$ 6,989,950
Oregon				
Bases of Piers 13 thru 27:				
Furnish Prestressed Reinforced Concrete Shells	CY	10,080	$ 185	$ 1,864,800
Class A Tremie Concrete	CY	10,580	80	846,400
Class A Fill Concrete	CY	26,210	70	1,834,700
Volume in Bases	CY	46,870	30	1,406,100
Prestressed Concrete Piles	LF	6,840	10	68,400
Steel H-Piles (W14X158)	LF	113,620	25	2,840,500
Class A Abutment Concrete	CY	410	75	30,750
Class A Concrete above Pier Bases	CY	10,970	240	2,632,800
Reinforcement	Ton	2,020	300	606,000
Riprap (Scour Protection)	Ton	102,000	15	1,530,000
			Sub-total	$13,660,450
			Total	$20,650,400
			Contingencies 10%±	2,069,600
			TOTAL SUBSTRUCTURE	$22,720,000

ESTIMATED CONSTRUCTION COST--CONCEPT B
(Prestressed Concrete Superstructure - Staggered Piers)

SUPERSTRUCTURE

Item	Unit	Quantity	Unit Price	Amount
Washington				
Class A Concrete-Approach Spans	CY	26,390	$ 150	$ 3,958,500
Class A Concrete-Main Spans	CY	10,960	205	2,246,800
Prestressing Steel (270 ksi)	Ton	1,550	1,200	1,860,000
Prestressing Steel (160 ksi)	Ton	980	930	911,400
Reinforcement (Mild Steel)	Ton	2,870	300	861,000
Reinf. Conc. Parapet Barrier	CY	980	300	285,000
Deck Waterprfg. & Wrg. Surf.	SY	45,500	15	682,500
			Sub-total	$10,805,200
Oregon				
Class A Concrete-Approach Spans	CY	50,180	$ 175	$ 8,781,500
Class A Concrete-Main Spans	CY	15,580	205	3,193,900
Prestressing Steel (270 ksi)	Ton	3,010	1,100	3,311,000
Prestressing Steel (160 ksi)	Ton	1,710	850	1,453,500
Reinforcement (Mild Steel)	Ton	5,070	300	1,521,000
Reinf. Conc. Parapet Barrier	CY	1,740	300	522,000
Deck Waterprfg. & Wrg. Surf.	SY	75,500	15	1,132,500
			Sub-total	$19,915,400
			Total	$30,720,600
			Contingencies 10%±	3,069,400
			TOTAL SUPERSTRUCTURE	$33,790,000

MISCELLANEOUS

Item	Unit	Quantity	Unit Price	Amount
Washington				
Fenders	LS	1	--	$ 425,000
Electrical	LS	1	--	110,000
Signing	LS	1	--	8,000
			Sub-total	$ 543,000
Oregon				
Fenders	LS	1	--	$ 425,000
Electrical	LS	1	--	180,000
Signing	LS	1	--	16,000
Marine Drive Grade Separation Structure	LS	1	--	400,000
			Sub-total	$ 1,021,000
			Total	$ 1,564,000
			Contingencies 10%±	156,000
			TOTAL MISCELLANEOUS	$ 1,720,000
			TOTAL COST, CONCEPT B	$58,230,000

ESTIMATED CONSTRUCTION COST--CONCEPT C
(Architecturally Oriented Structural Steel Superstructure - Skewed Piers)

SUBSTRUCTURE

Item	Unit	Quantity	Unit Price	Amount
Washington				
Structure Excavation	CY	22,430	$ 30	$ 672,900
Bases of Pier 14:				
Furnish Reinforced Steel Shells	Ton	400	365	146,000
Class A Tremie Concrete	CY	3,000	85	255,000
Volume in Bases	CY	3,020	125	377,500
Prestressed Concrete Piles	LF	6,000	10	60,000
Steel H-Piles (HP14X73)	LF	4,600	12	55,200
Class A Footing Concrete	CY	9,070	60	544,200
Class A Abutment Concrete	CY	670	75	50,250
Class A Concrete above Footings and Pier Bases	CY	21,080	240	5,059,200
Reinforcement	Ton	1,310	300	393,000
Riprap (Scour Protection)	Ton	7,000	15	105,000
			Sub-total	$ 7,718,250
Oregon				
Bases of Piers 15 thru 28:				
Furnish Prestressed Reinforced Concrete Shells	CY	10,600	$ 180	$ 1,908,000
Class A Tremie Concrete	CY	11,100	78	865,800
Class A Fill Concrete	CY	24,400	69	1,683,600
Volume in Bases	CY	46,100	30	1,383,000
Prestressed Concrete Piles	LF	4,100	10	41,000
Steel H-Piles (W14X158)	LF	59,200	25	1,480,000
Class A Abutment Concrete	CY	430	75	32,250
Class A Concrete above Pier Bases	CY	12,640	300	3,792,000
Reinforcement	Ton	1,010	300	303,000
Riprap (Scour Protection)	Ton	89,000	15	1,335,000
			Sub-total	$12,823,650
			Total	$20,541,900
			Contingencies 10%±	2,058,100
			TOTAL SUBSTRUCTURE	$22,600,000

ESTIMATED CONSTRUCTION COST--CONCEPT C
(Architecturally Oriented Structural Steel Superstructure - Skewed Piers)

Item	Unit	Washington			Oregon		
		Quantity	Unit Price	Amount	Quantity	Unit Price	Amount
SUPERSTRUCTURE							
Structural Steel (Approach Spans)							
Carbon	Cwt	91,970	$ 50	$ 4,598,500	291,820	$ 55	$16,050,100
Low-Alloy	Cwt	16,960	59	1,000,640	54,600	61	3,330,600
High-Yield Strength	Cwt	3,970	61	242,170	7,560	66	498,960
Structural Steel (Main Spans)							
Carbon	Cwt	48,000	55	2,640,000	61,000	55	3,355,000
Low-Alloy	Cwt	58,000	62	3,596,000	73,000	62	4,526,000
Bridge Bearings	Cwt	3,000	95	285,000	3,000	95	285,000
Class A Concrete - Bridge Slab	CY	8,300	100	830,000	14,560	100	1,456,000
Reinf. Conc. Parapet Barrier	CY	950	260	247,000	1,710	260	444,600
Reinforcement	Ton	1,160	300	348,000	2,030	300	609,000
Deck Wearing Surface (Main Spans)	SY	10,600	36	381,600	13,600	36	489,600
			Sub-total	$14,168,910		Sub-total	$31,044,860
						Total, Both States	$45,213,770
						Contingencies 10%±	4,526,230
							$49,740,000
MISCELLANEOUS							
Fenders	LS	1	--	$ 425,000	1	--	$ 425,000
Electrical	LS	1	--	110,000	1	--	180,000
Signing	LS	1	--	8,000	1	--	16,000
Marine Drive Grade Separation Structure	LS	1	--	---	1	--	400,000
			Sub-total	$ 543,000		Sub-total	$ 1,021,000
						Total, Both States	$ 1,564,000
						Contingencies 10%±	156,000
						TOTAL MISCELLANEOUS	$ 1,720,000
						TOTAL COST, CONCEPT C	$74,060,000

ESTIMATED CONSTRUCTION COST--CONCEPT D
(Architecturally Oriented Prestressed Concrete Superstructure - Aligned Piers)

SUBSTRUCTURE

Item	Unit	Quantity	Unit Price	Amount
Washington				
Structure Excavation	CY	38,200	$ 30	$ 1,146,000
Bases of Pier 11:				
Furnish Prestressed Reinforced Concrete Shells	CY	2,800	120	336,000
Class A Tremie Concrete	CY	3,150	80	252,000
Volume in Bases	CY	4,800	125	600,000
Prestressed Concrete Piles	LF	11,200	10	112,000
Steel H-Piles (HP14X73)	LF	23,200	12	278,400
Class A Footing Concrete	CY	16,600	53	879,800
Class A Abutment Concrete	CY	640	75	48,000
Class A Concrete above Footings and Pier Bases	CY	17,750	165	2,928,750
Reinforcement	Ton	2,930	300	879,000
Riprap (Scour Protection)	Ton	8,600	15	129,000
			Sub-total	$ 7,588,950
Oregon				
Bases of Piers 12 thru 24:				
Furnish Prestressed Reinforced Concrete Shells	CY	11,600	$ 160	$ 1,856,000
Class A Tremie Concrete	CY	12,150	75	911,250
Class A Fill Concrete	CY	30,200	65	1,963,000
Volume in Bases	CY	64,950	30	1,948,500
Prestressed Concrete Piles	LF	7,650	10	76,500
Steel H-Piles (W14X158)	LF	121,000	25	3,025,000
Class A Abutment Concrete	CY	490	70	34,300
Class A Concrete above Pier Bases	CY	12,700	200	2,540,000
Reinforcement	Ton	2,330	300	699,000
Riprap (Scour Protection)	Ton	101,000	15	1,515,000
			Sub-total	$14,568,550
			Total	$22,157,500
			Contingencies 10%±	2,212,500
			TOTAL SUBSTRUCTURE	$24,370,000

ESTIMATED CONSTRUCTION COST--CONCEPT D
(Architecturally Oriented Prestressed Concrete Superstructure - Aligned Piers)

SUPERSTRUCTURE

Item	Unit	Quantity	Unit Price	Amount
Washington				
Class A Concrete-Approach Spans	CY	28,900	$ 170	$ 4,913,000
Class A Concrete-Main Spans	CY	12,960	230	2,980,800
Prestressing Steel (270 ksi)	Ton	1,710	1,200	2,052,000
Prestressing Steel (160 ksi)	Ton	950	930	883,500
Reinforcement (Mild Steel)	Ton	3,210	300	963,000
Reinf. Conc. Parapet Barrier	CY	950	300	285,000
Deck Waterprfg. & Wrg. Surf.	SY	45,500	15	682,500
			Sub-total	$12,759,800
Oregon				
Class A Concrete-Approach Spans	CY	58,000	$ 190	$11,020,000
Class A Concrete-Main Spans	CY	18,570	230	4,271,100
Prestressing Steel (270 ksi)	Ton	3,560	1,100	3,916,000
Prestressing Steel (160 ksi)	Ton	1,580	850	1,343,000
Reinforcement (Mild Steel)	Ton	5,870	300	1,761,000
Reinf. Conc. Parapet Barrier	CY	1,730	300	519,000
Deck Waterprfg. & Wrg. Surf.	SY	75,300	15	1,129,500
			Sub-total	$23,959,600
			Total	$36,719,400
			Contingencies 10%±	3,670,600
			TOTAL SUPERSTRUCTURE	$40,390,000

MISCELLANEOUS

Item	Unit	Quantity	Unit Price	Amount
Washington				
Fenders	LS	1	--	$ 425,000
Electrical	LS	1	--	110,000
Signing	LS	1	--	8,000
			Sub-total	$ 543,000
Oregon				
Fenders	LS	1	--	$ 425,000
Electrical	LS	1	--	180,000
Signing	LS	1	--	16,000
			Sub-total	$ 621,000
			Total	$ 1,164,000
			Contingencies 10%±	116,000
			TOTAL MISCELLANEOUS	$ 1,280,000
			TOTAL COST, CONCEPT D	$66,040,000

ESTIMATED CONSTRUCTION COST--RECOMMENDED CONCEPT
(Architecturally Oriented Prestressed Concrete Superstructure - Staggered Piers)

SUBSTRUCTURE

Item	Unit	Quantity	Unit Price	Amount
Washington				
Structure Excavation	CY	36,900	$ 30	$ 1,107,000
Bases of Pier 14:				
Furnish Prestressed Reinforced Concrete Shells	CY	2,640	125	330,000
Class A Tremie Concrete	CY	2,940	80	235,200
Volume in Bases	CY	4,600	125	575,000
Prestressed Concrete Piles	LF	10,900	10	109,000
Steel H-Piles (HP14X73)	LF	22,300	12	267,600
Class A Footing Concrete	CY	15,980	53	846,940
Class A Abutment Concrete	CY	640	72	46,080
Class A Concrete above Footings and Pier Bases	CY	16,900	165	2,788,500
Reinforcement	Ton	2,820	300	846,000
Riprap (Scour Protection)	Ton	7,400	15	111,000
			Sub-total	$ 7,262,320
Oregon				
Bases of Piers 13 thru 27:				
Furnish Prestressed Reinforced Concrete Shells	CY	11,100	$ 180	$ 1,998,000
Class A Tremie Concrete	CY	11,600	77	893,200
Class A Fill Concrete	CY	28,800	68	1,958,400
Volume in Bases	CY	51,500	30	1,545,000
Prestressed Concrete Piles	LF	7,500	10	75,000
Steel H-Piles (W14X158)	LF	125,000	25	3,125,000
Class A Abutment Concrete	CY	450	72	32,400
Class A Concrete above Pier Bases	CY	12,000	220	2,640,000
Reinforcement	Ton	2,230	300	669,000
Riprap (Scour Protection)	Ton	102,000	15	1,530,000
			Sub-total	$14,466,000
			Total	$21,728,320
			Contingencies 10%±	2,171,680
			TOTAL SUBSTRUCTURE	$23,900,000

ESTIMATED CONSTRUCTION COST--RECOMMENDED CONCEPT
(Architecturally Oriented Prestressed Concrete Superstructure - Staggered Piers)

SUPERSTRUCTURE

Item	Unit	Quantity	Unit Price	Amount
Washington				
Class A Concrete-Approach Spans	CY	28,400	$ 170	$ 5,253,075
Class A Concrete-Main Spans	CY	12,510	230	3,063,725
Prestressing Steel (270 ksi)	Ton	1,650	1,200	2,021,250
Prestressing Steel (160 ksi)	Ton	920	930	878,600
Reinforcement (Mild Steel)	Ton	3,140	300	942,000
Reinf. Conc. Parapet Barrier	CY	950	300	285,000
Deck Waterprfg. & Wrg. Surf.	SY	45,500	15	682,500
			Sub-total	$12,450,400
Oregon				
Class A Concrete-Approach Spans	CY	55,680	$ 190	$10,579,200
Class A Concrete-Main Spans	CY	18,130	230	4,169,900
Prestressing Steel (270 ksi)	Ton	3,230	1,100	3,553,000
Prestressing Steel (160 ksi)	Ton	1,580	850	1,343,000
Reinforcement (Mild Steel)	Ton	5,640	300	1,692,000
Reinf. Conc. Parapet Barrier	CY	1,740	300	522,000
Deck Waterprfg. & Wrg. Surf.	SY	75,500	15	1,132,500
			Sub-total	$22,991,600
			Total	$35,442,000
			Contingencies 10%±	3,548,000
			TOTAL SUPERSTRUCTURE	$38,990,000

MISCELLANEOUS

Item	Unit	Quantity	Unit Price	Amount
Washington				
Fenders	LS	1	--	$ 425,000
Electrical	LS	1	--	110,000
Signing	LS	1	--	8,000
			Sub-total	$ 543,000
Oregon				
Fenders	LS	1	--	$ 425,000
Electrical	LS	1	--	180,000
Signing	LS	1	--	16,000
Marine Drive Grade Separation Structure	LS	1	--	400,000
			Sub-total	$ 1,021,000
			Total	$ 1,564,000
			Contingencies 10%±	156,000
			TOTAL MISCELLANEOUS	$ 1,720,000
			TOTAL COST, RECOMMENDED CONCEPT	$64,610,000

ESTIMATED CONSTRUCTION COST SUMMARY

Concept	Substructure	Superstructure	Miscellaneous	Total
A	$19,410,000	$46,120,000	$ 1,280,000	$66,810,000
B	$22,720,000	$33,790,000	$ 1,720,000	$58,230,000
C	$22,600,000	$49,740,000	$ 1,720,000	$74,060,000
D	$24,370,000	$40,390,000	$ 1,280,000	$66,040,000
Recommended	$23,900,000	$38,990,000	$ 1,720,000	$64,610,000

VII CONCLUSIONS AND RECOMMENDATIONS

In order to precipitate the selection of an optimum design from the standpoint of aesthetics, construction cost and serviceability, it is pertinent to compare the advantages and disadvantages of each of the four concepts studied. Such a comparison enables selection of one of the schemes or a possible combination of the elements of two or more of the concepts. A tabulation of the advantages and disadvantages is as follows:

CONCEPT A
(Structural Steel Superstructure - Staggered Piers)

Advantages	**Disadvantages**
Efficient use of structural materials.	Shadow lines and staggered piers affect architectural appeal.
Most economical of the two structural steel concepts.	Pier arrangement causes moderate blockage of river flow.
Pier arrangement approximates U. S. Coast Guard permit.	More expensive than a prestressed concrete bridge.

CONCEPT B
(Prestressed Concrete Superstructure - Staggered Piers)

Advantages	**Disadvantages**
Efficient use of structural materials.	Shadow lines and staggered piers affect architectural appeal.
Most economical of any concept.	Pier arrangement causes moderate blockage of river flow.
Pier arrangement approximates U. S. Coast Guard permit.	

CONCEPT C
(Architecturally Oriented Structural Steel
Superstructure - Skewed Piers)

Advantages	Disadvantages
Least blockage of river flow of any concept.	Most expensive structure of any concept.
Superstructure lines architecturally appealing.	Pier arrangement exaggerates the predominant appearance of the shafts.
Piers delineate channels.	Additional material used for aesthetic development.

CONCEPT D
(Architecturally Oriented Prestressed Concrete
Superstructure - Aligned Piers)

Advantages	Disadvantages
Most architectural appeal.	Most blockage of river flow of any concept.
More economical than a steel bridge.	Piers do not delineate channels.
	More expensive than Concept B.
	Additional material used for aesthetic development.

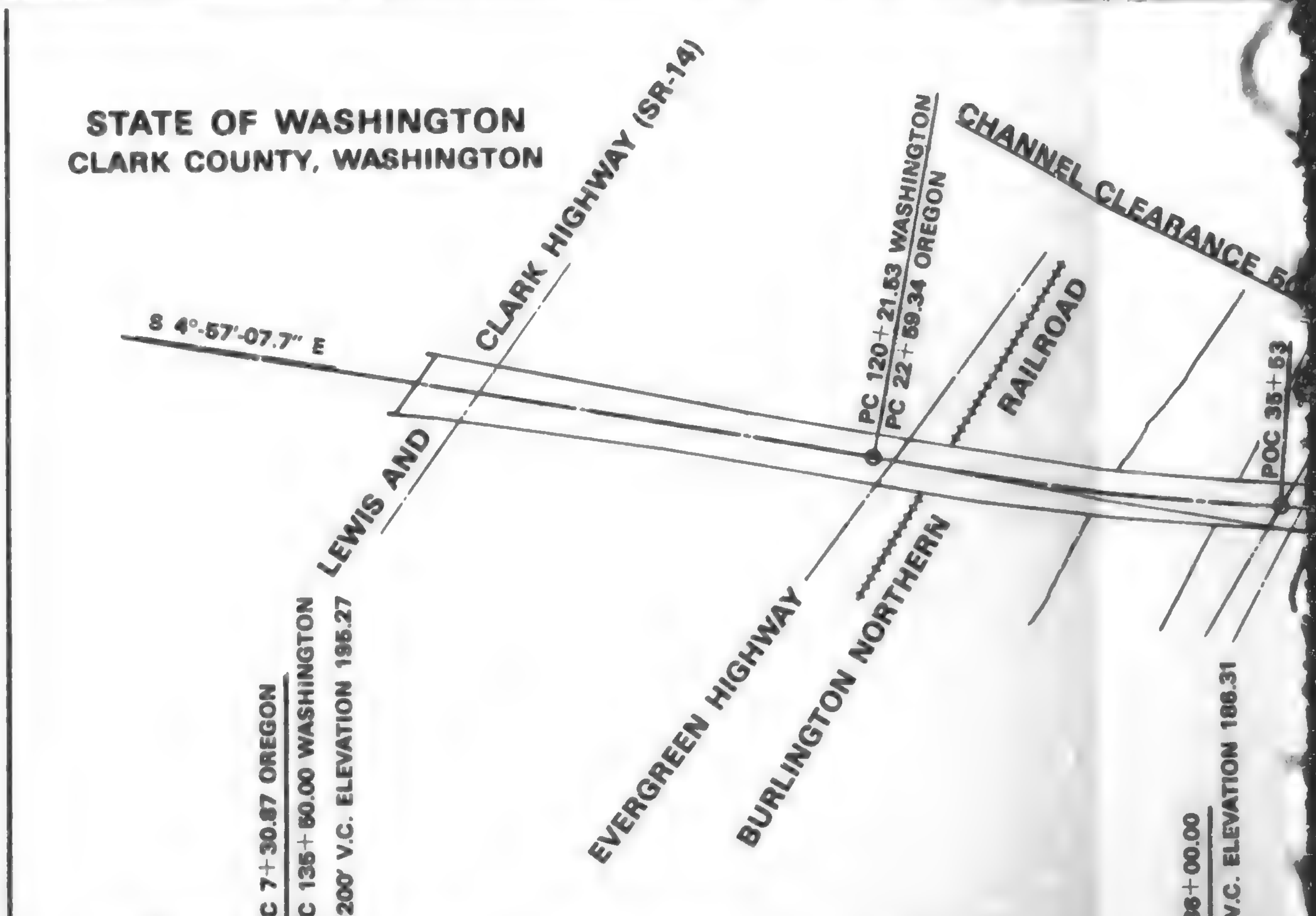
If appearance was the only consideration, the prestressed concrete bridge shown in Concept D would be the selection. Aesthetically this concept not only provides a most attractive superstructure shape but also the most pleasing substructure orientation of all schemes studied. This latter feature is especially important as it relates to the water-based piers on the Oregon approach, since the major vantage point of these piers is from Marine Drive, west of the bridge. From this particular area, the aligned pier arrangement of Concept D provides a more open appearance of the substructure than in any other concept. However, such a substructure arrangement does restrict the waterway opening more than any other scheme. Therefore, unless additional investigations and/or model studies were conducted to determine the effect of the pier restrictions on the waterway opening, the pier arrangement for Concept D could not be recommended.

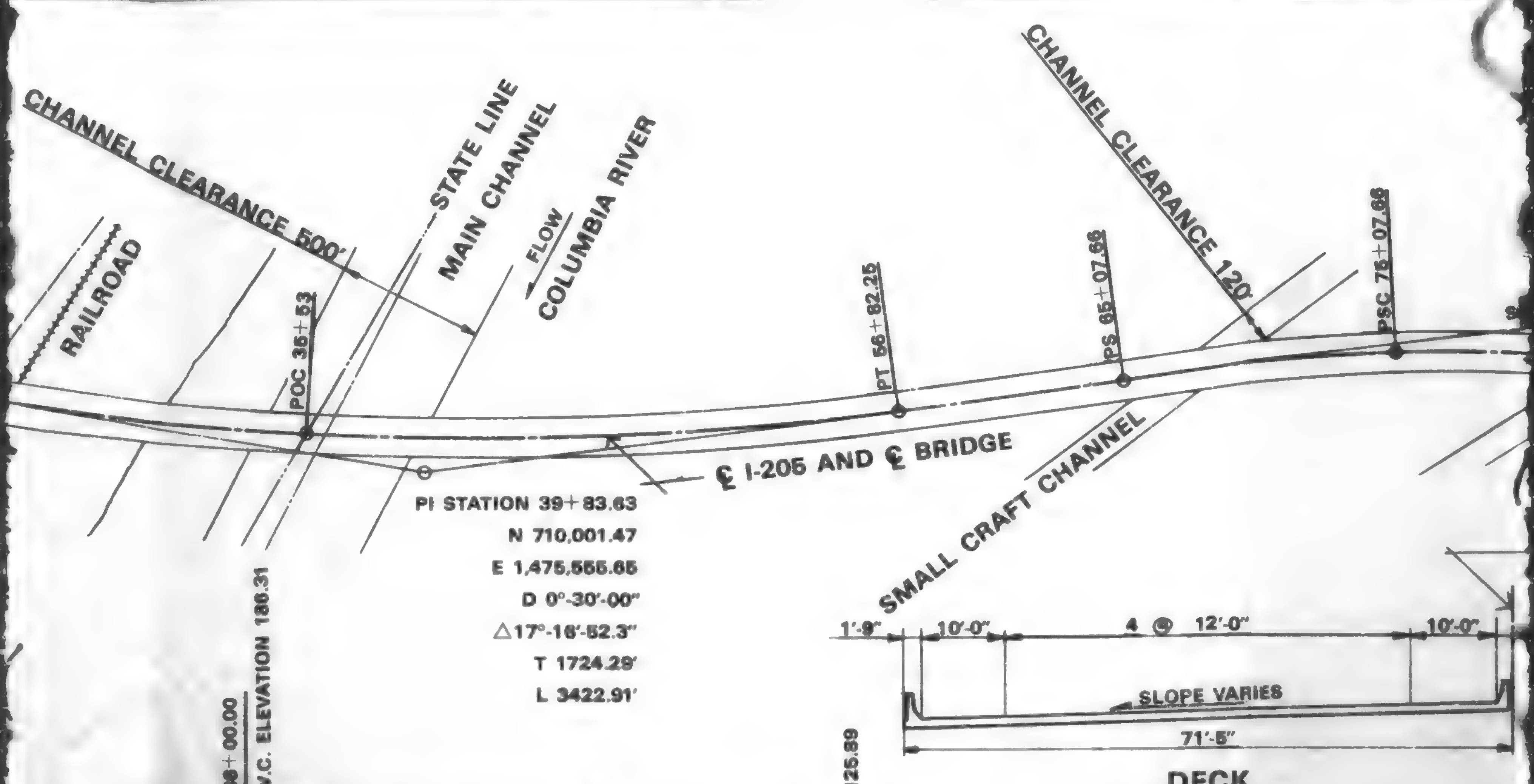
In the event minimum interruption of river flow and aids to navigation were the governing criteria in selecting a concept, then the pier arrangement indicated for Concept C would be the choice. On the other hand, if economy was the major consideration, Concept B would be the selection.

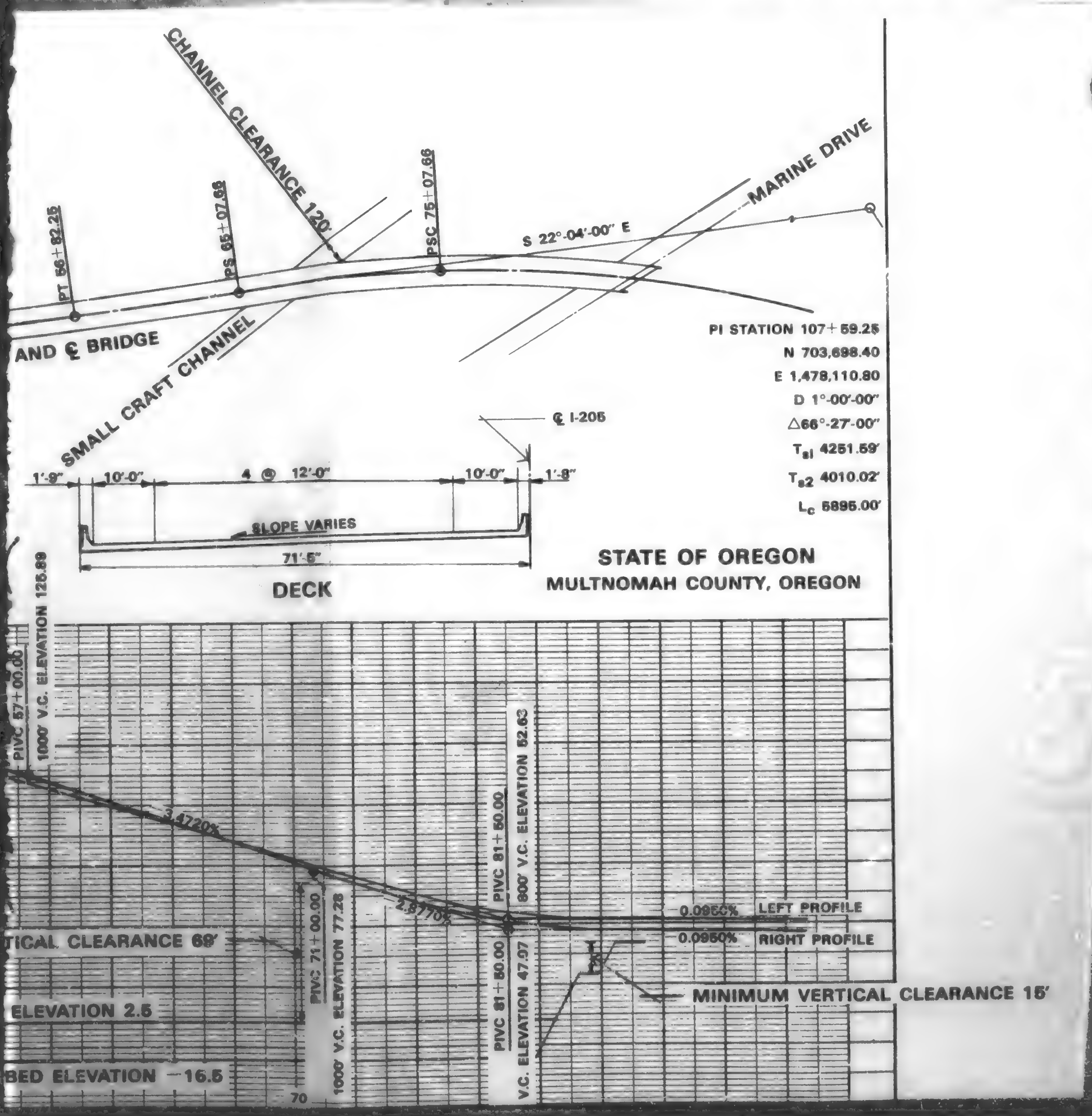
Considering all items and the impact this construction will have on the surrounding area, it is recommended that the selected layout include an aesthetic treatment in order to soften its impact on the area. Accordingly, it is recommended that the staggered pier arrangement of Concept B, combined with the superstructure and pier shaft treatments provided by Concept D, be the selected concept. Details of this combination, referred to as the Recommended Concept, are presented on Plates 21, 22 and 23.

The Recommended Concept provides for the aesthetic appeal of the superstructure and pier shaft shapes. The piers are positioned normal to the roadways for structural efficiency and adjacent piers are aligned in the direction of river flow, thereby minimizing the blockage of the river and delineating the navigation channels to a degree. The estimated construction cost of the Recommended Concept is approximately $64,610,000, or about 10% more than the most economical layout, Concept B.

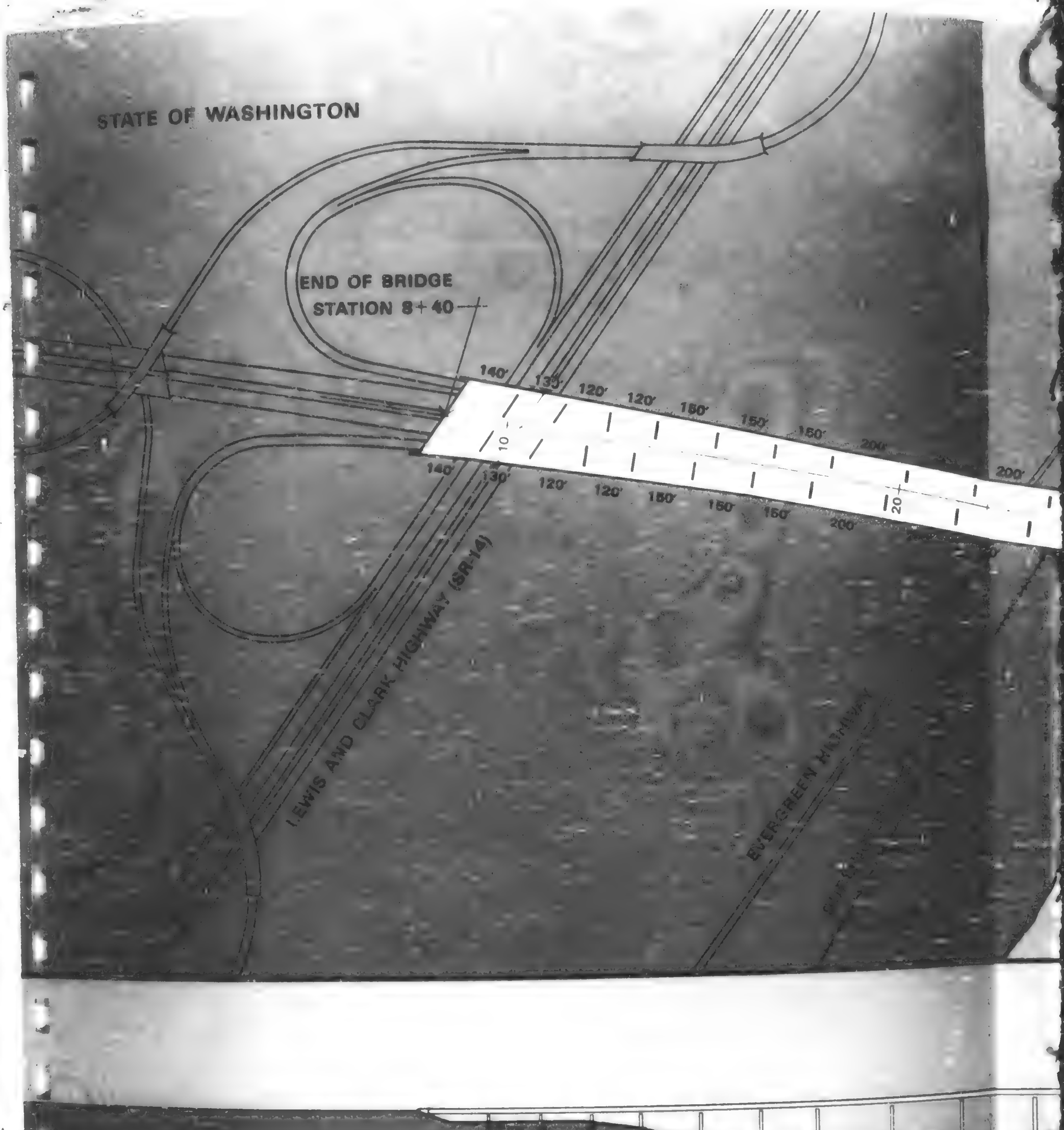
GEOMETRICS
PLAN, PROFILE AND DECK

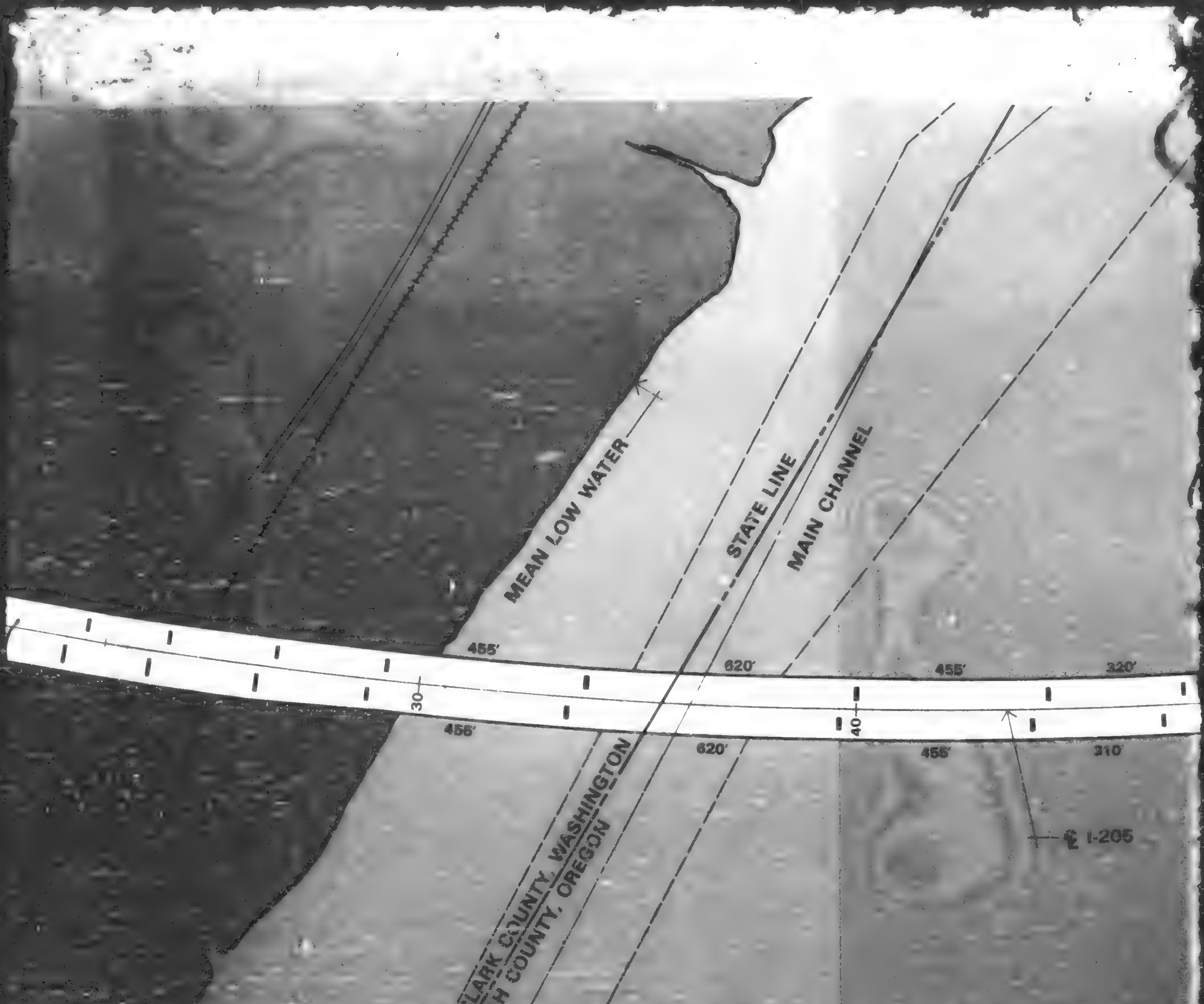

STATE OF WASHINGTON
CLARK COUNTY, WASHINGTON
LEWIS AND CLARK HIGHWAY (SR-14)
S 4°-57'-07.7" E
PC 120+21.53 WASHINGTON
PC 22+69.34 OREGON
CHANNEL CLEARANCE 50
RAILROAD
BURLINGTON NORTHERN
EVERGREEN HIGHWAY
POC 35+53
PIVC 7+30.87 OREGON
PIVC 135+50.00 WASHINGTON
1200' V.C. ELEVATION 195.27
PIVC 36+00.00
1200' V.C. ELEVATION 186.31
3.0000%
0.3123%
0.8476%
0.3123%
0.3123%
PIVC 19+80.87 OREGON
PIVC 123+00.00 WASHINGTON
400' V.C. ELEVATION 191.37
PIVC 26+00.00 OREGON
PIVC 117+80.87 WASHINGTON
400' V.C. ELEVATION 186.97
PIVC 36+00.00
1200' V.C. ELEVATION 183.33
140
80
20
EXTREME HIGH WATER (1948) ELEVATION 36.5
PROPOSED CHANNEL BOTTOM ELEVATION −37.5
10

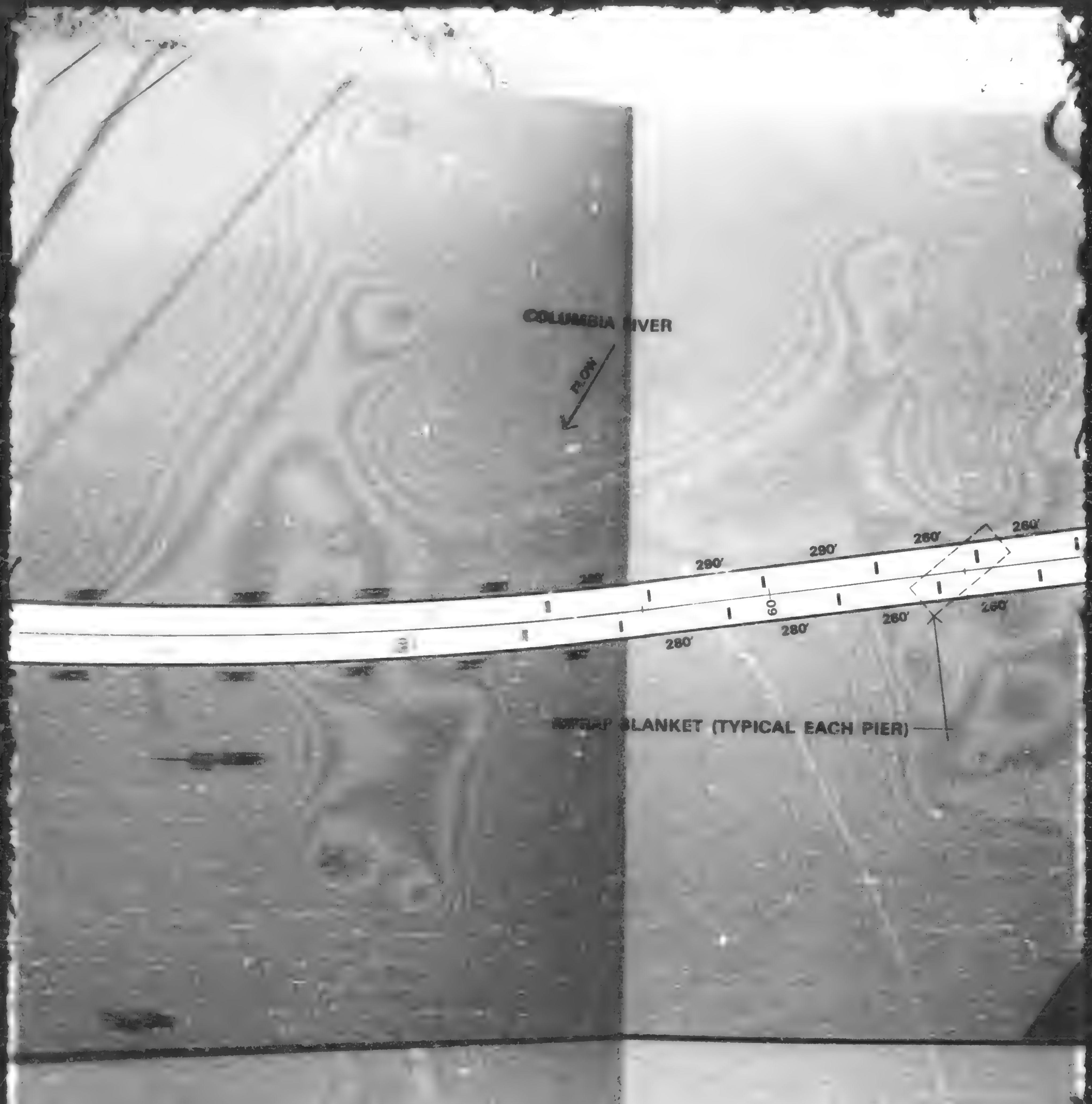

CHANNEL CLEARANCE 500'
RAILROAD
STATE LINE
MAIN CHANNEL
FLOW
COLUMBIA RIVER
POC 35+53
PT 56+82.25
PS 65+07.66
CHANNEL CLEARANCE 120'
PSC 75+07.66
℄ I-205 AND ℄ BRIDGE
SMALL CRAFT CHANNEL
PI STATION 39+83.63
N 710,001.47
E 1,475,555.65
D 0°-30'-00"
△17°-16'-52.3"
T 1724.29'
L 3422.91'
1'-9"
10'-0"
4 @ 12'-0"
10'-0"
SLOPE VARIES
71'-5"
DECK
PLAN
0.3123%
PIVC 36+00.00
1200' V.C. ELEVATION 186.31
PIVC 36+00.00
1200' V.C. ELEVATION 183.53
2.8770% RIGHT PROFILE
2.8770% LEFT PROFILE
PIVC 57+00.00
1000' V.C. ELEVATION 125.89
3.4720%
2.8770%
PIVC 81+50.00
800' V.C. ELEVATION 83.63
PIVC 81+50.00
V.C. ELEVATION 47.07
MINIMUM VERTICAL CLEARANCE 136'
MINIMUM VERTICAL CLEARANCE 69'
PIVC 71+00.00
1000' V.C. ELEVATION 77.28
ON 36.5
MEAN LOW WATER ELEVATION 2.5
ATION -37.5
PROPOSED RIVERBED ELEVATION -16.5
40
70

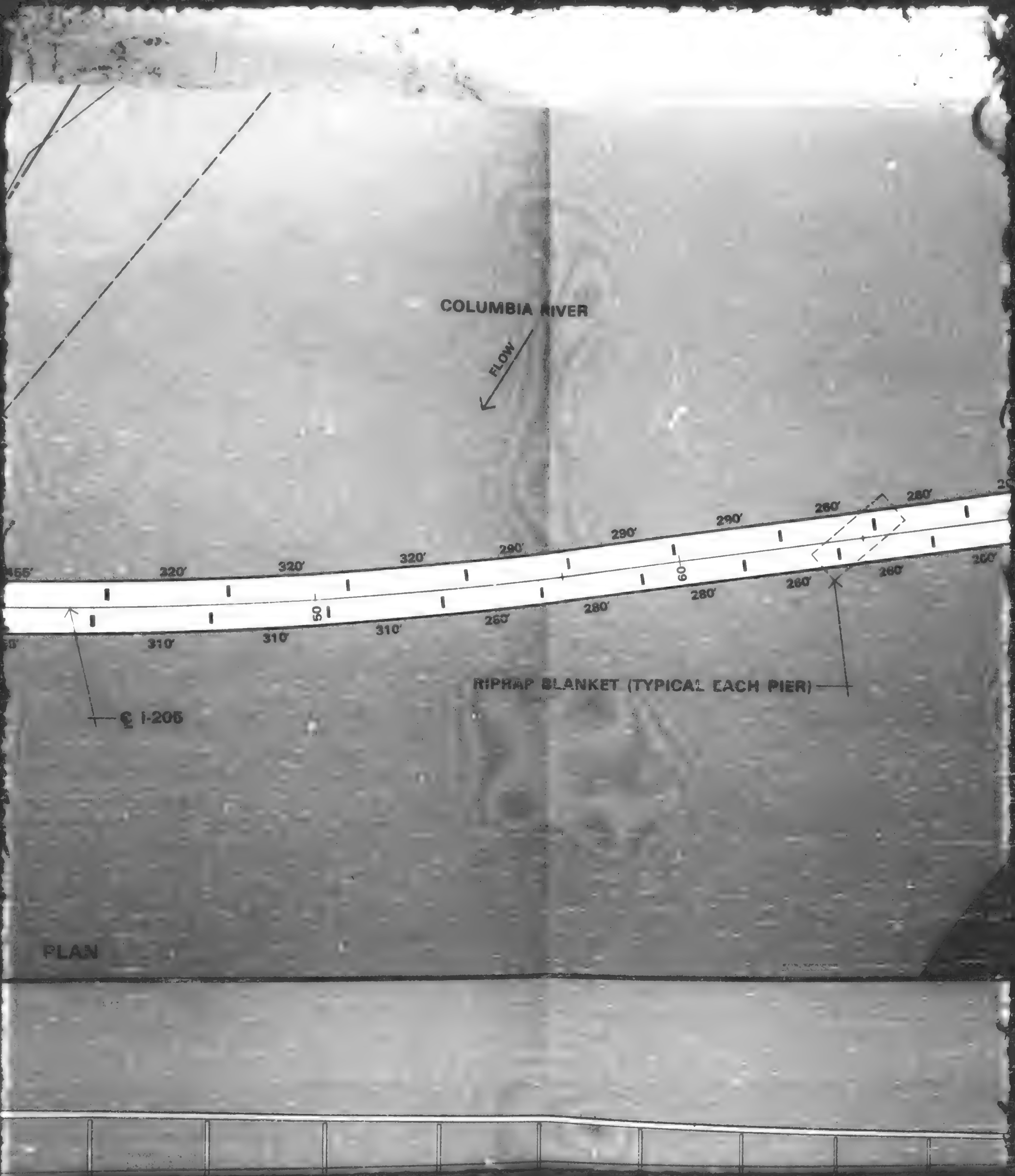

CHANNEL CLEARANCE 120'
MARINE DRIVE
PT 56+82.25
PS 65+07.66
PSC 75+07.66
S 22°-04'-00" E
AND ℄ BRIDGE
SMALL CRAFT CHANNEL
PI STATION 107+59.25
N 703,698.40
E 1,478,110.80
D 1°-00'-00"
△66°-27'-00"
T s1 4251.59'
T s2 4010.02'
L c 5895.00'
℄ I-205
1'-9"
10'-0"
4 @ 12'-0"
10'-0"
1'-8"
SLOPE VARIES
71'-5"
DECK
STATE OF OREGON
MULTNOMAH COUNTY, OREGON
PIVC 57+00.00
1000' V.C. ELEVATION 125.89
3.4720%
2.8770%
PIVC 71+00.00
1000' V.C. ELEVATION 77.28
PIVC 81+50.00
800' V.C. ELEVATION 52.63
PIVC 81+50.00
V.C. ELEVATION 47.97
0.0950% LEFT PROFILE
0.0950% RIGHT PROFILE
TICAL CLEARANCE 68'
MINIMUM VERTICAL CLEARANCE 15'
ELEVATION 2.5
BED ELEVATION −16.5
70

CONCEPT A
STRUCTURAL STEEL SUPERSTRUCTURE
GENERAL PLAN AND ELEVATION

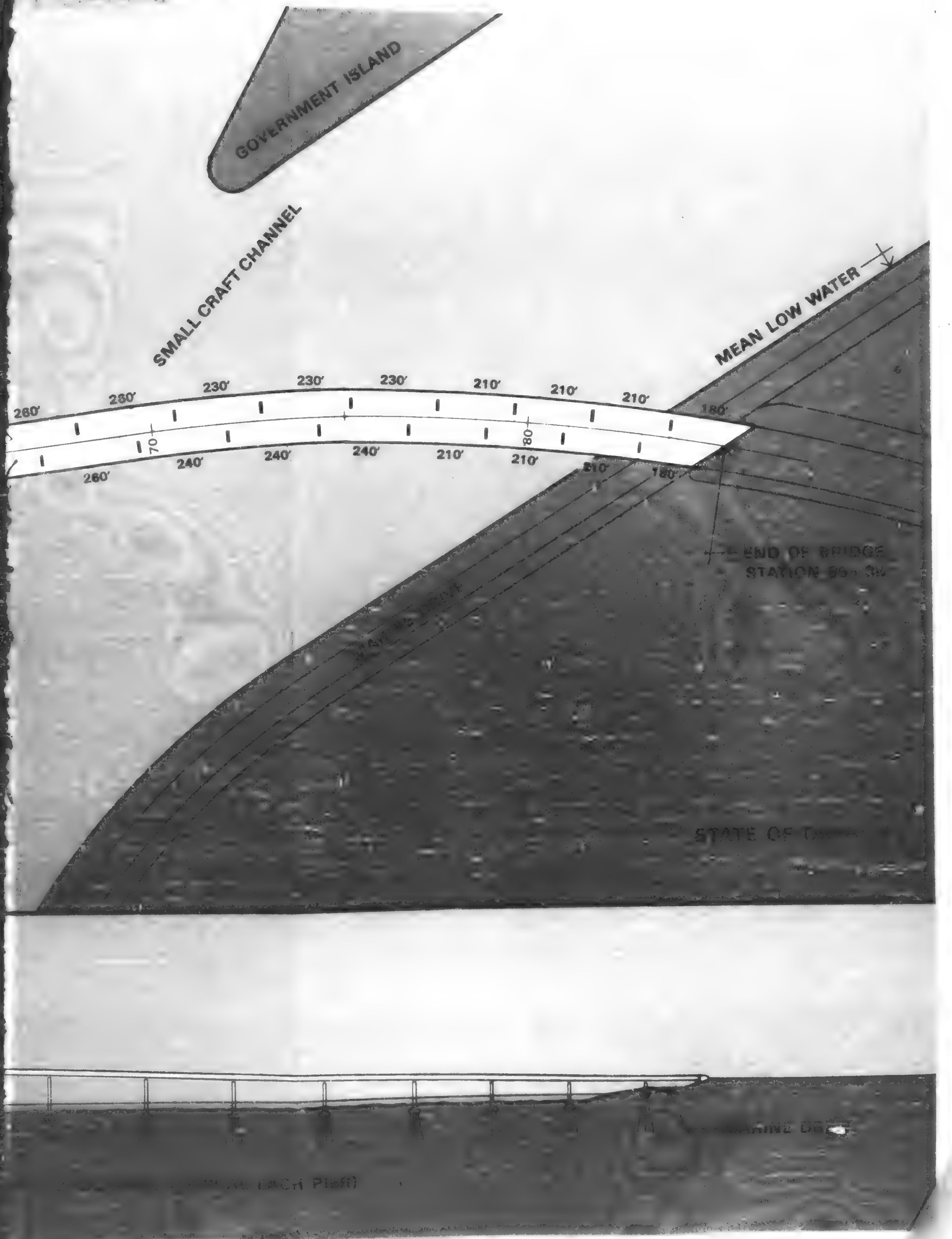

STATE OF WASHINGTON
END OF BRIDGE
STATION 8+40
140'
130'
120'
120'
150'
150'
150'
200'
200'
10
20
140'
130'
120'
120'
150'
150'
150'
200'
LEWIS AND CLARK HIGHWAY (SR-14)
EVERGREEN HIGHWAY
HIGHWAY (SR-14)
EVERG


MEAN LOW WATER
STATE LINE
MAIN CHANNEL
455'
620'
455'
320'
30
40
456'
620'
456'
310'
CLARK COUNTY, WASHINGTON
MULTNOMAH COUNTY, OREGON
℄ I-205
PLAN

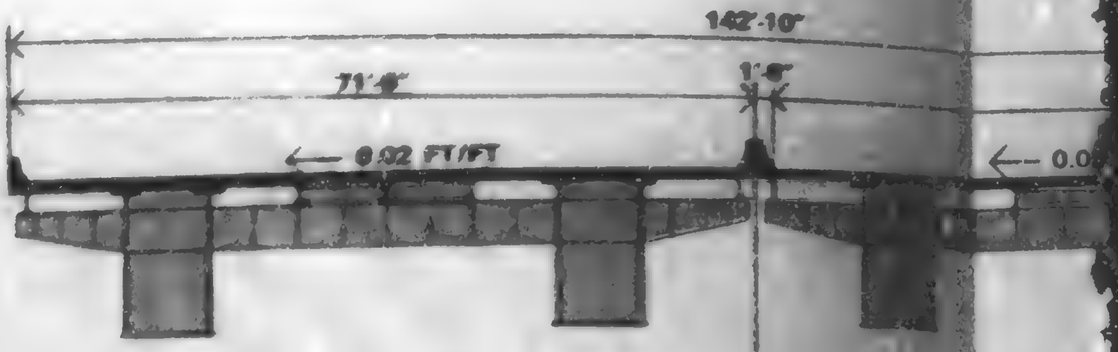

COLUMBIA RIVER
FLOW
290'
290'
260'
260'
280'
280'
280'
260'
260'
60
RIPRAP BLANKET (TYPICAL EACH PIER)


COLUMBIA RIVER
FLOW
RIPRAP BLANKET (TYPICAL EACH PIER)
℄ I-205

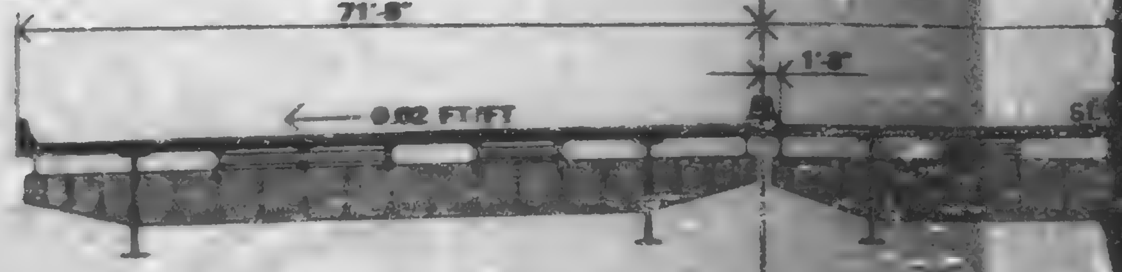
PLAN


GOVERNMENT ISLAND
SMALL CRAFT CHANNEL
MEAN LOW WATER
END OF BRIDGE
STATION 86+38
STATE OF

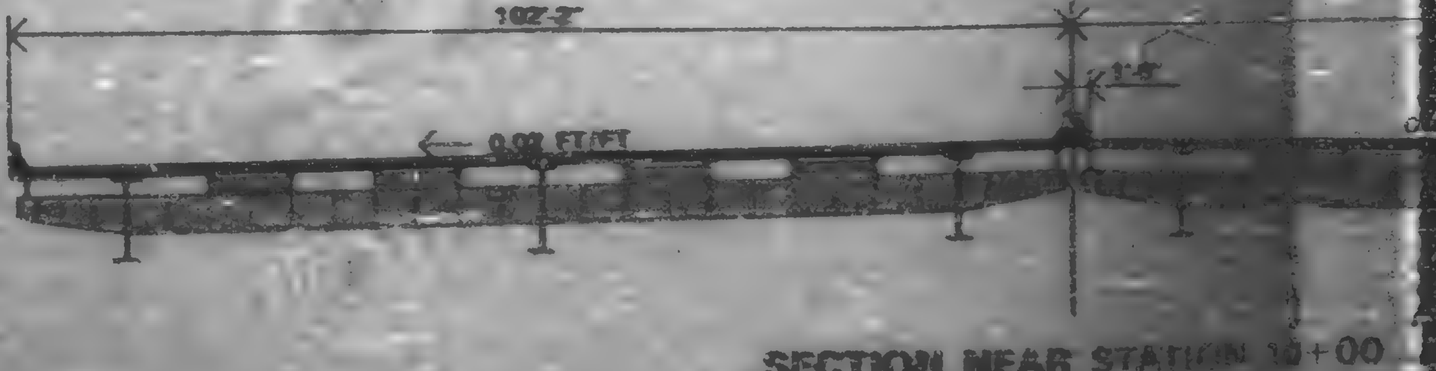
CONCEPT A
STRUCTURAL STEEL SUPERSTRUCTURE
SUPERSTRUCTURE CROSS SECTIONS


142'-10"
71'-8"
1'-6"
← 0.02 FT/FT
← 0.0

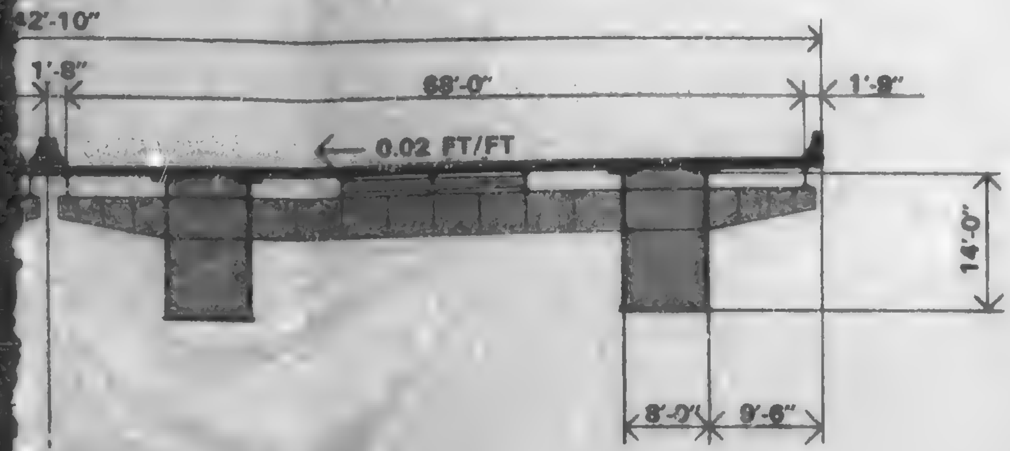
SECTION NEAR STATION 28+00


71'-8"
1'-6"
← 0.02 FT/FT

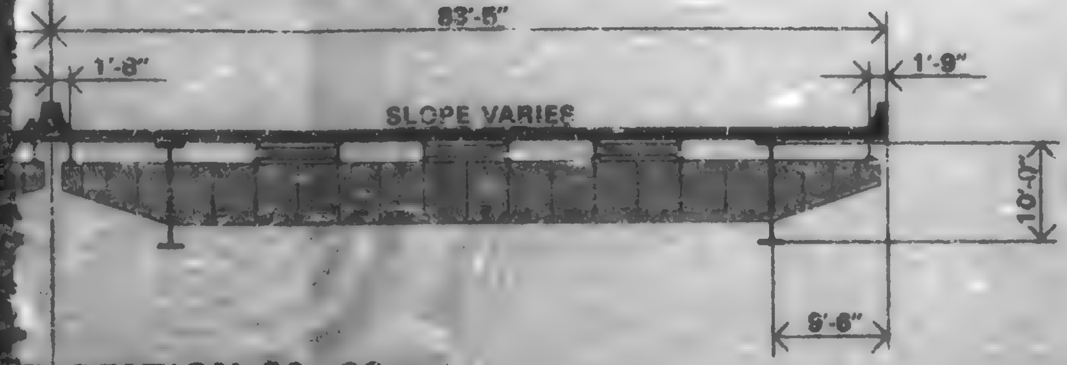
SECTION NEAR STATION 20+00


102'-2"
1'-6"
← 0.02 FT/FT

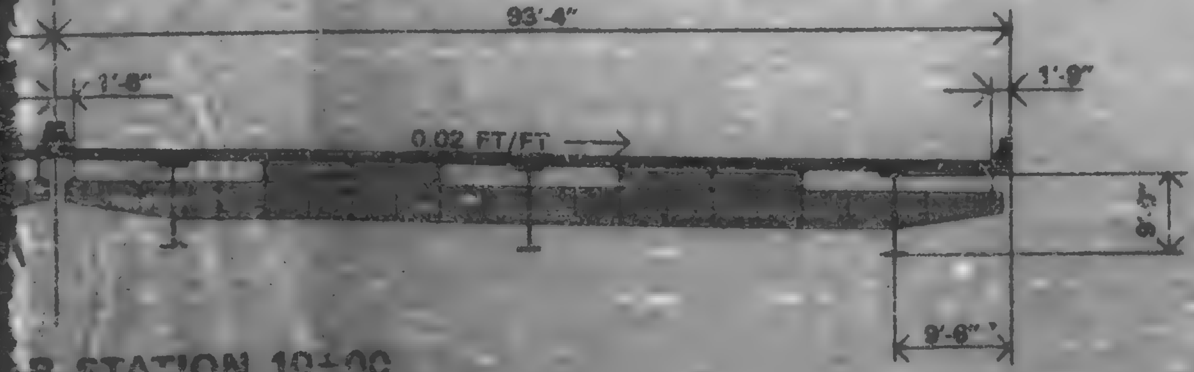
SECTION NEAR STATION 10+00


42'-10"
1'-8"
68'-0"
1'-9"
0.02 FT/FT
14'-0"
8'-0"
9'-6"

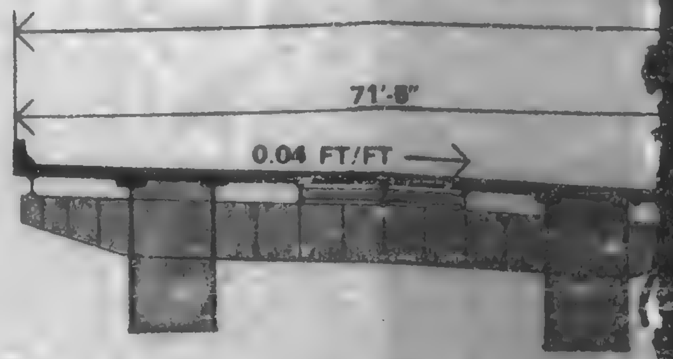
R STATION 28+00


83'-5"
1'-8"
1'-9"
SLOPE VARIES
10'-0"
9'-6"

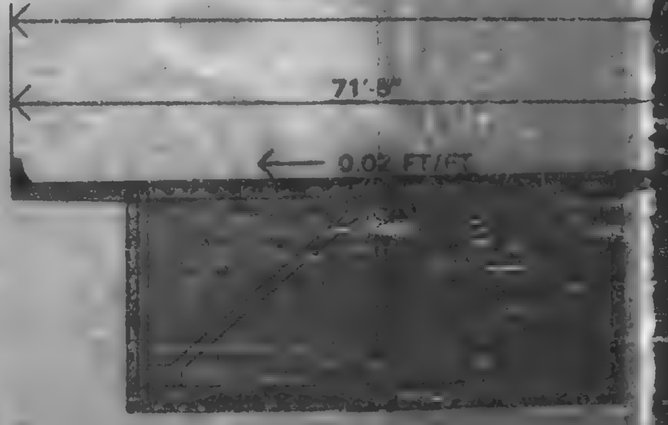
R STATION 20+00


93'-4"
1'-8"
1'-9"
0.02 FT/FT
8'-5"
9'-6"

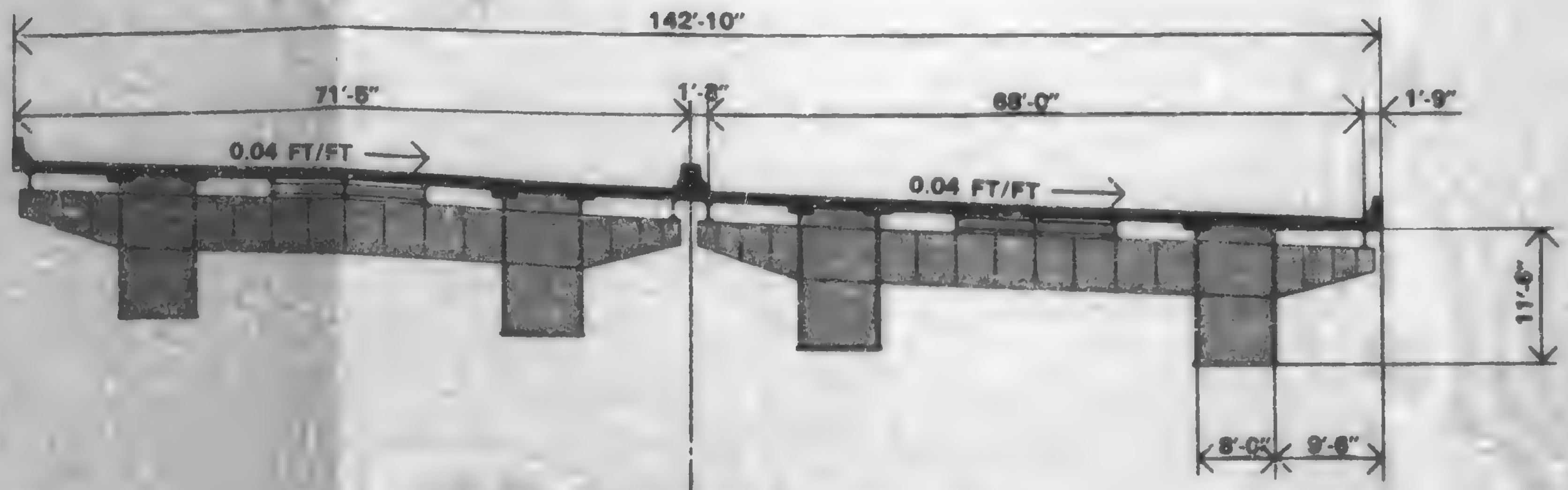
AR STATION 10+00


71'-8"
0.04 FT/FT

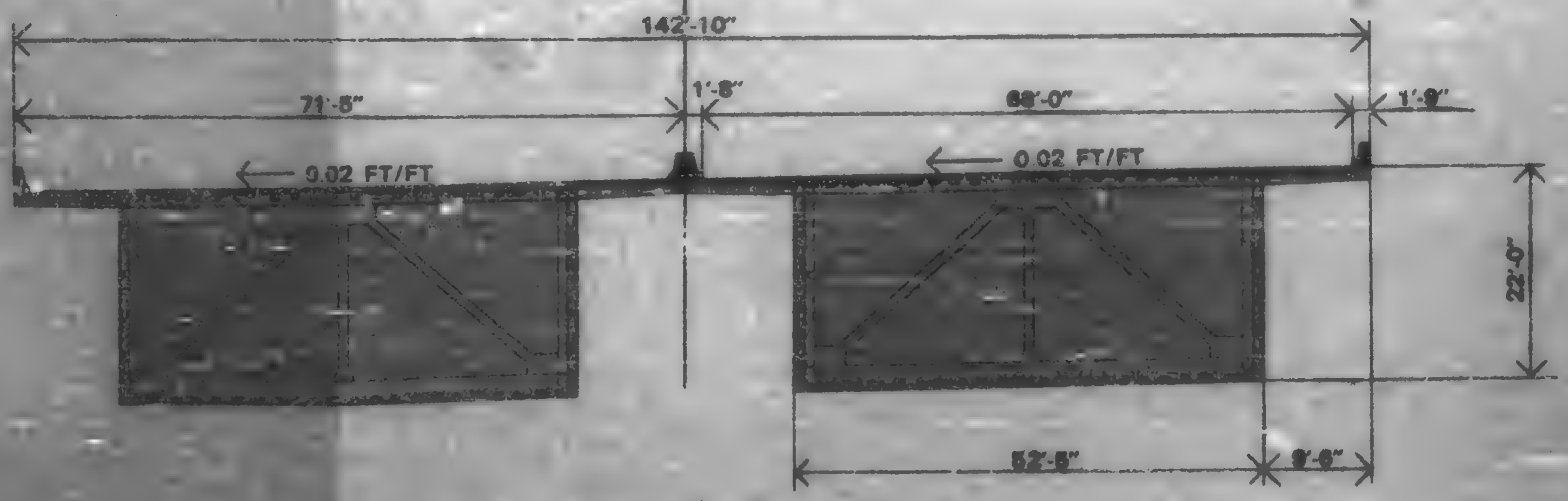
SECTION N


71'-8"
0.02 FT/FT

SECTION N


142'-10"
71'-5"
1'-8"
68'-0"
1'-9"
0.04 FT/FT
0.04 FT/FT
11'-6"
8'-0"
9'-6"

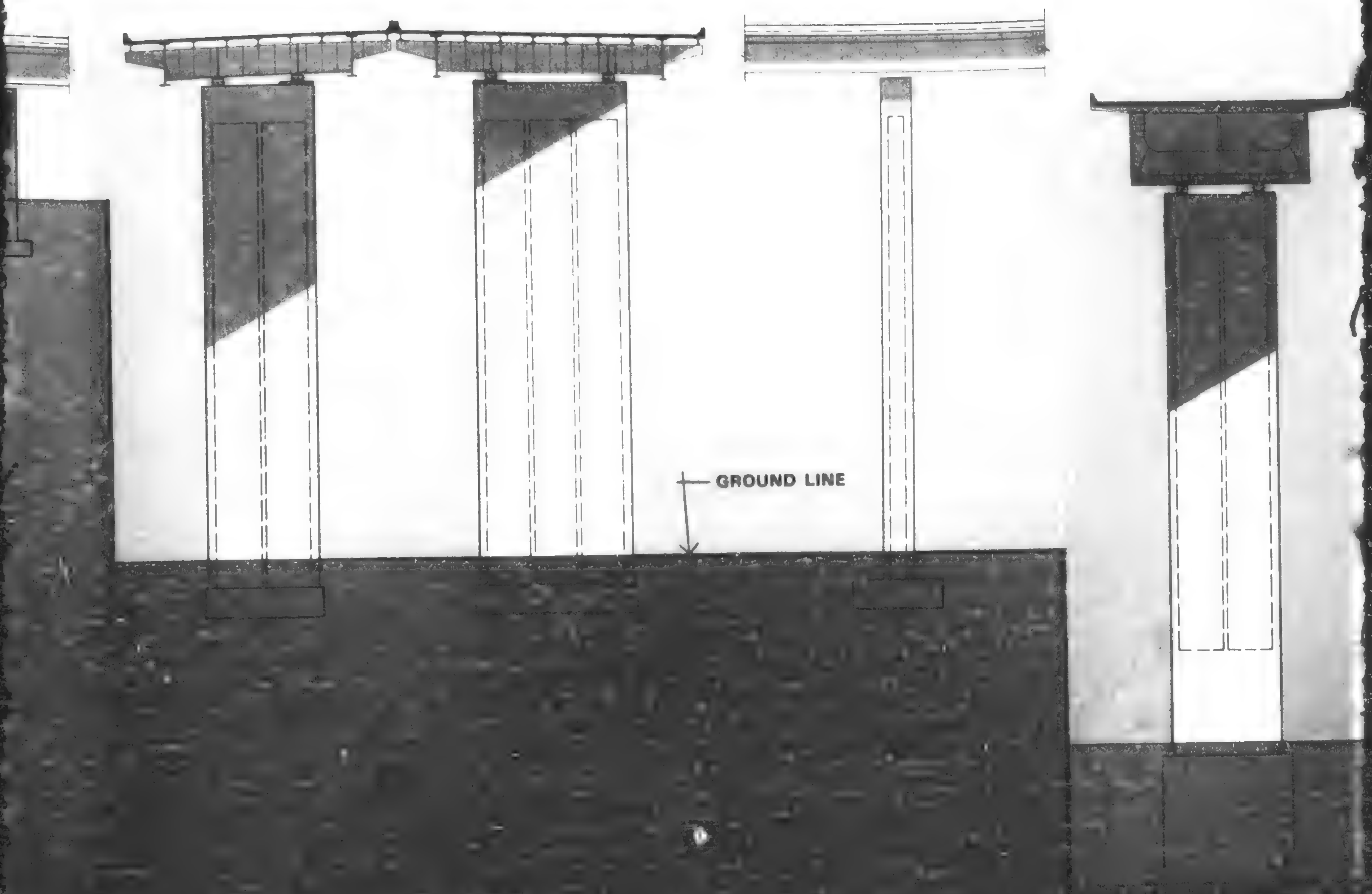
SECTION NEAR STATION 78+00

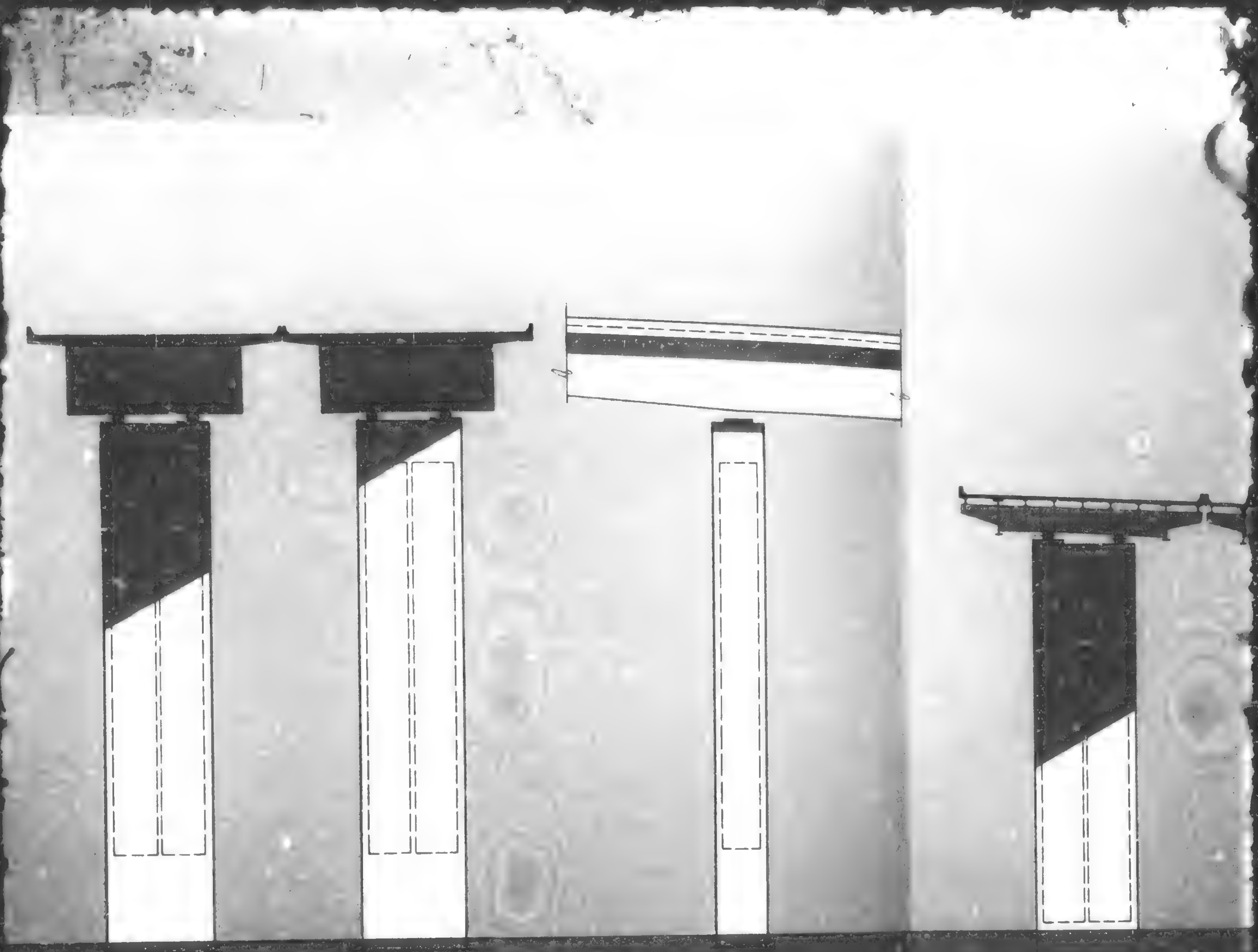

142'-10"
71'-5"
1'-8"
68'-0"
1'-9"
0.02 FT/FT
0.02 FT/FT
22'-0"
52'-5"
9'-6"

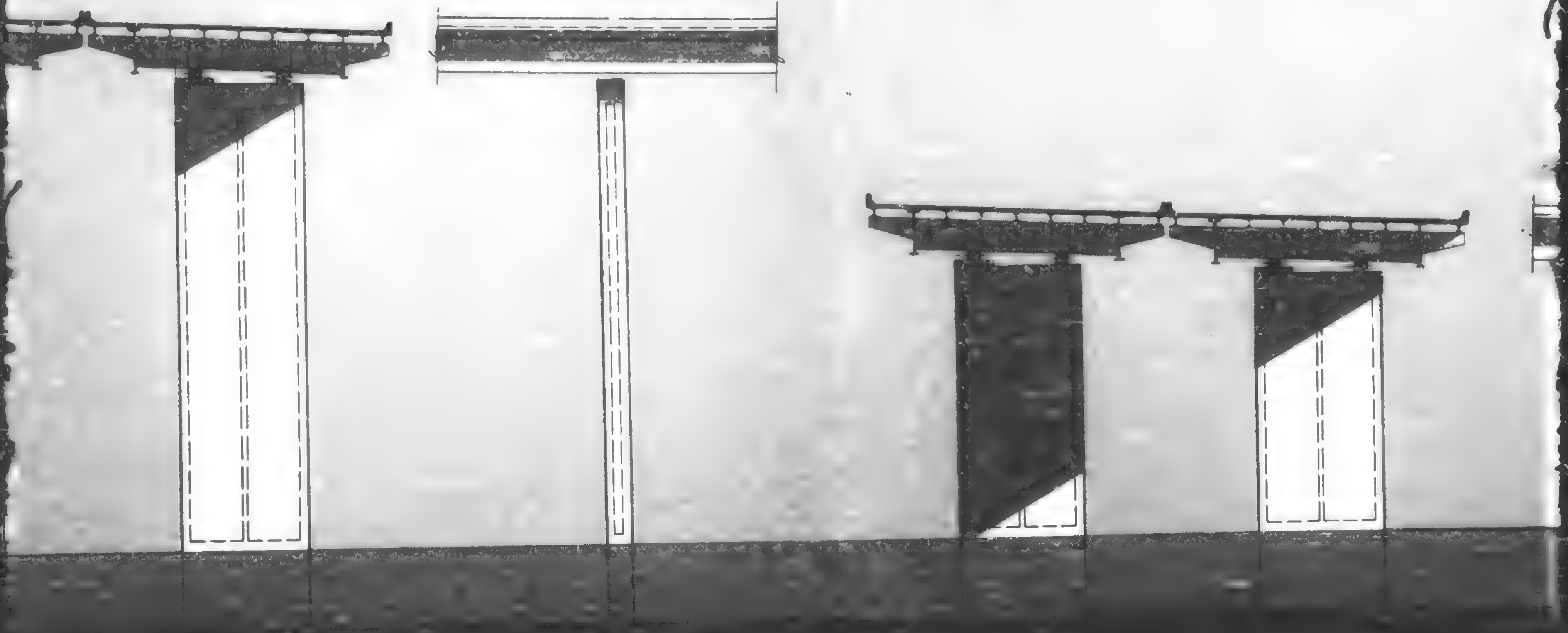
SECTION NEAR STATION 34+00

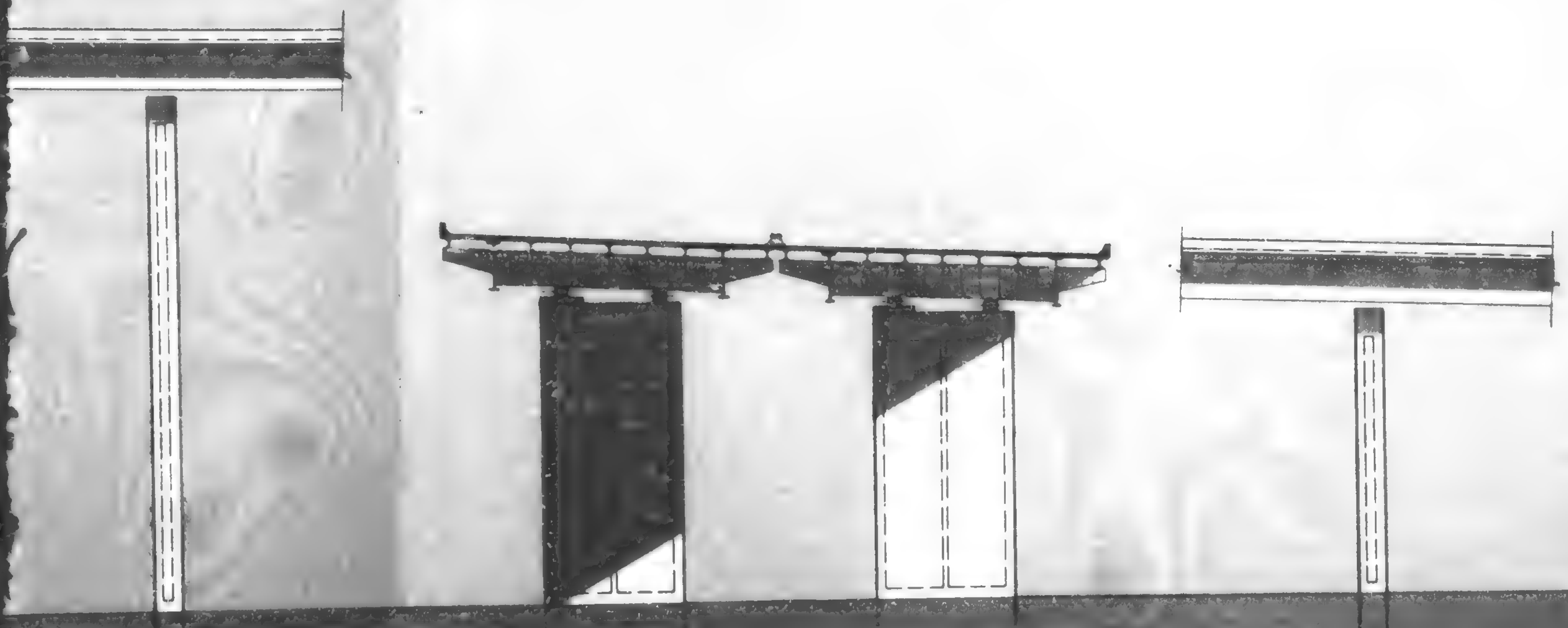
CONCEPT A
STRUCTURAL STEEL SUPERSTRUCTURE
PIERS

FRONT ELEVATION
SIDE ELEV
STATION 12+00

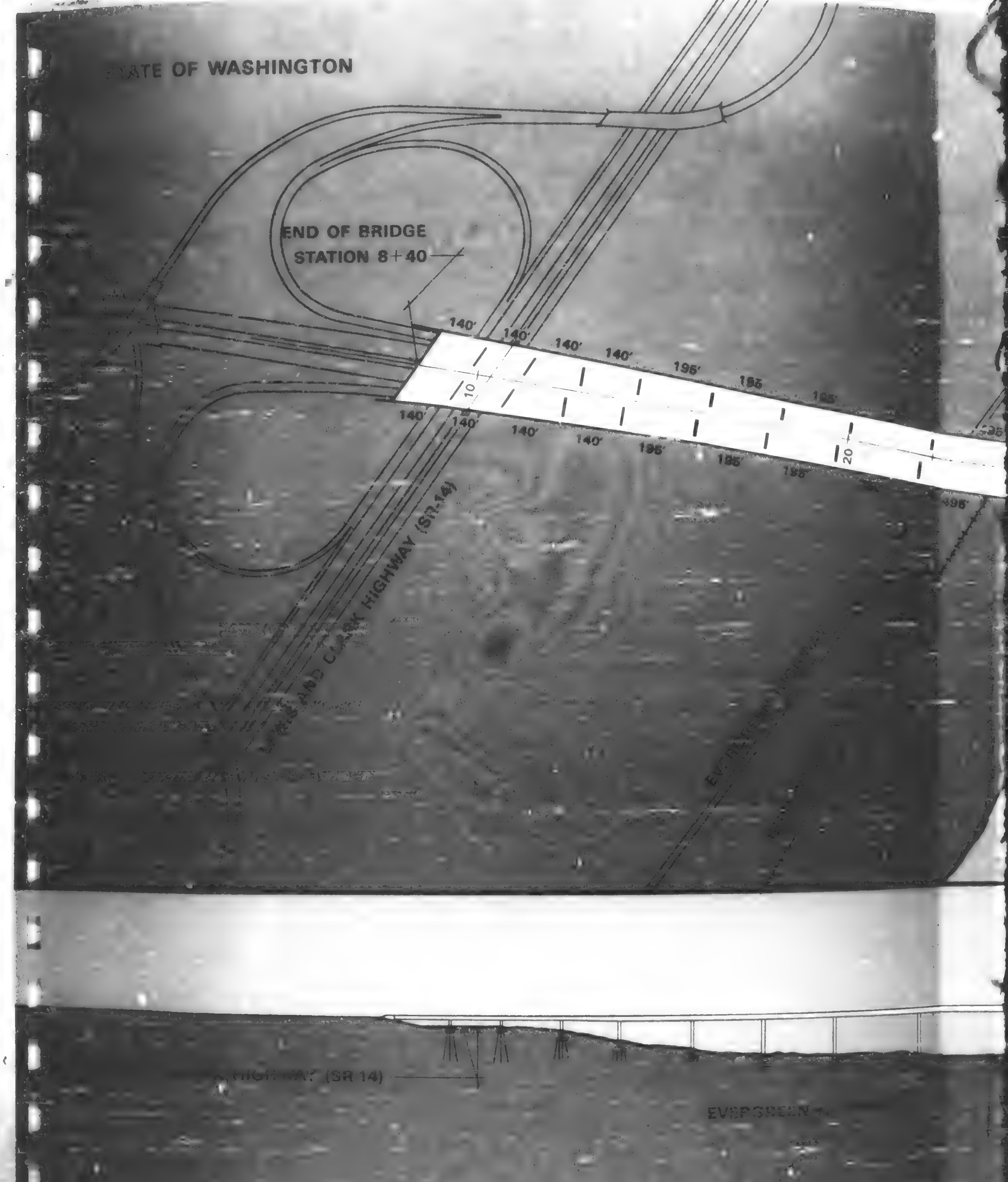

GROUND LINE



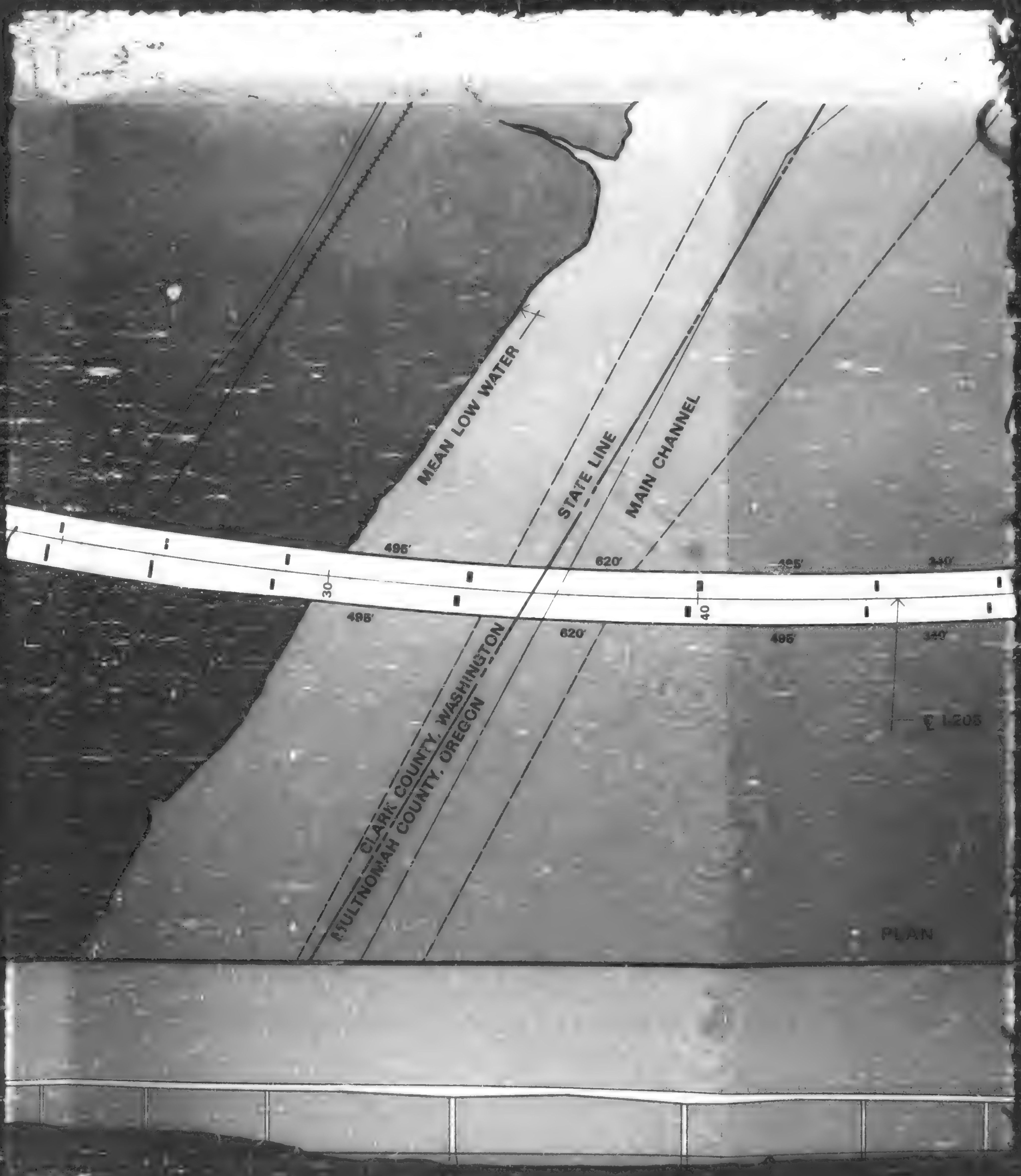




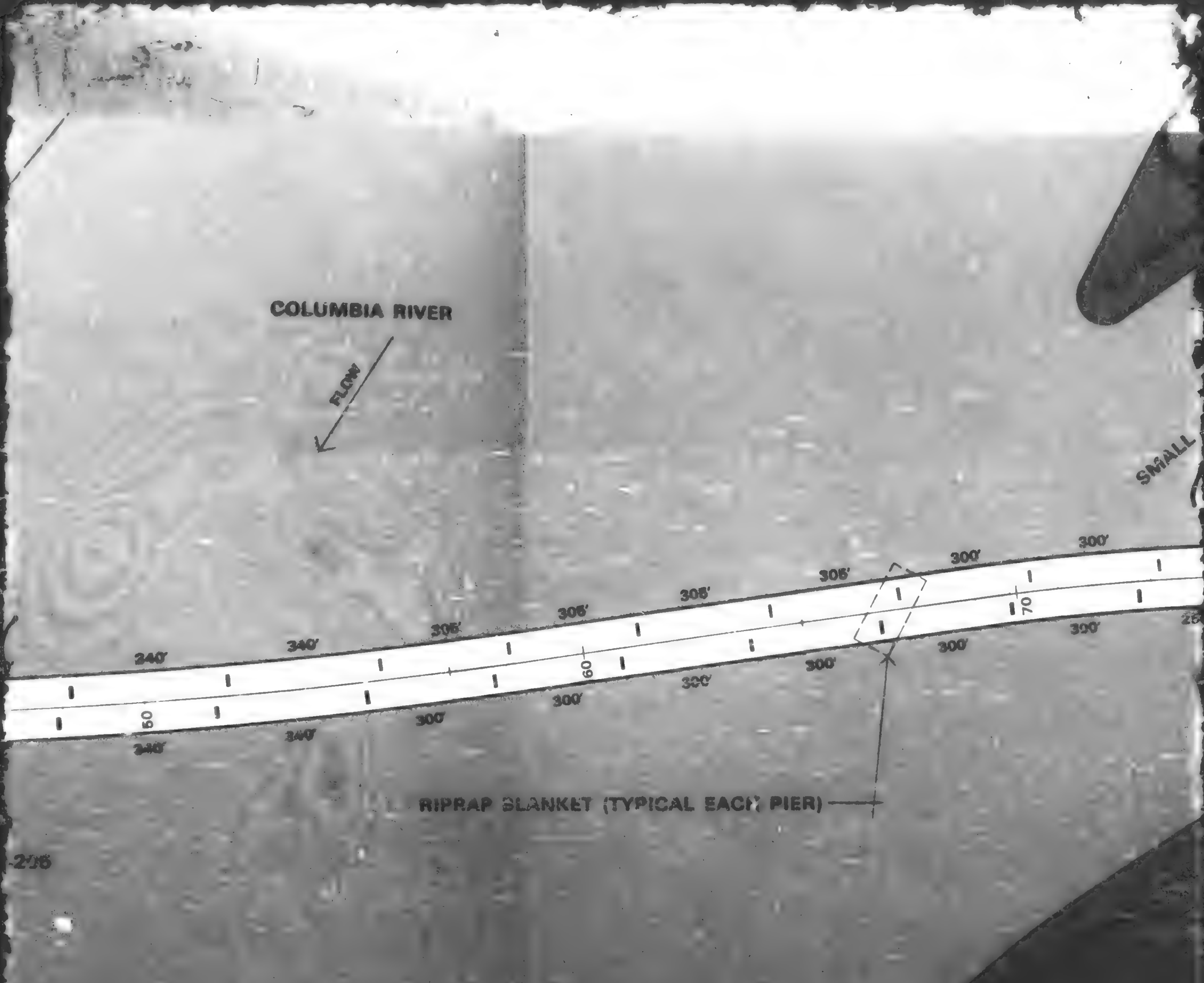
CONCEPT B
PRESTRESSED CONCRETE SUPERSTRUCTURE
GENERAL PLAN AND ELEVATION

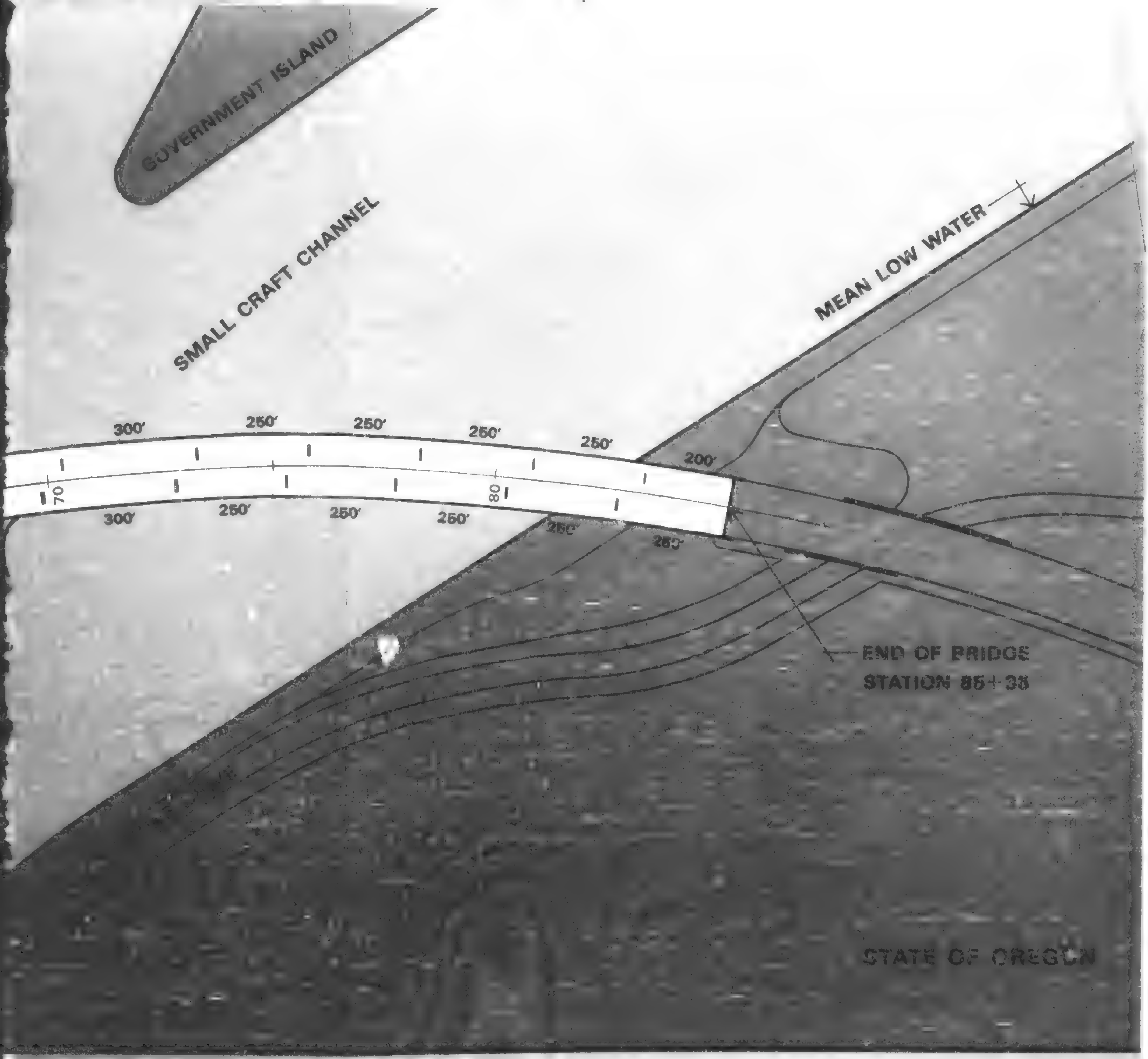


STATE OF WASHINGTON
END OF BRIDGE
STATION 8+40
LEWIS AND CLARK HIGHWAY (SR-14)
EVERGREEN HIGHWAY
HIGHWAY (SR 14)
EVERGREEN


MEAN LOW WATER
STATE LINE
MAIN CHANNEL
℄ I-205
CLARK COUNTY, WASHINGTON
MULTNOMAH COUNTY, OREGON

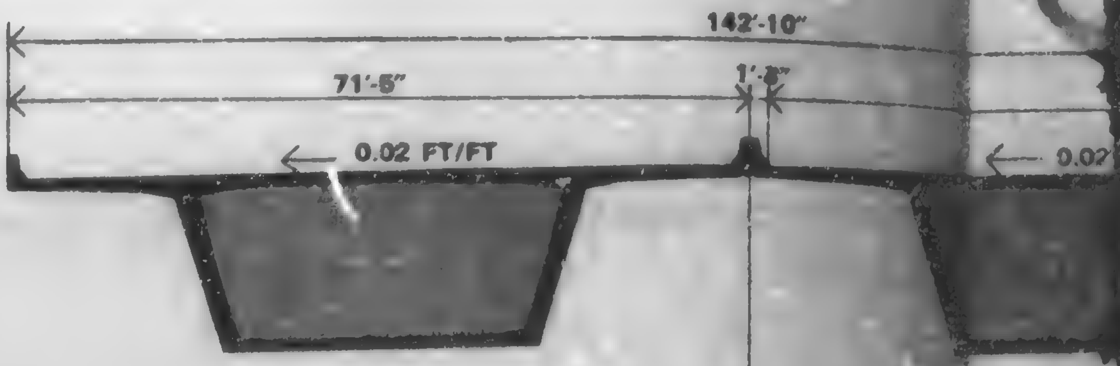
PLAN


COLUMBIA RIVER
FLOW
SMALL
RIPRAP BLANKET (TYPICAL EACH PIER)
-295

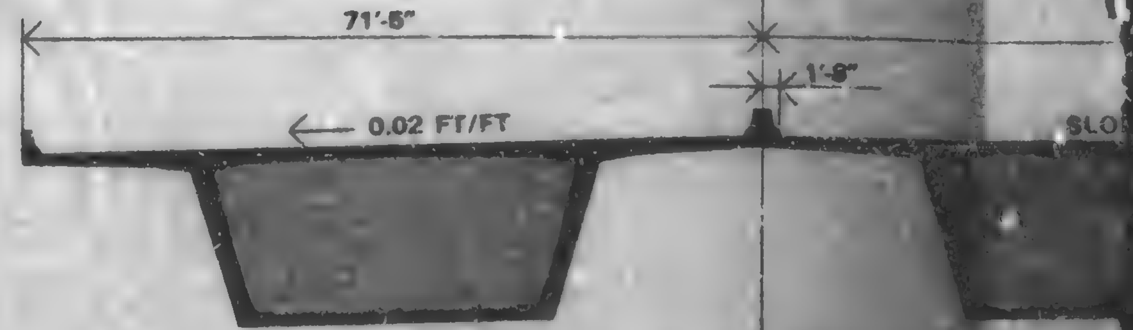

GOVERNMENT ISLAND
SMALL CRAFT CHANNEL
MEAN LOW WATER
300'
250'
250'
250'
250'
200'
70
80
300'
250'
250'
250'
250'
250'
END OF BRIDGE
STATION 85+35
STATE OF OREGON

MARINE DRIVE

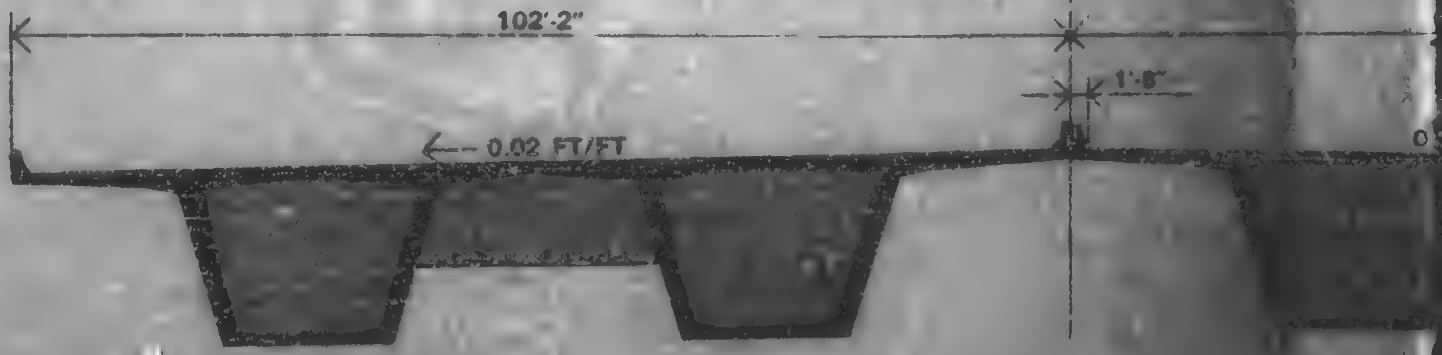
CONCEPT B
PRESTRESSED CONCRETE SUPERSTRUCTURE
SUPERSTRUCTURE CROSS SECTIONS


142'-10"
71'-5"
1'-8"
0.02 FT/FT
0.02

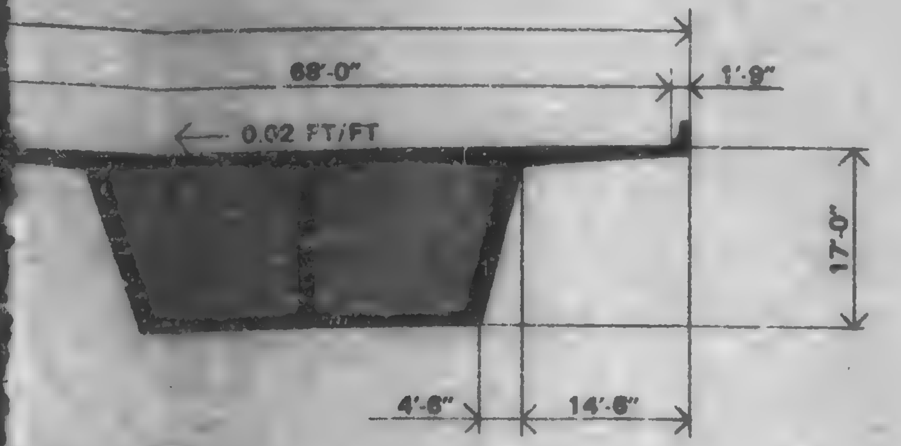
SECTION NEAR STATION 28+00


71'-5"
1'-8"
0.02 FT/FT
SLO

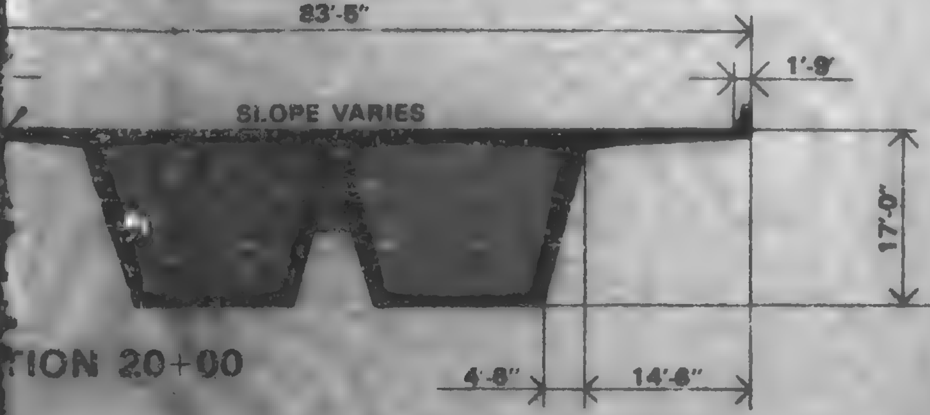
SECTION NEAR STATION 29+00


102'-2"
1'-8"
0.02 FT/FT
0

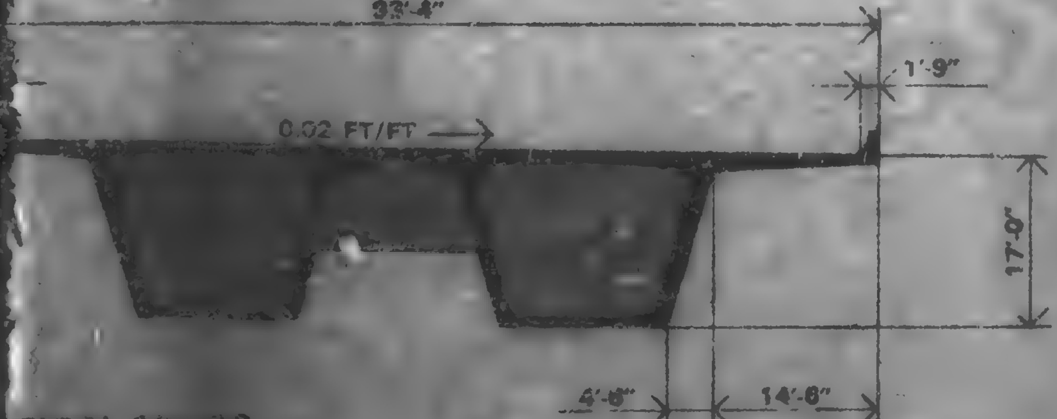
SECTION NEAR STATION 30+00


68'-0"
1'-9"
0.02 FT/FT
17'-0"
4'-6"
14'-6"

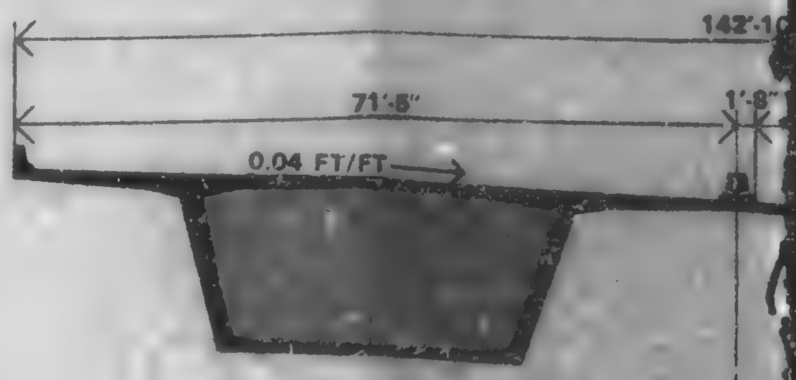
TION 28+00


83'-5"
1'-9"
SLOPE VARIES
17'-0"
4'-6"
14'-6"

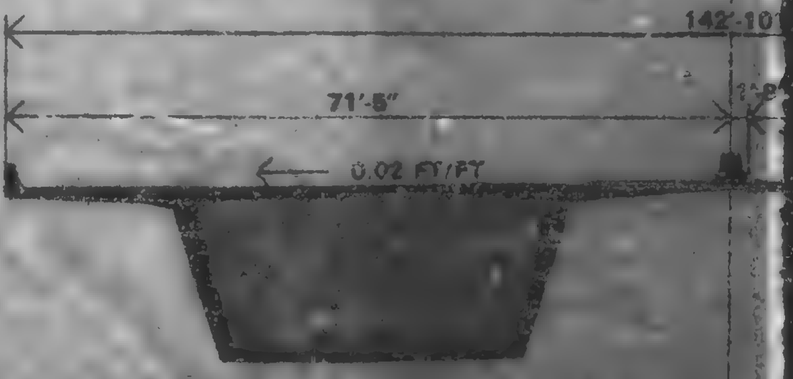
TION 20+00


93'-4"
1'-9"
0.02 FT/FT
17'-0"
4'-6"
14'-6"

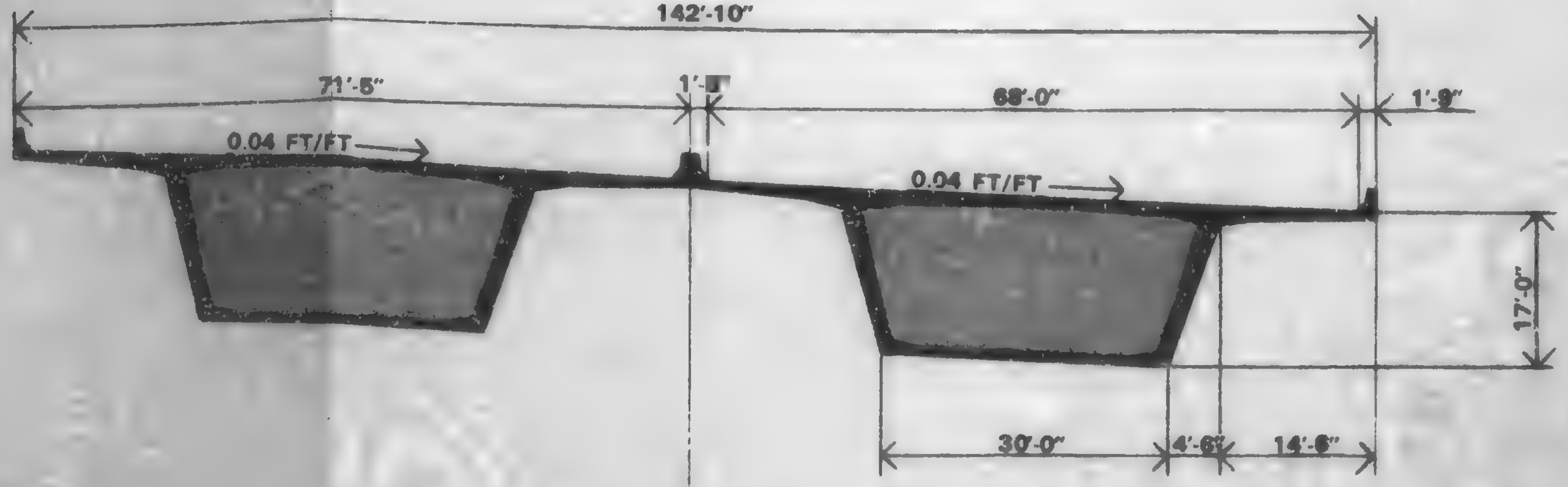
TION 10+00


142'-10
71'-5"
1'-8"
0.04 FT/FT

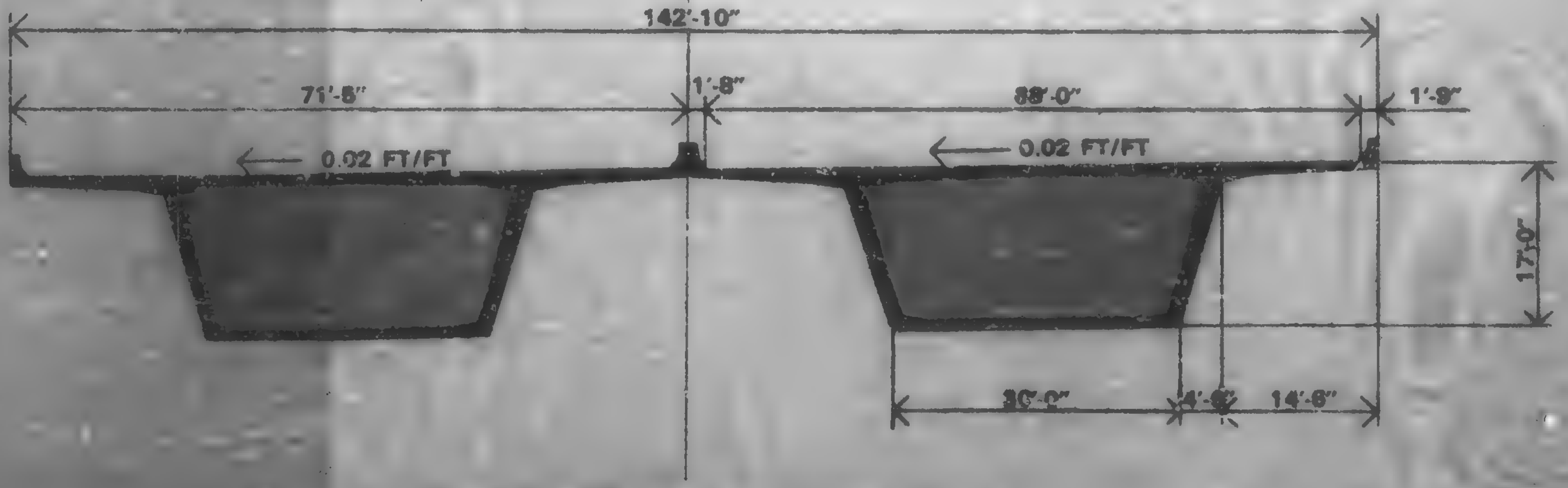
SECTION NEAR S


142'-10
71'-5"
1'-8"
0.02 FT/FT

SECTION NEAR S

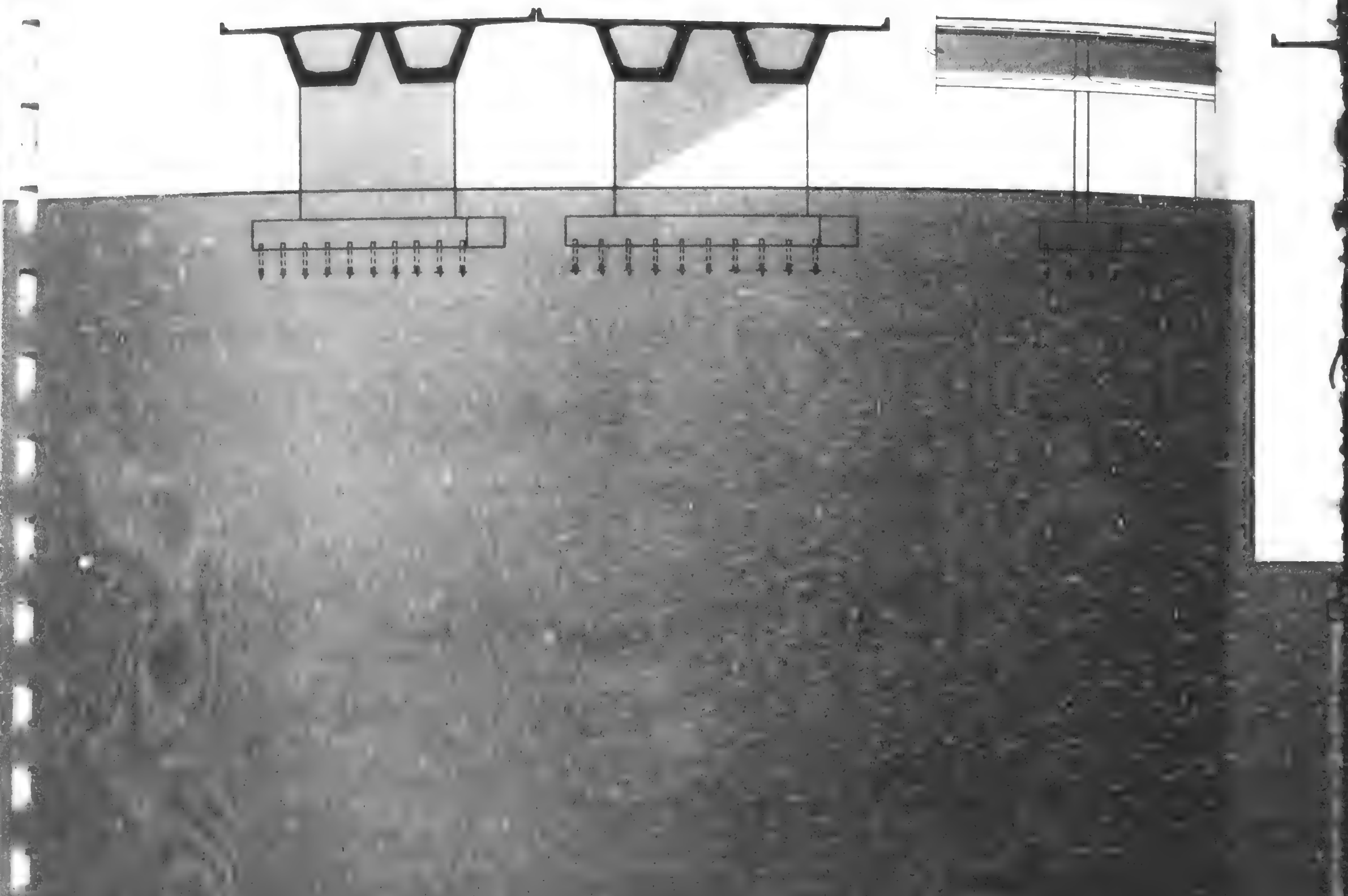

142'-10"
71'-5"
1'-8"
68'-0"
1'-9"
0.04 FT/FT
0.04 FT/FT
17'-0"
30'-0"
4'-6"
14'-6"

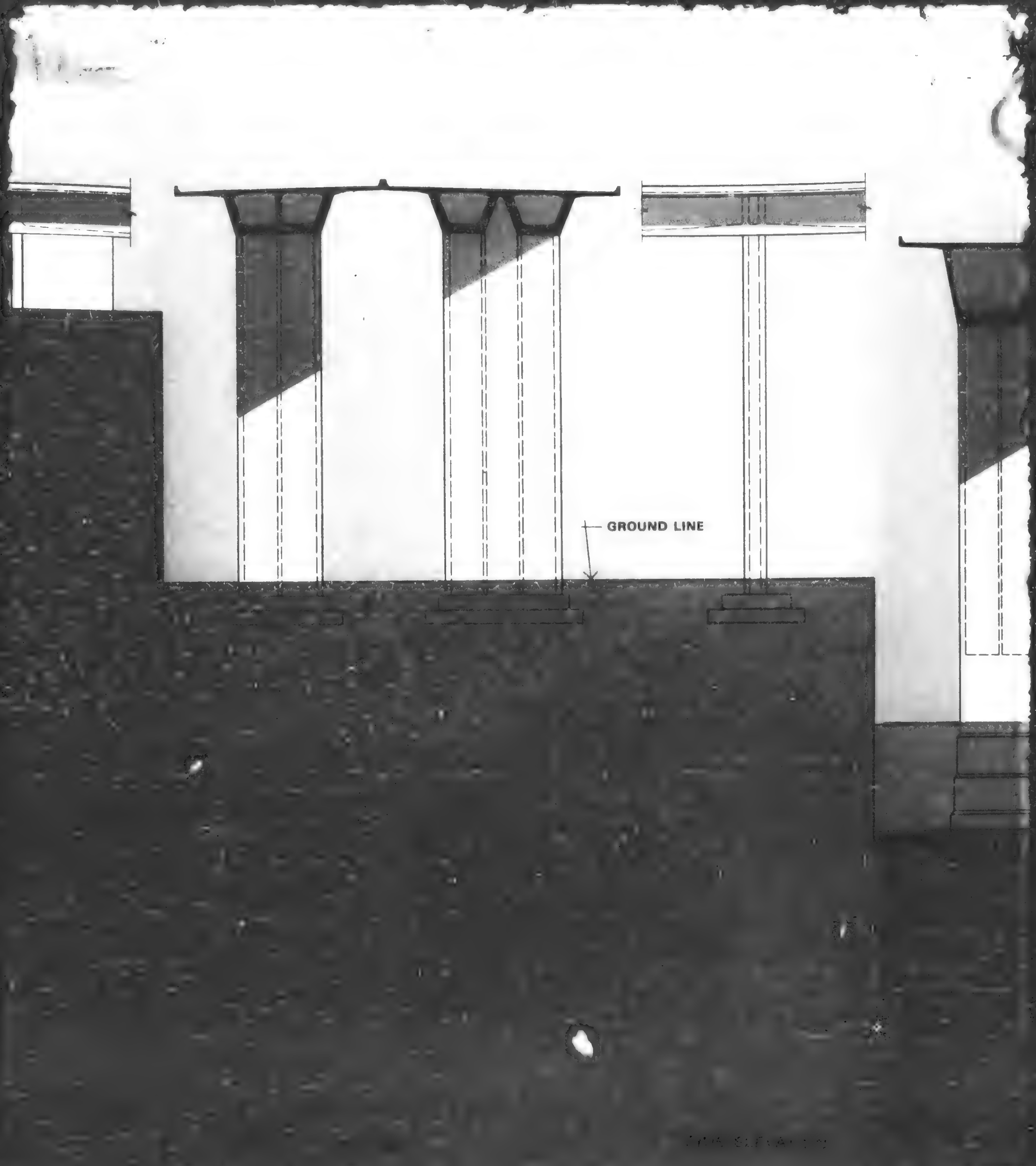
SECTION NEAR STATION 78+00

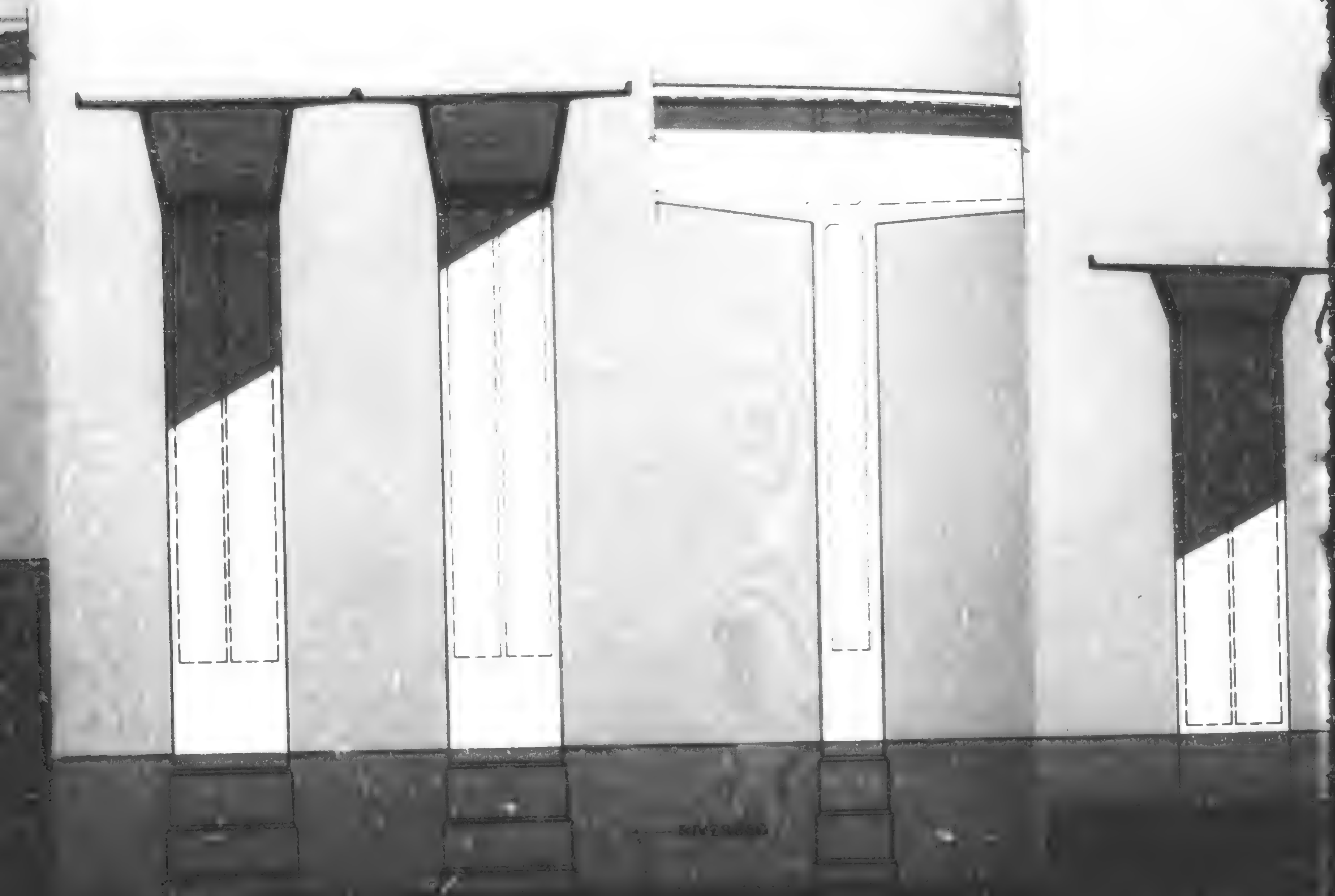

142'-10"
71'-5"
1'-8"
68'-0"
1'-9"
0.02 FT/FT
0.02 FT/FT
17'-0"
30'-0"
4'-6"
14'-6"

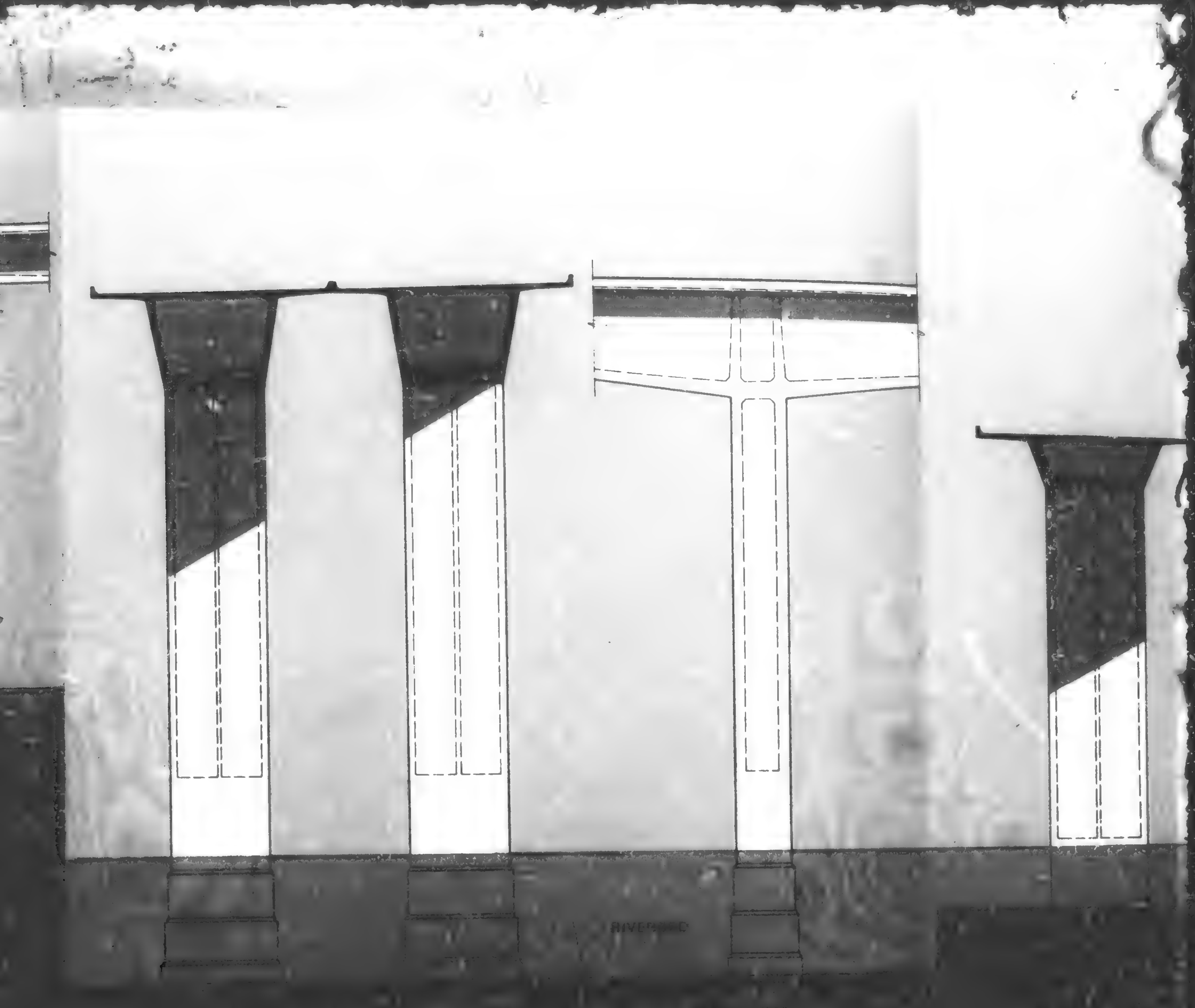
SECTION NEAR STATION 34+00

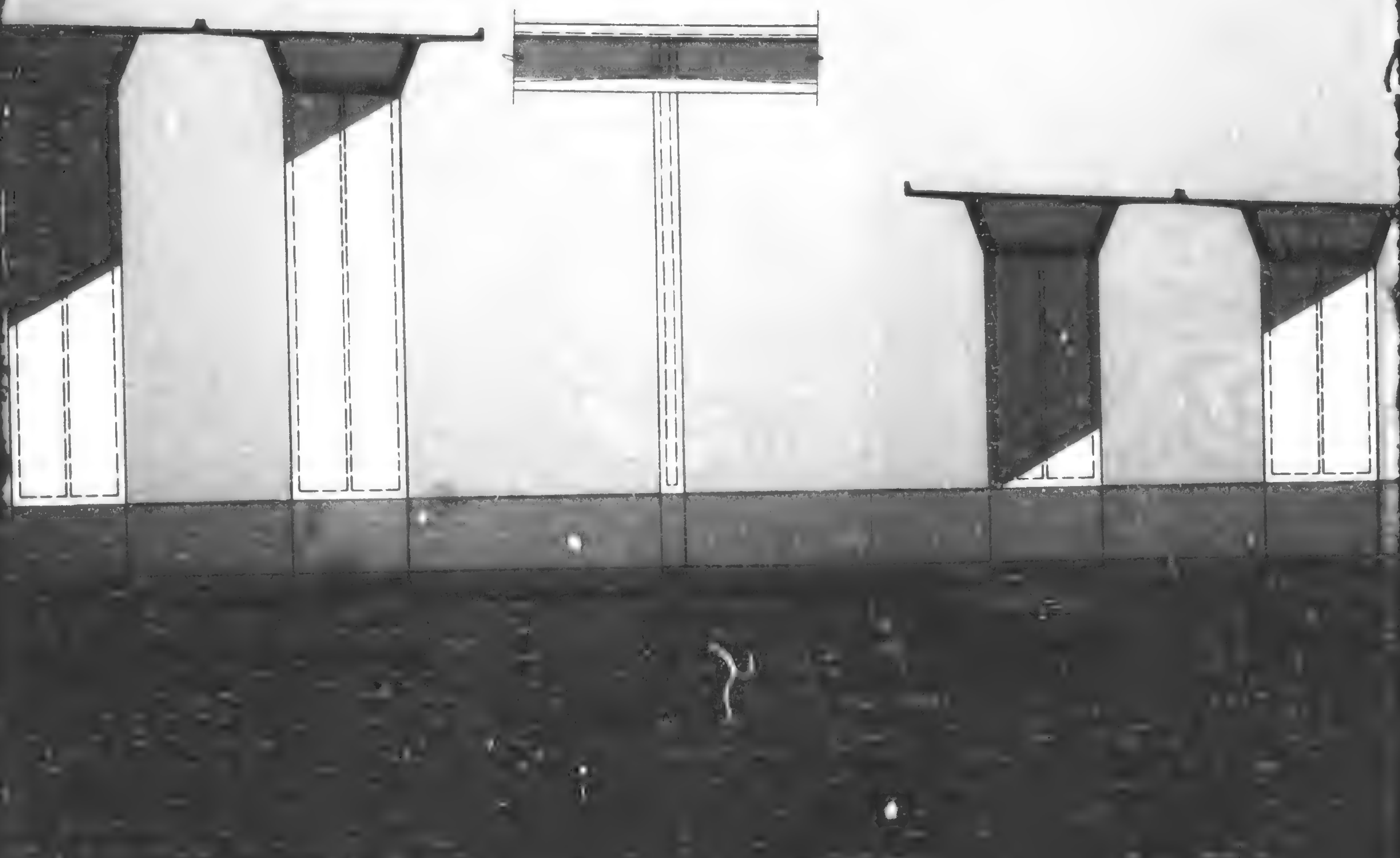
CONCEPT B
PRESTRESSED CONCRETE SUPERSTRUCTURE
PIERS

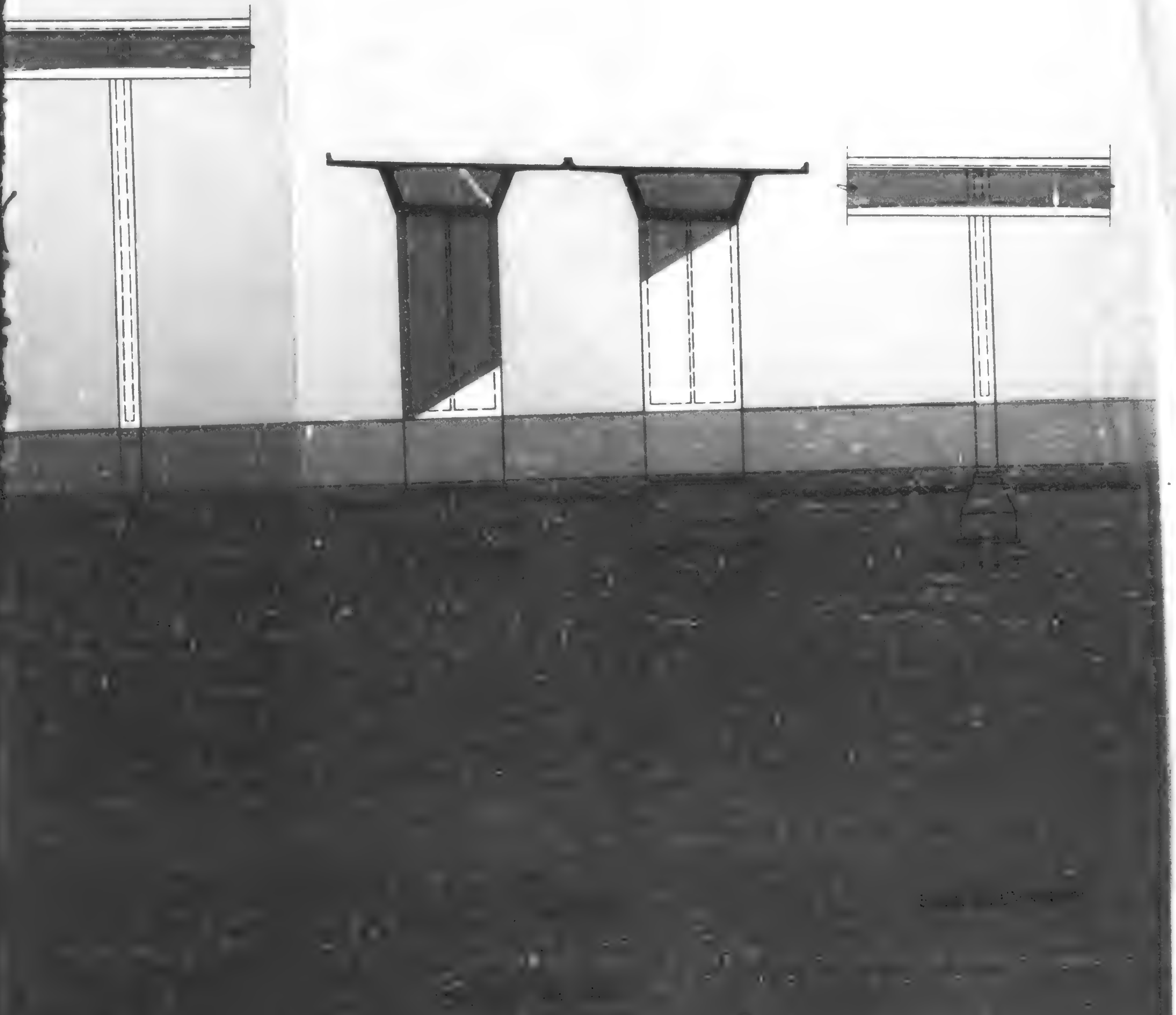

FRONT ELEVATION
SIDE
STATION 12+00


GROUND LINE
SIDE ELEVATION


RIVER BED

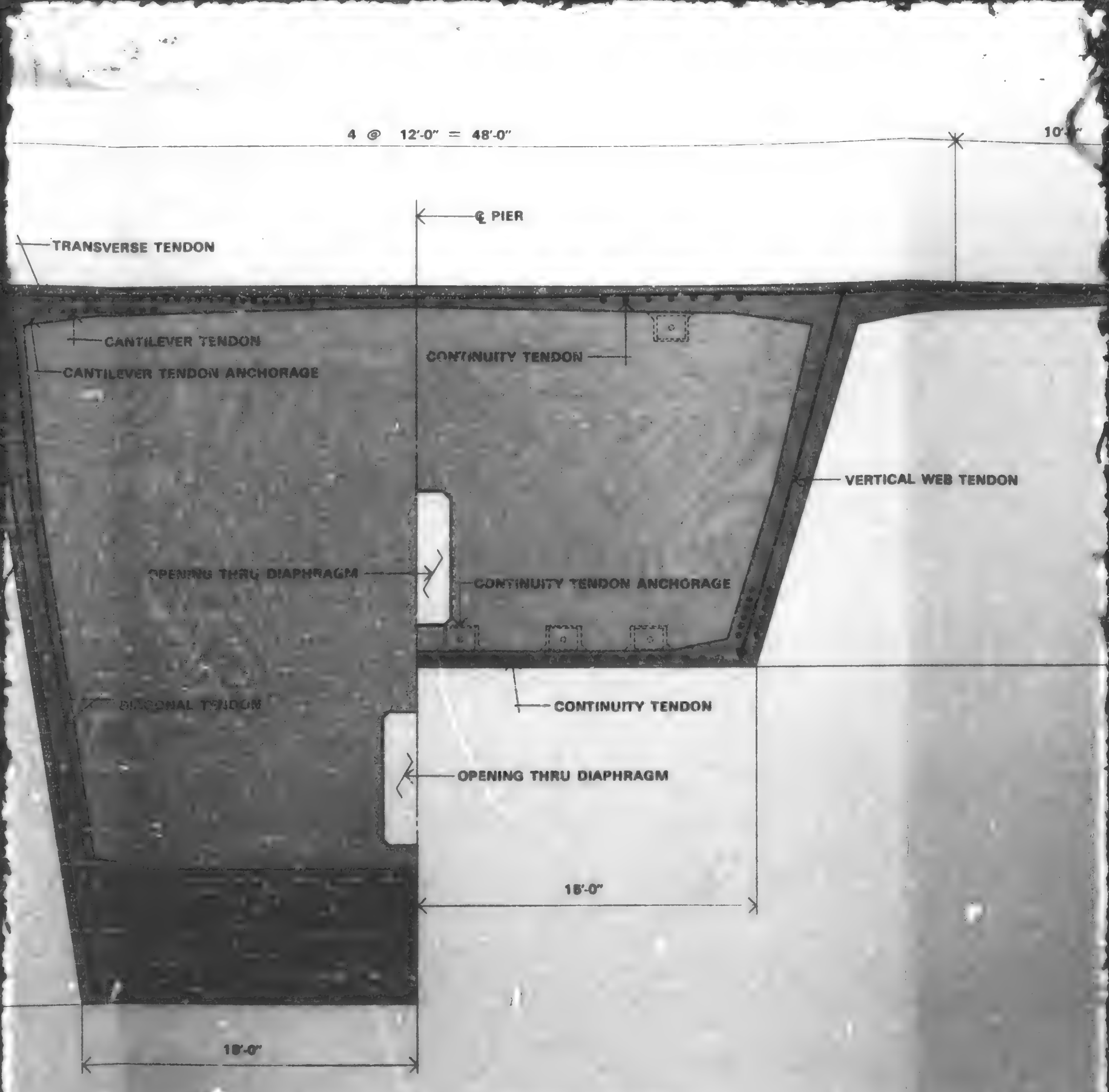

RIVERBED





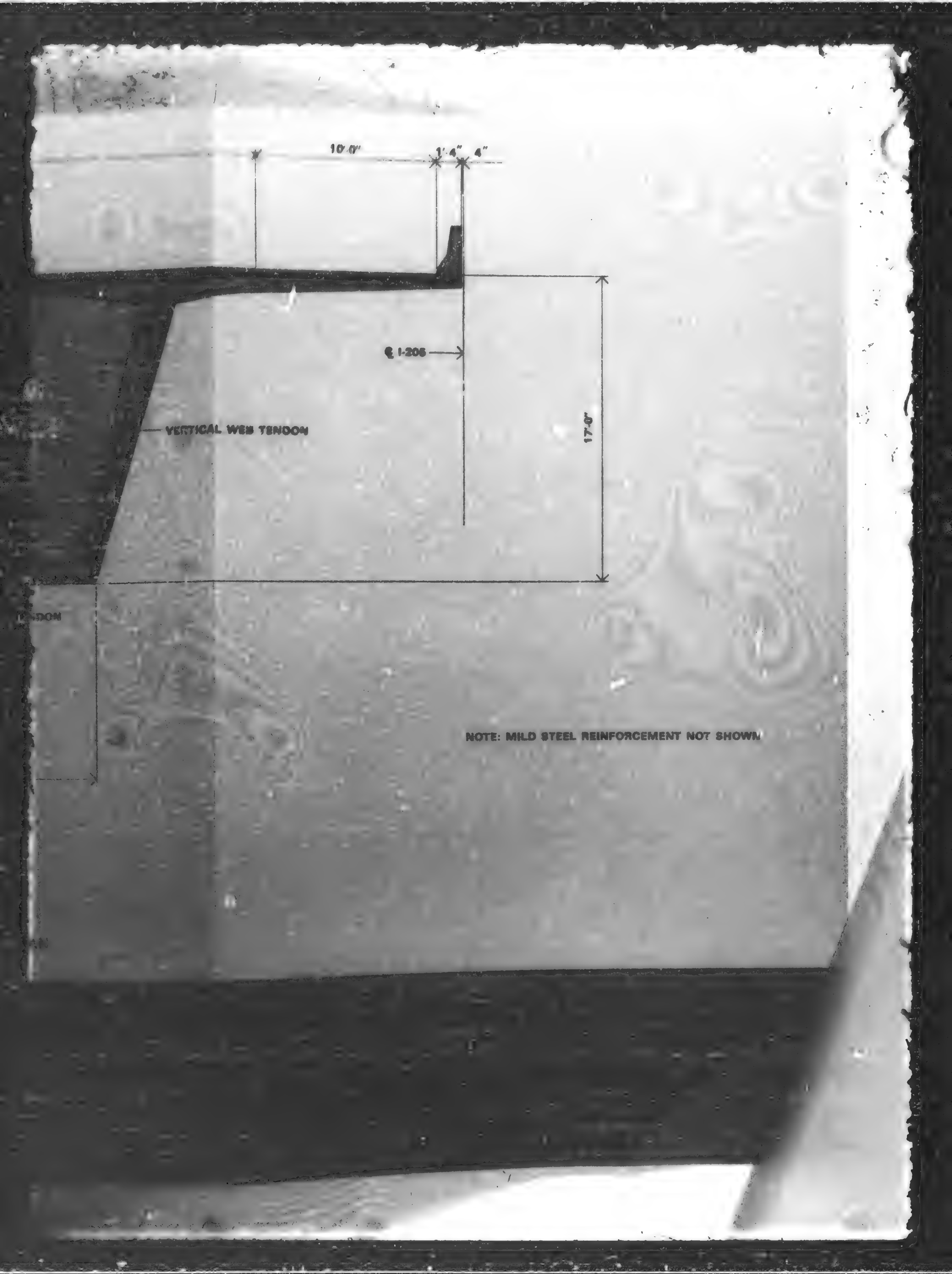
CONCEPT B
PRESTRESSED CONCRETE SUPERSTRUCTURE
TENDON ARRANGEMENT

1'-9"
10'-0"
TRANSVERSE TE
32'-0"
S

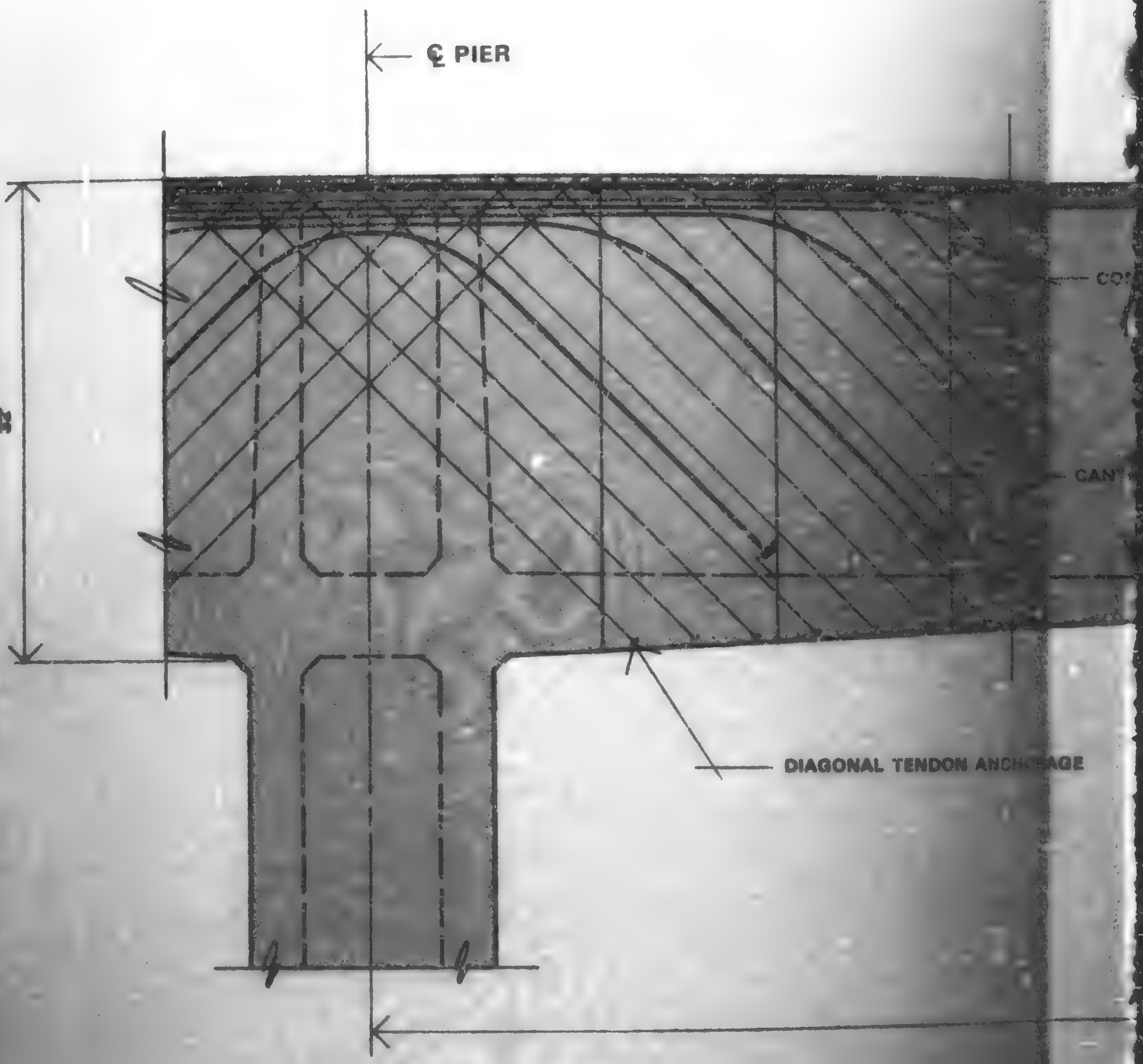

4 @ 12'-0" = 48'-0"
10'-
℄ PIER
TRANSVERSE TENDON
CANTILEVER TENDON
CANTILEVER TENDON ANCHORAGE
CONTINUITY TENDON
VERTICAL WEB TENDON
OPENING THRU DIAPHRAGM
CONTINUITY TENDON ANCHORAGE
DIAGONAL TENDON
CONTINUITY TENDON
OPENING THRU DIAPHRAGM
18'-0"
18'-0"

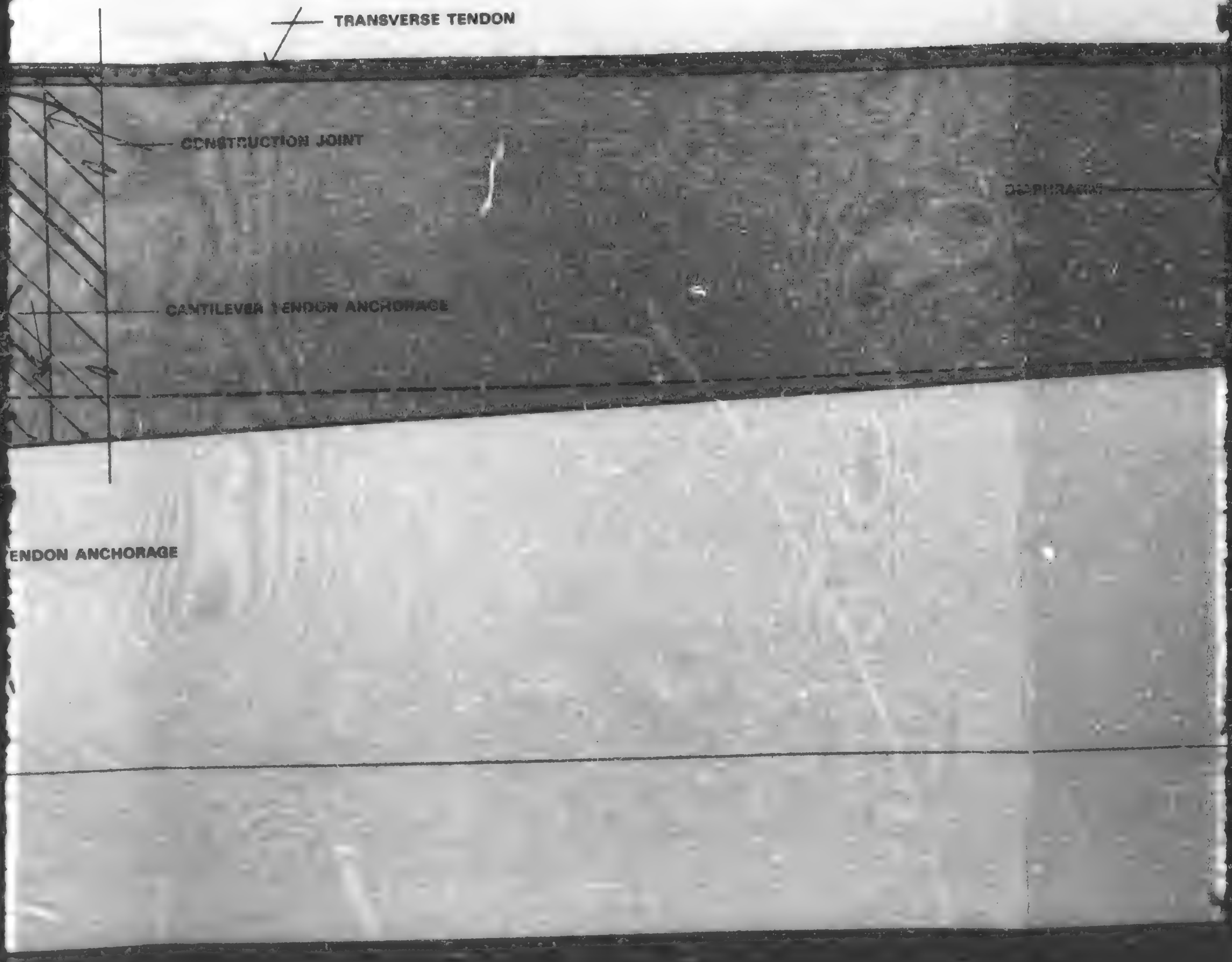
SECTION NEAR PIER

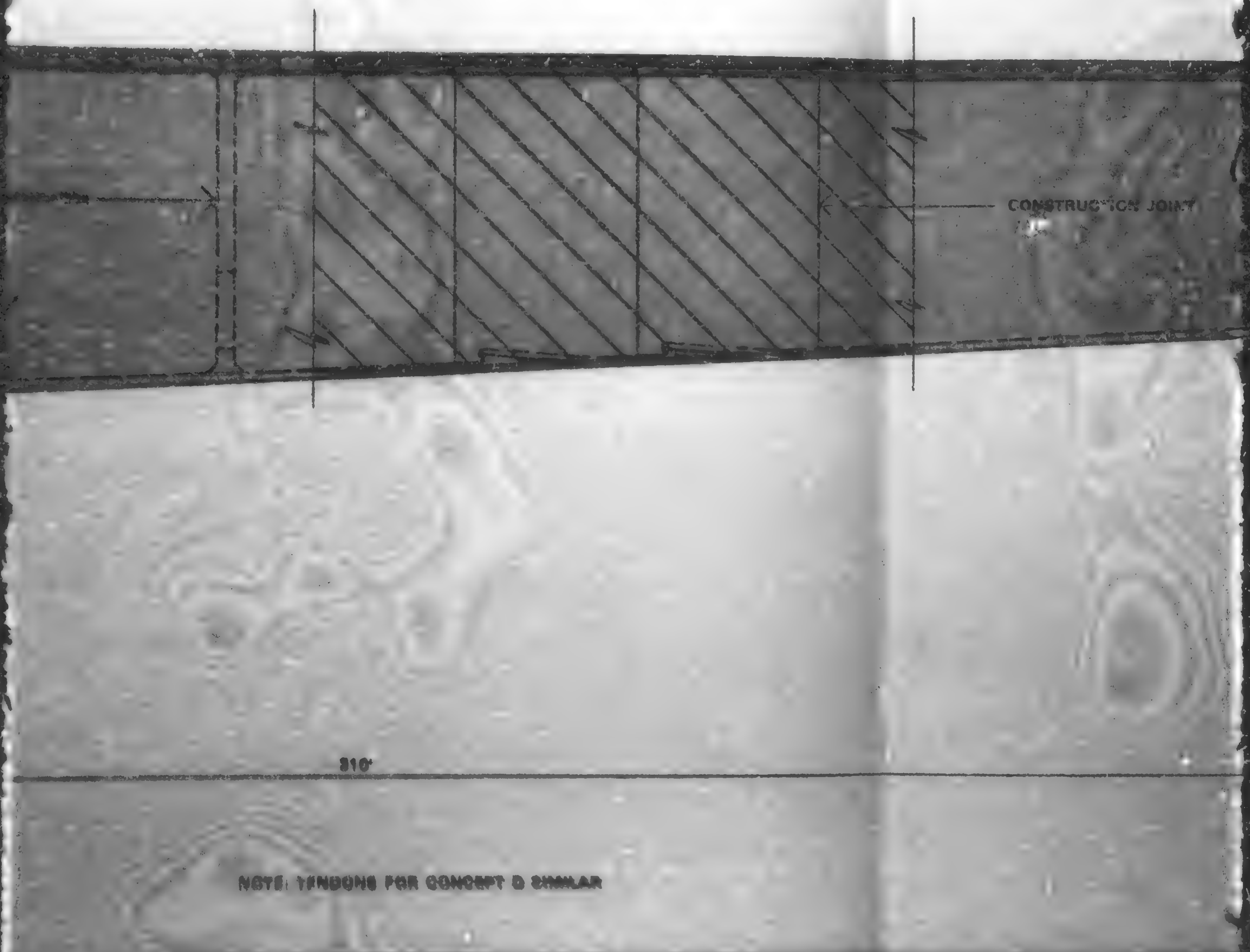
SECTION AT MIDSPAN

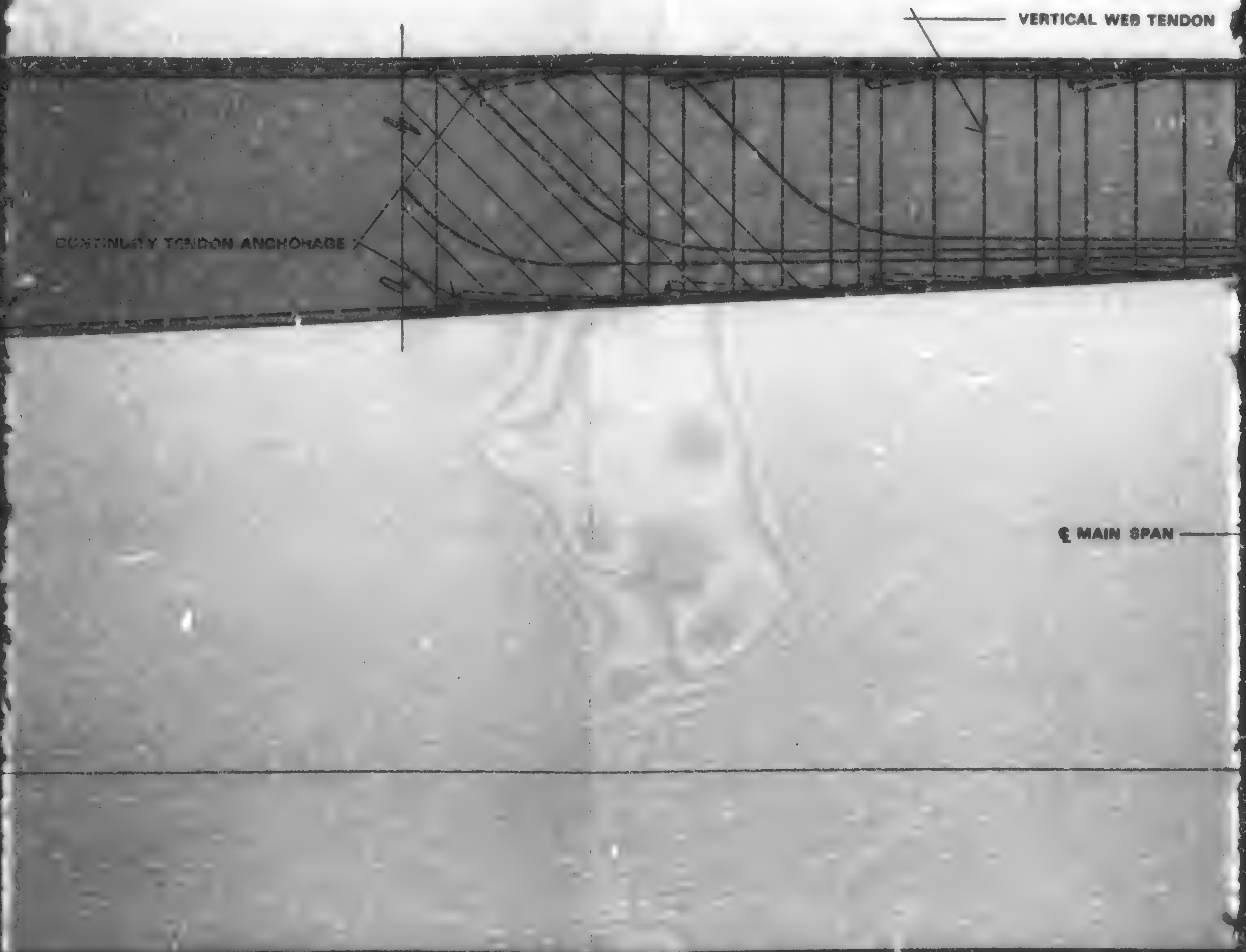

10'0"
1'4"
4"
℄ I-205
VERTICAL WEB TENDON
17'0"
TENDON
NOTE: MILD STEEL REINFORCEMENT NOT SHOWN

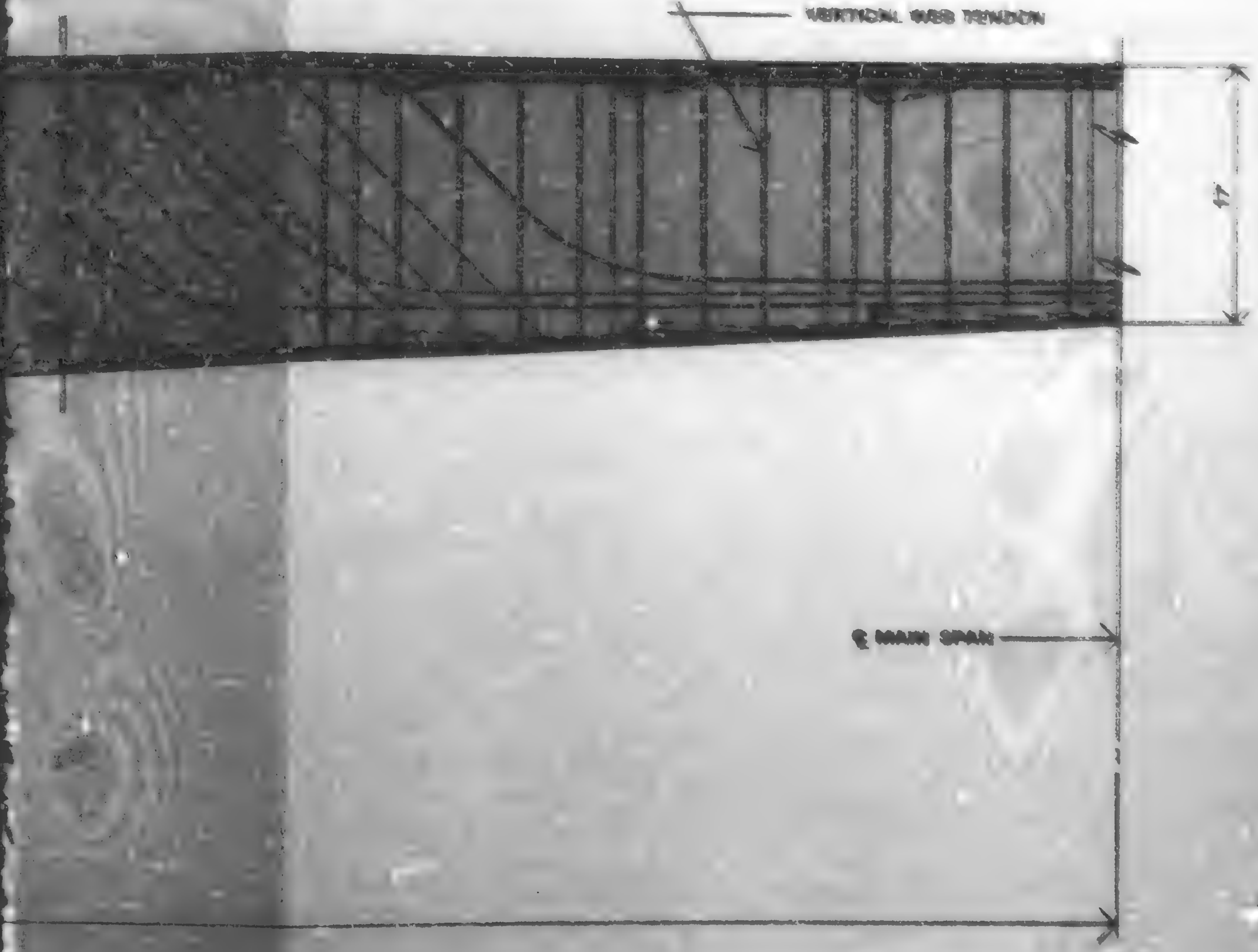
CONCEPT B
PRESTRESSED CONCRETE SUPERSTRUCTURE
TENDON PROFILE


℄ PIER
32'
CON
CANT
DIAGONAL TENDON ANCHORAGE

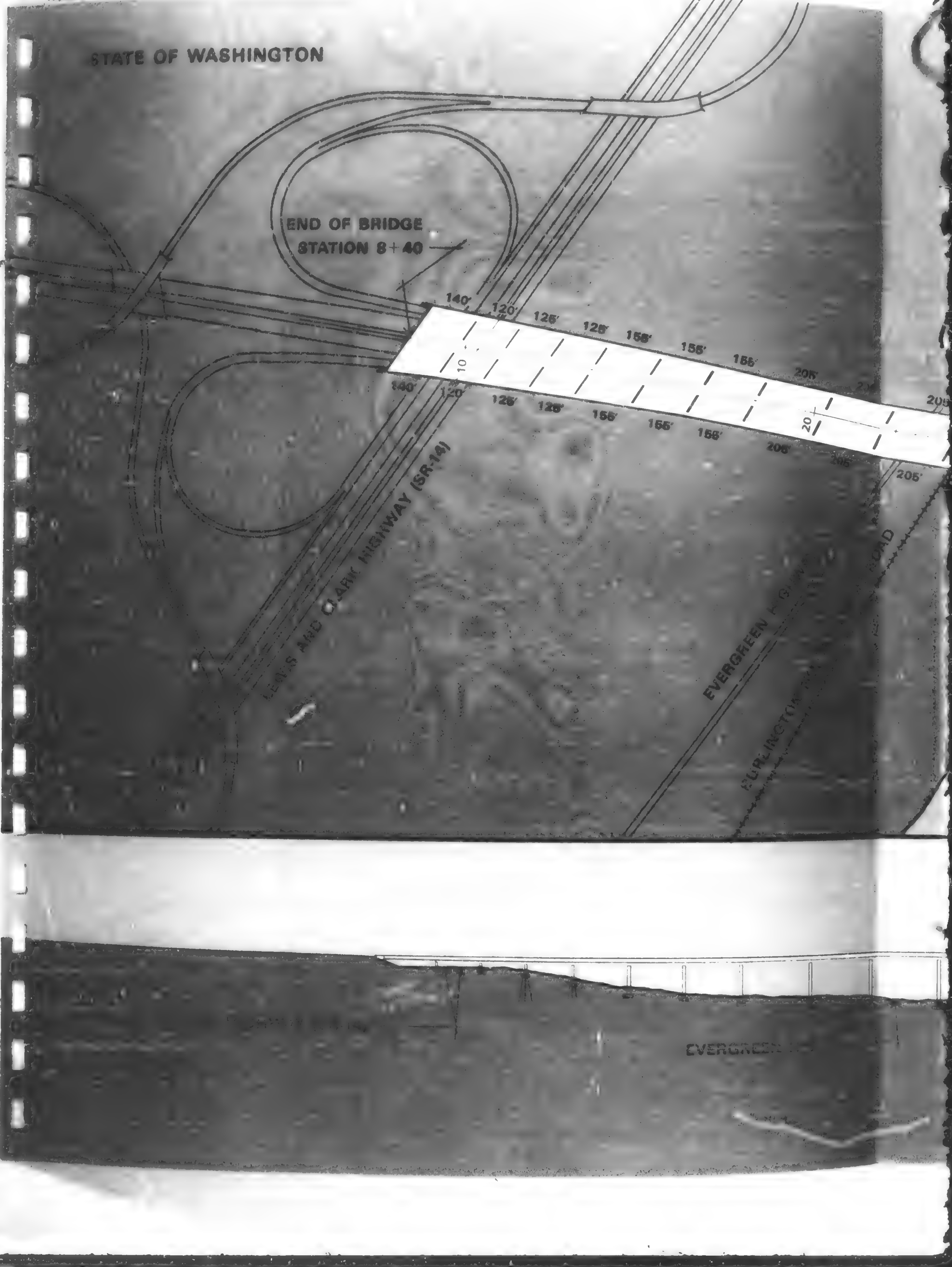

TRANSVERSE TENDON
CONSTRUCTION JOINT
DIAPHRAGM
CANTILEVER TENDON ANCHORAGE
ENDON ANCHORAGE

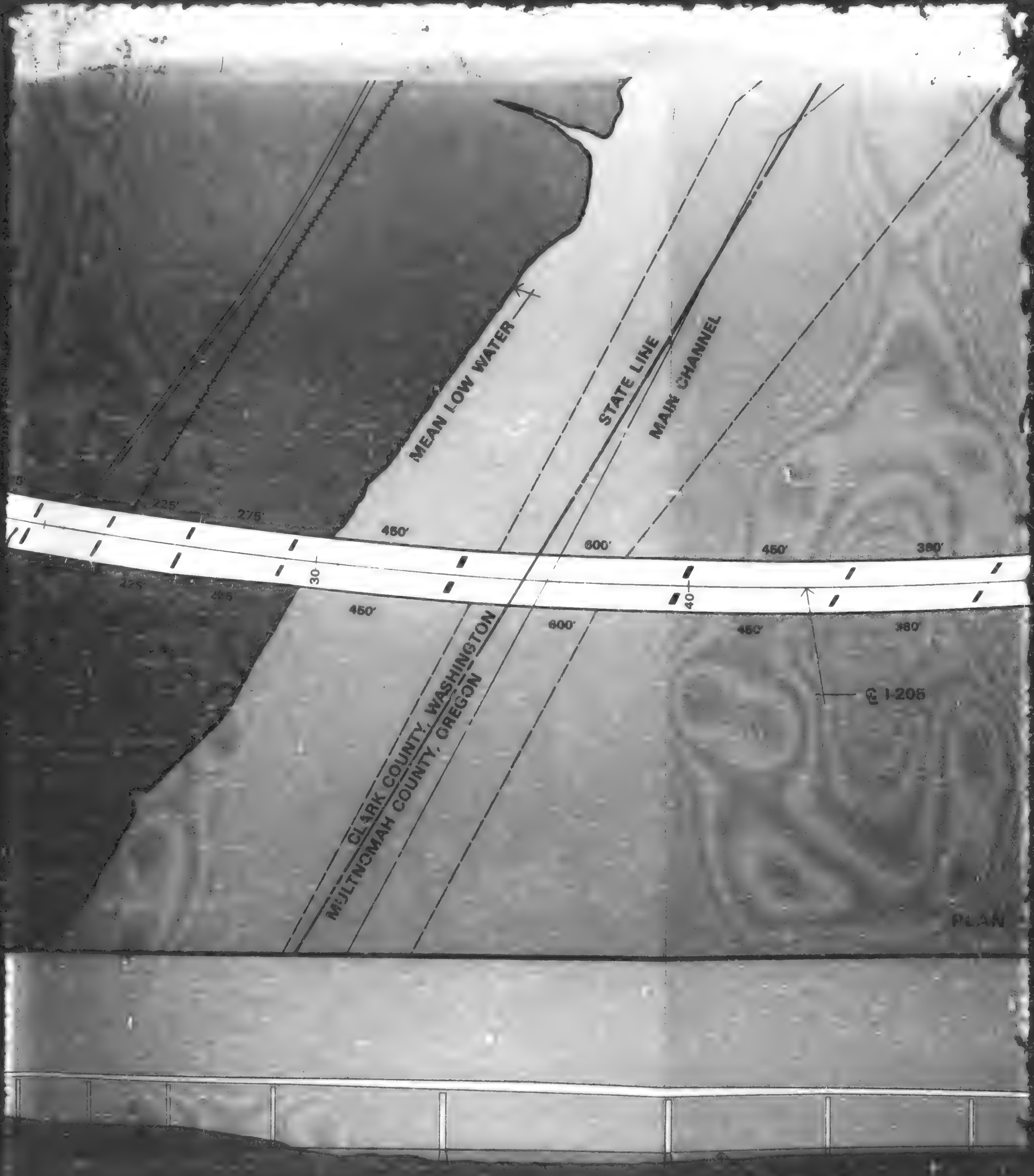

CONSTRUCTION JOINT
310'
NOTE: TENDONS FOR CONCEPT D SIMILAR

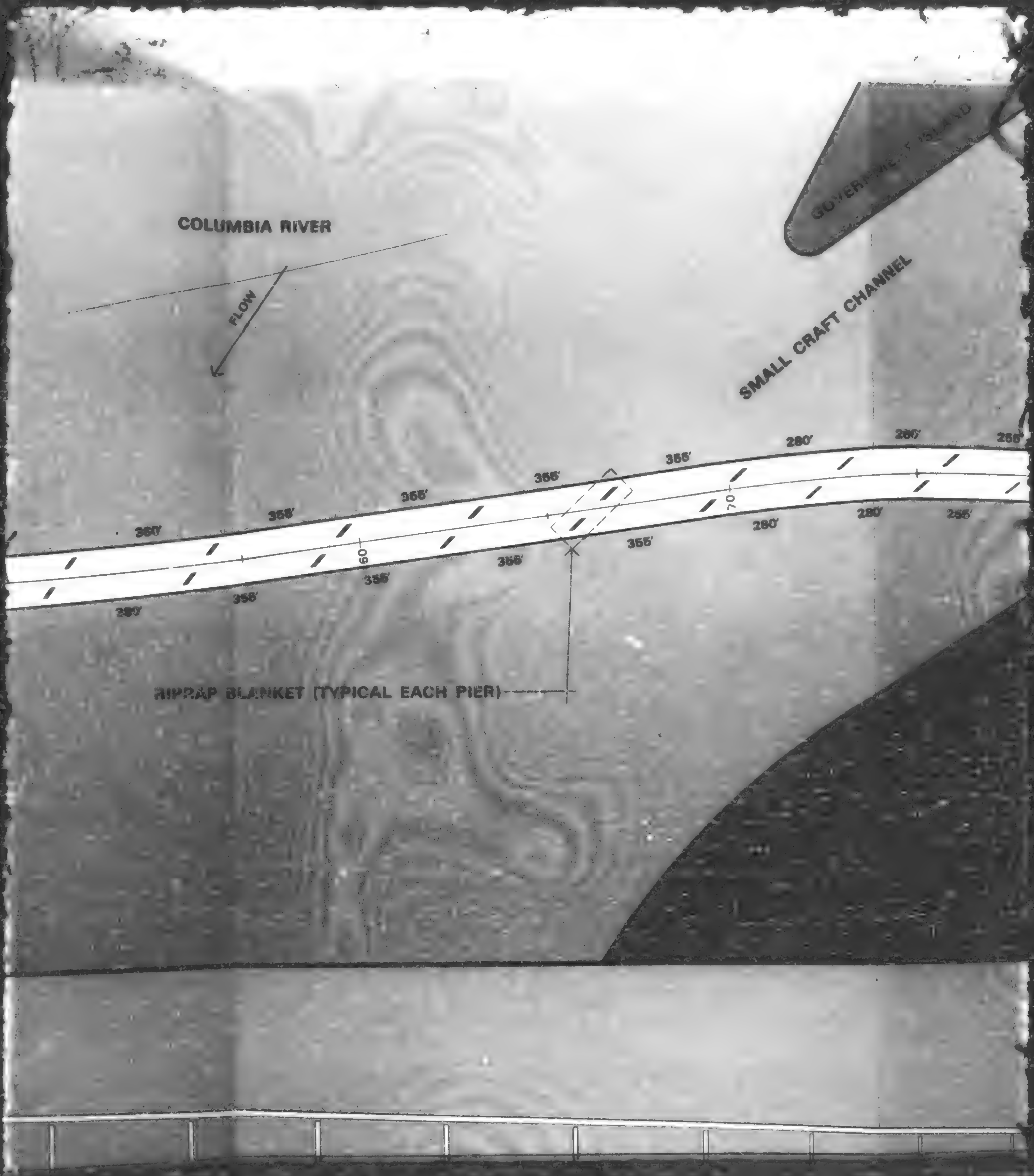

VERTICAL WEB TENDON
CONTINUITY TENDON ANCHORAGE
℄ MAIN SPAN

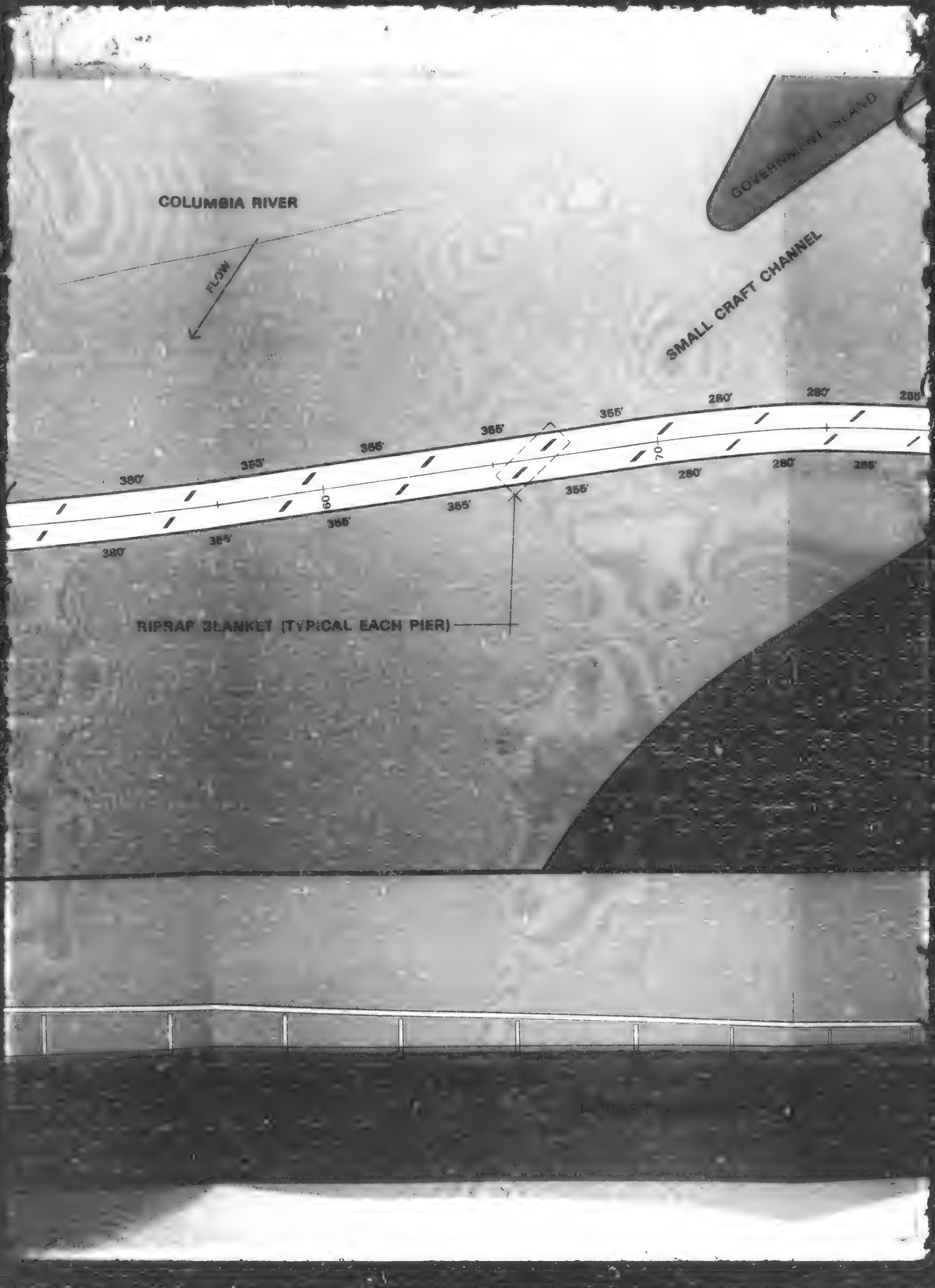

VERTICAL WEB TENDON
h
℄ MAIN SPAN

CONCEPT C
STRUCTURAL STEEL SUPERSTRUCTURE
GENERAL PLAN AND ELEVATION

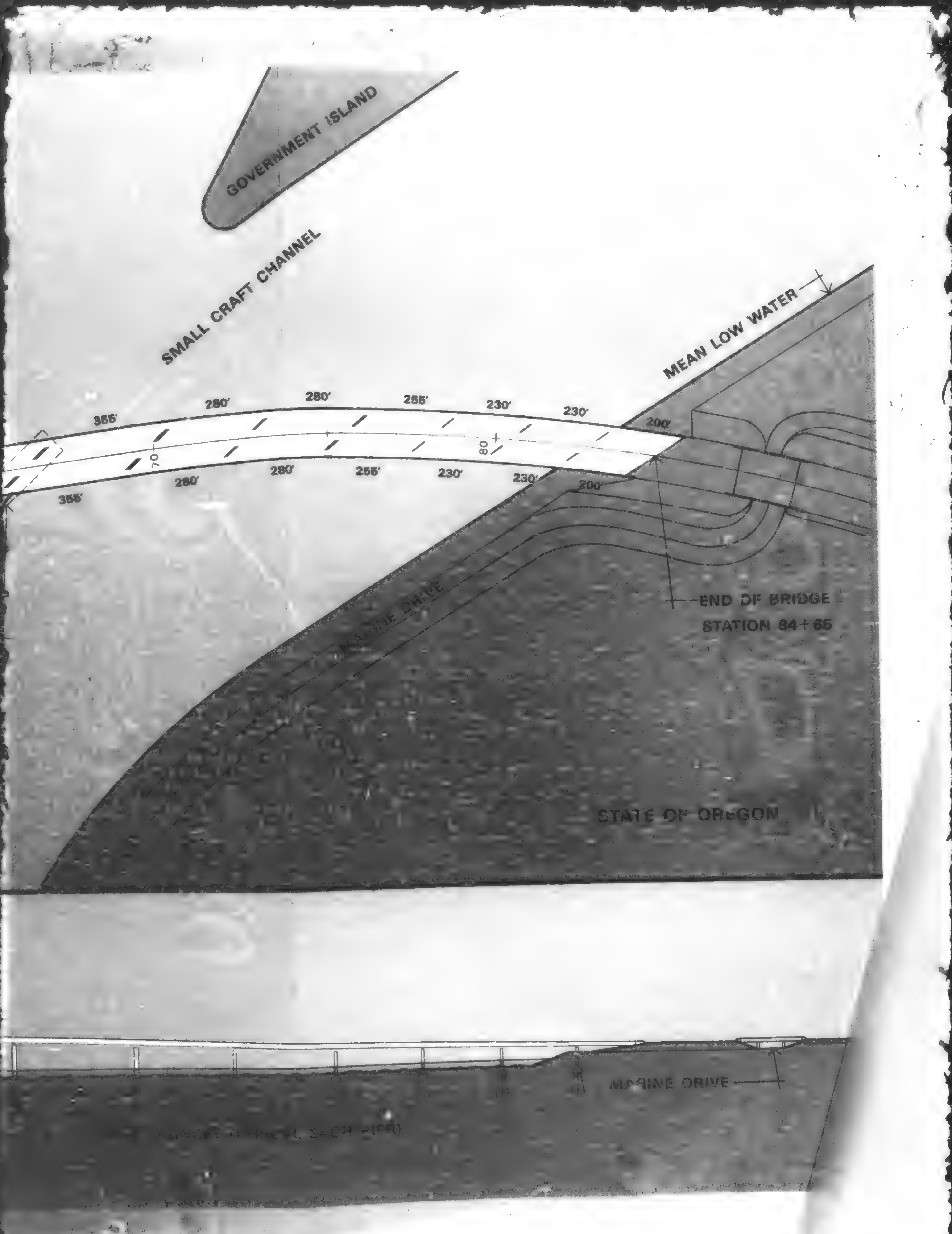

STATE OF WASHINGTON
END OF BRIDGE
STATION 8+40
LEWIS AND CLARK HIGHWAY (SR-14)
EVERGREEN HIGHWAY
ROAD
BURLINGTON
EVERGREEN


MEAN LOW WATER
STATE LINE
MAIN CHANNEL
CLARK COUNTY, WASHINGTON
MULTNOMAH COUNTY, OREGON
℄ I-205
PLAN

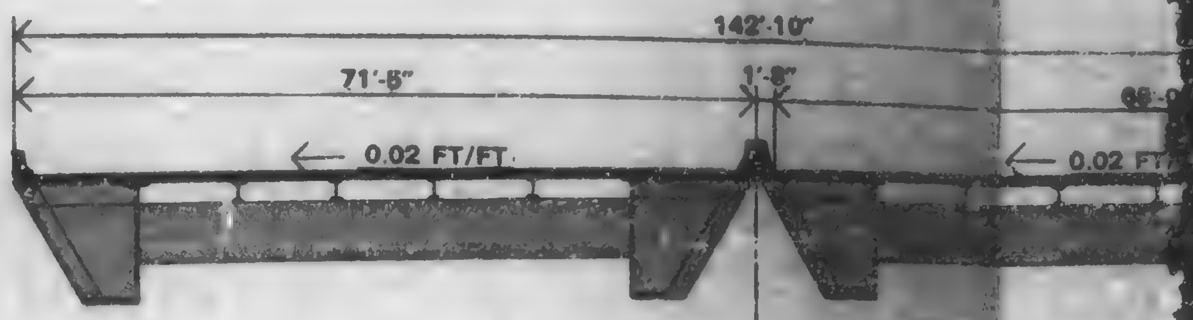

COLUMBIA RIVER
FLOW
GOVERNMENT ISLAND
SMALL CRAFT CHANNEL
360'
355'
355'
355'
355'
280'
280'
255'
60
70
280'
355'
355'
355'
355'
280'
280'
255'
RIPRAP BLANKET (TYPICAL EACH PIER)



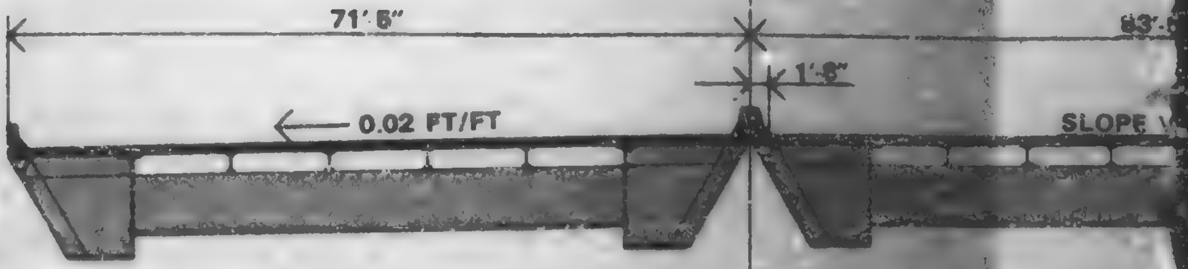
COLUMBIA RIVER
FLOW
GOVERNMENT ISLAND
SMALL CRAFT CHANNEL
380'
355'
355'
355'
355'
280'
280'
255'
60
70
380'
355'
355'
355'
355'
280'
280'
255'
RIPRAP BLANKET (TYPICAL EACH PIER)


GOVERNMENT ISLAND
SMALL CRAFT CHANNEL
MEAN LOW WATER
355′
280′
280′
255′
230′
230′
200′
70
80
355′
280′
280′
255′
230′
230′
200′
MARINE DRIVE
END OF BRIDGE
STATION 84+65
STATE OF OREGON
MARINE DRIVE
TYPICAL EACH PIER)

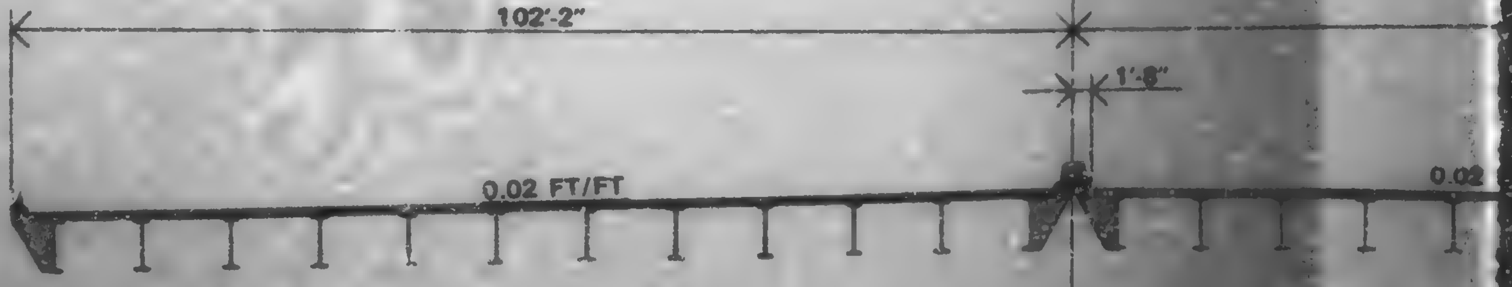
CONCEPT C
STRUCTURAL STEEL SUPERSTRUCTURE
SUPERSTRUCTURE CROSS SECTIONS


142'-10"
71'-5"
1'-8"
66'-0
← 0.02 FT/FT
← 0.02 FT

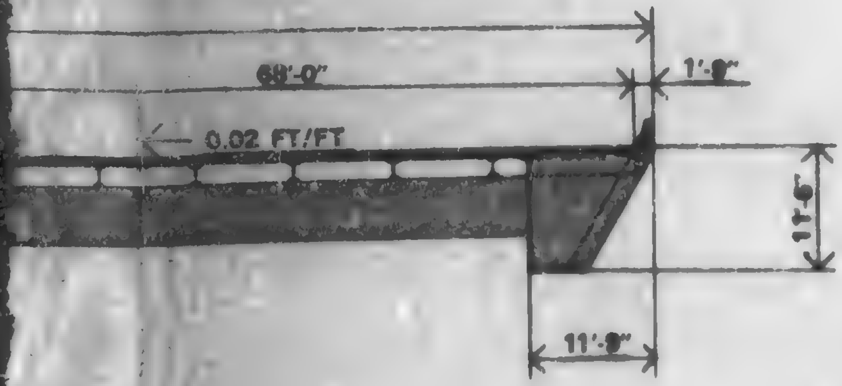
SECTION NEAR STATION 28+00


71'-5"
1'-8"
83'-
← 0.02 FT/FT
SLOPE V

SECTION NEAR STATION 20+00

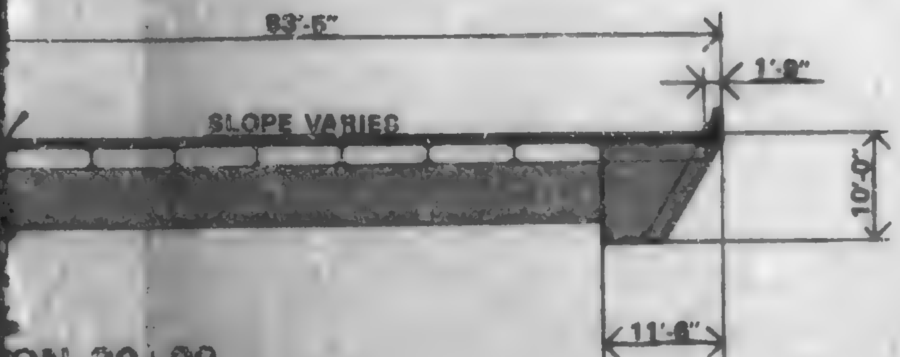

102'-2"
1'-8"
0.02 FT/FT
0.02

SECTION NEAR STATION 10+00



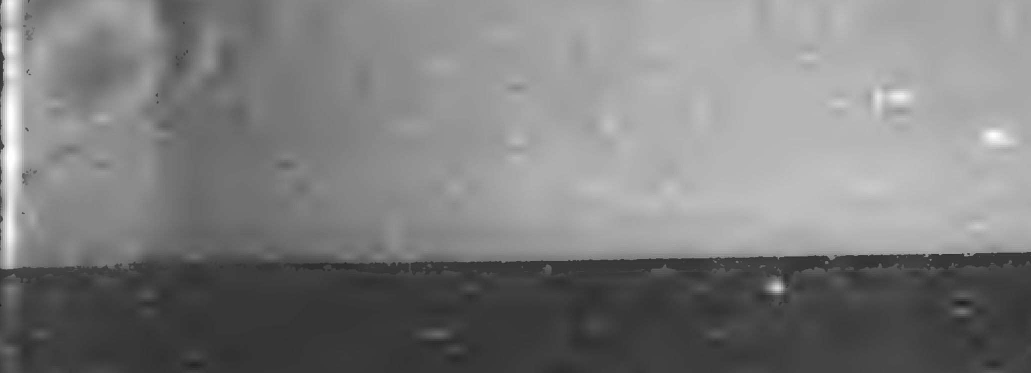
88'-0"
1'-9"
0.02 FT/FT
11'-6"
11'-9"

ON 28+00



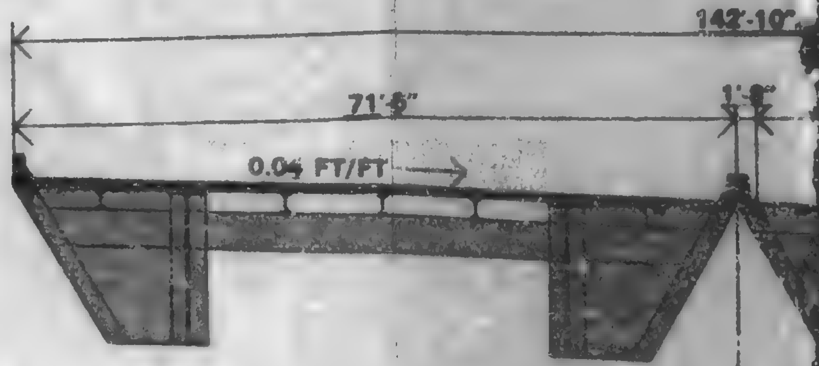
83'-5"
1'-9"
SLOPE VARIES
10'-0"
11'-6"

ON 20+00



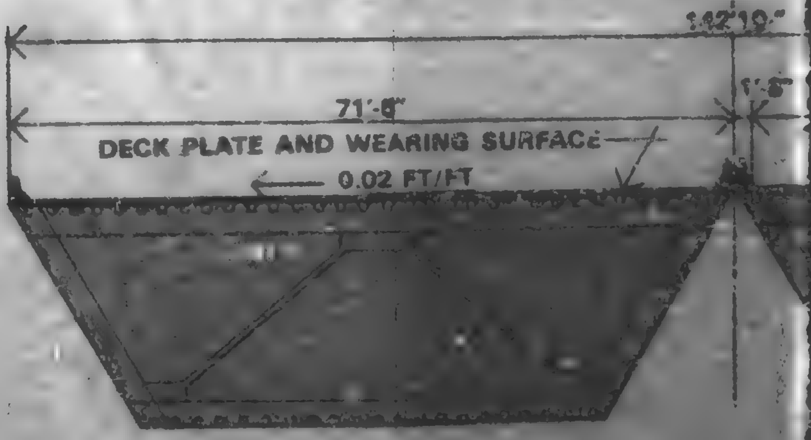
93'-4"
1'-9"
0.02 FT/FT
5'-0"
2'-11"

ION 10+00



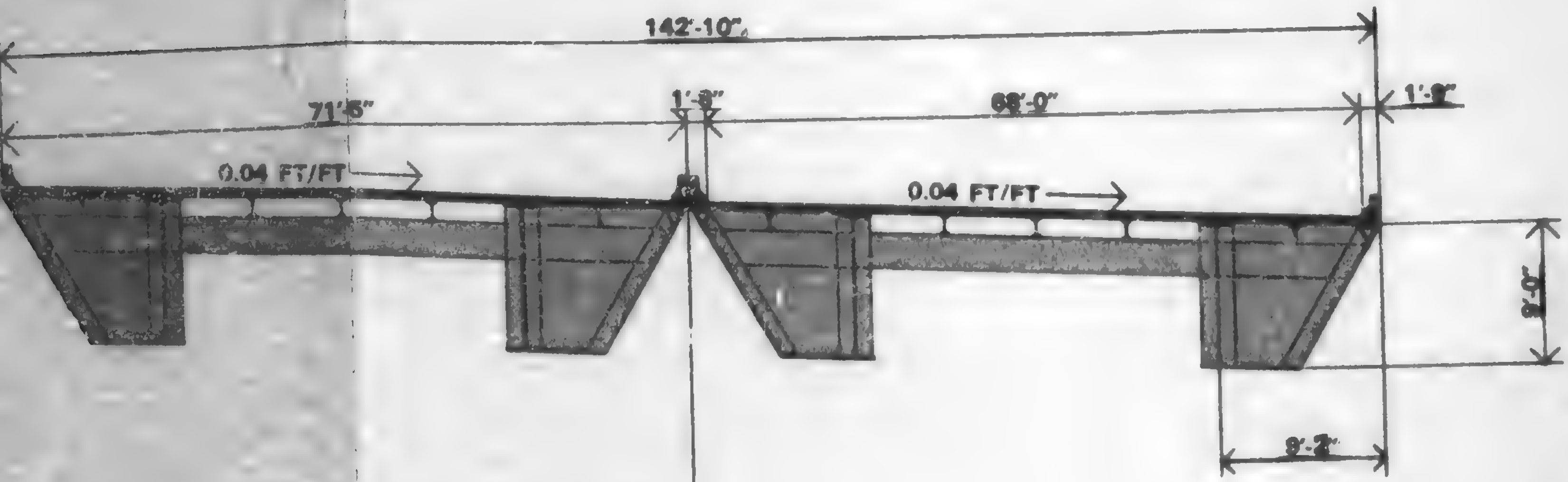
142'-10"
71'-6"
1'-9"
0.04 FT/FT

SECTION NEAR ST

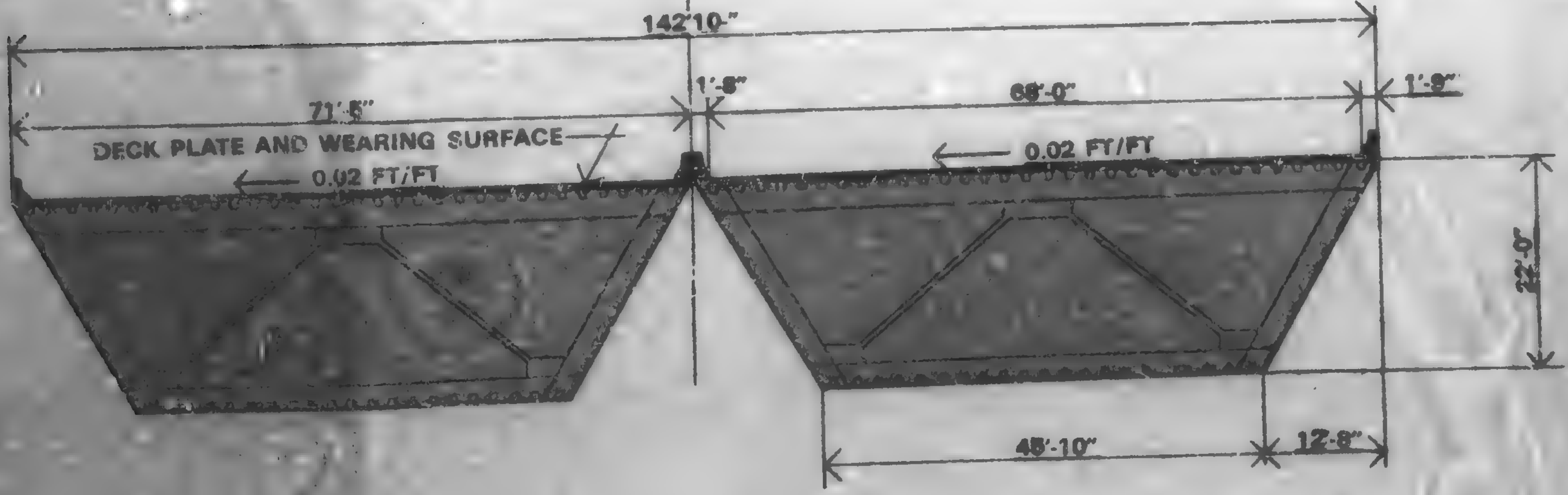


142'-10"
71'-6"
1'-8"
DECK PLATE AND WEARING SURFACE
0.02 FT/FT

SECTION NEAR ST

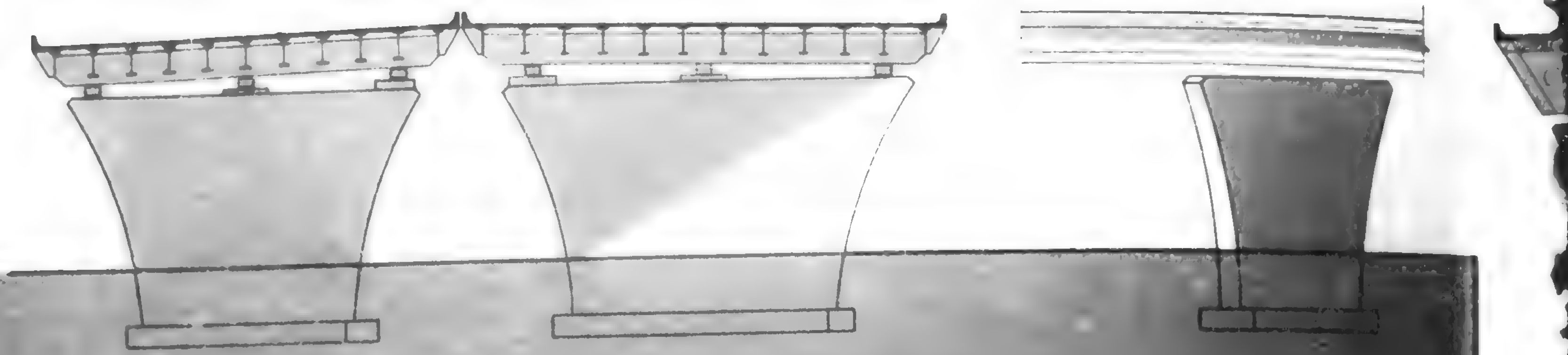

142'-10"
71'-5"
1'-8"
68'-0"
1'-9"
0.04 FT/FT
0.04 FT/FT
8'-0"
9'-2"

SECTION NEAR STATION 78+00


142'-10"
71'-5"
1'-8"
68'-0"
1'-9"
DECK PLATE AND WEARING SURFACE
0.02 FT/FT
0.02 FT/FT
22'-0"
45'-10"
12'-8"

SECTION NEAR STATION 34+00

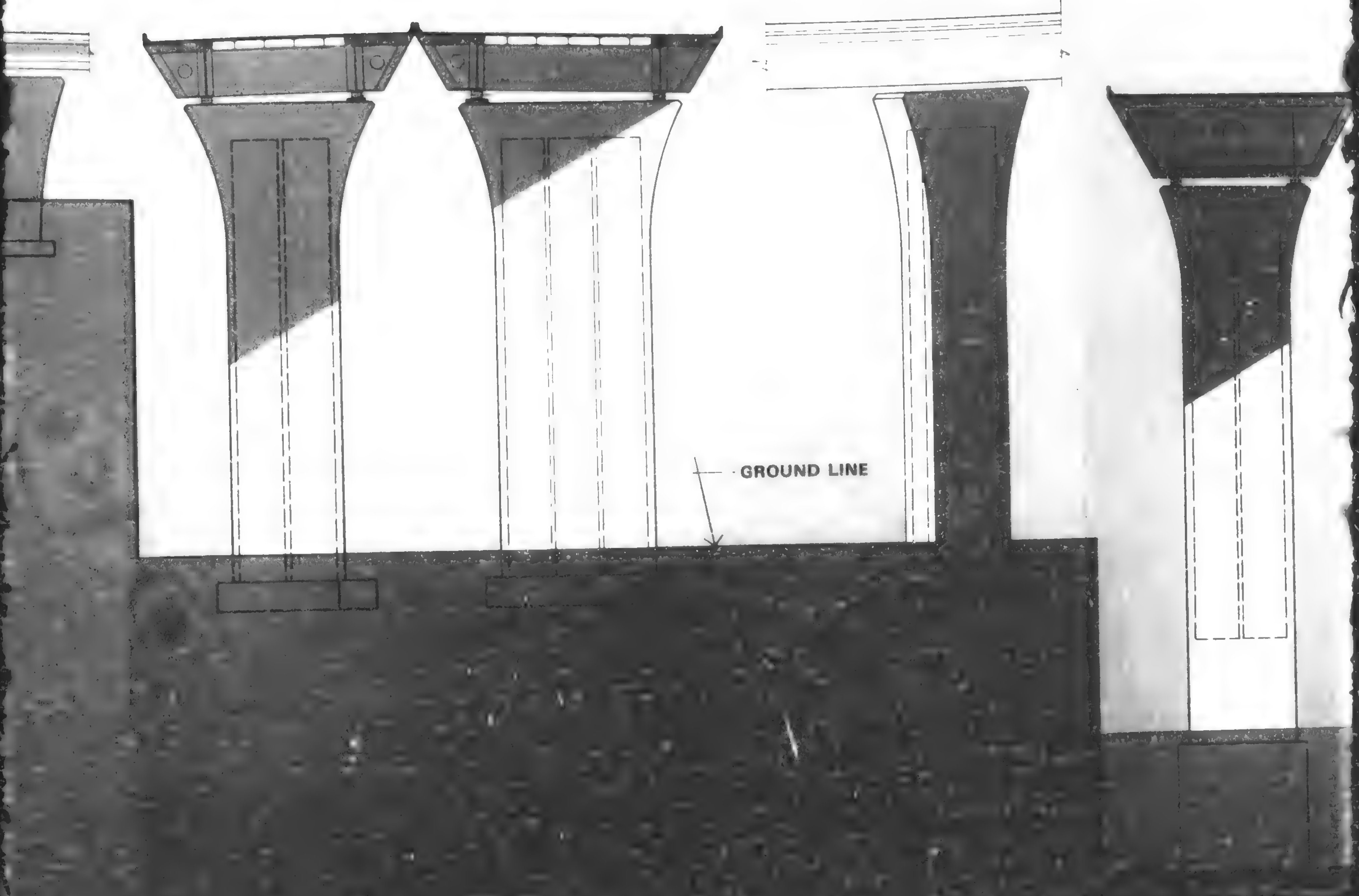
CONCEPT C
STRUCTURAL STEEL SUPERSTRUCTURE
PIERS



FRONT ELEVATION

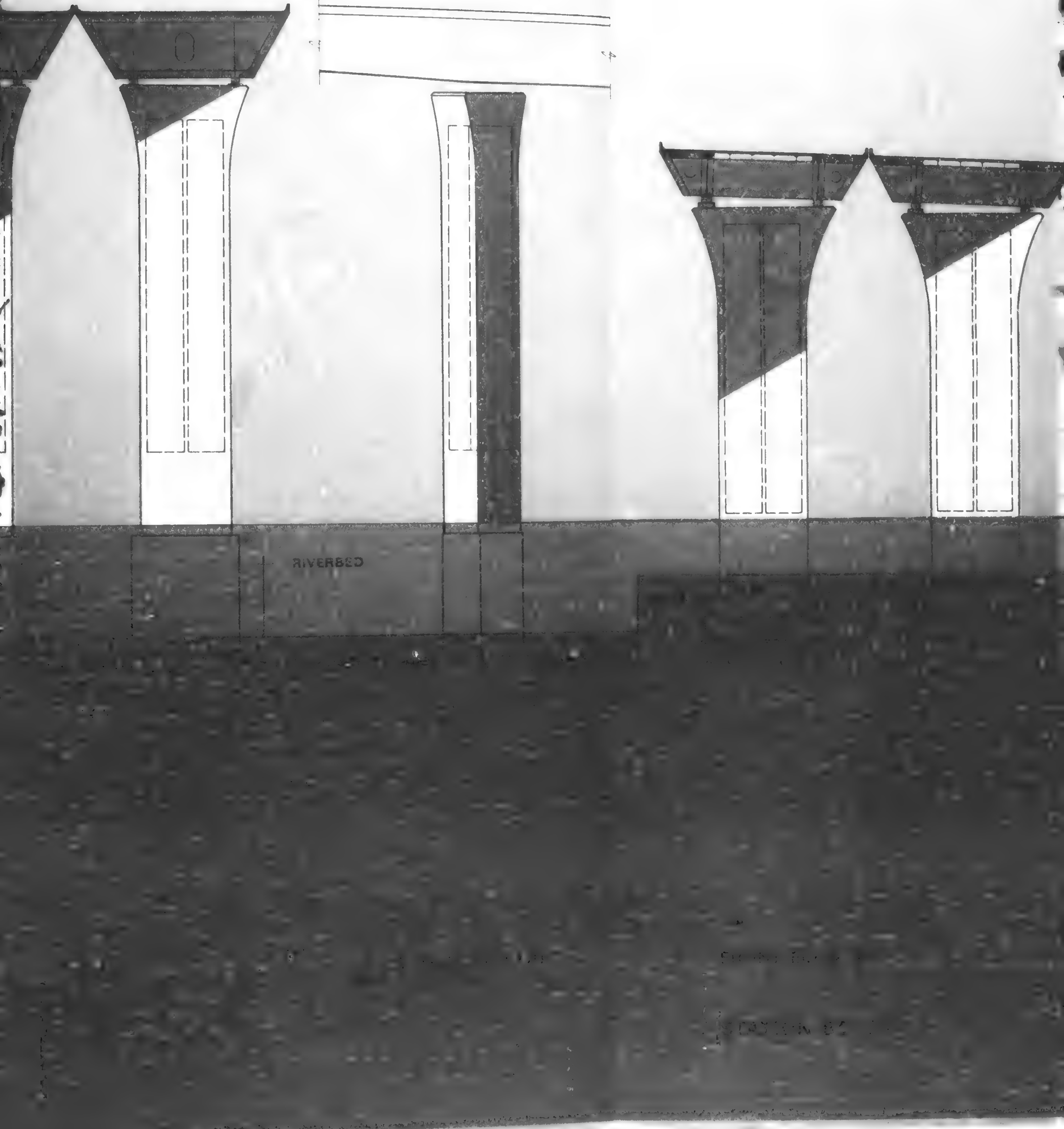
SIDE ELEV

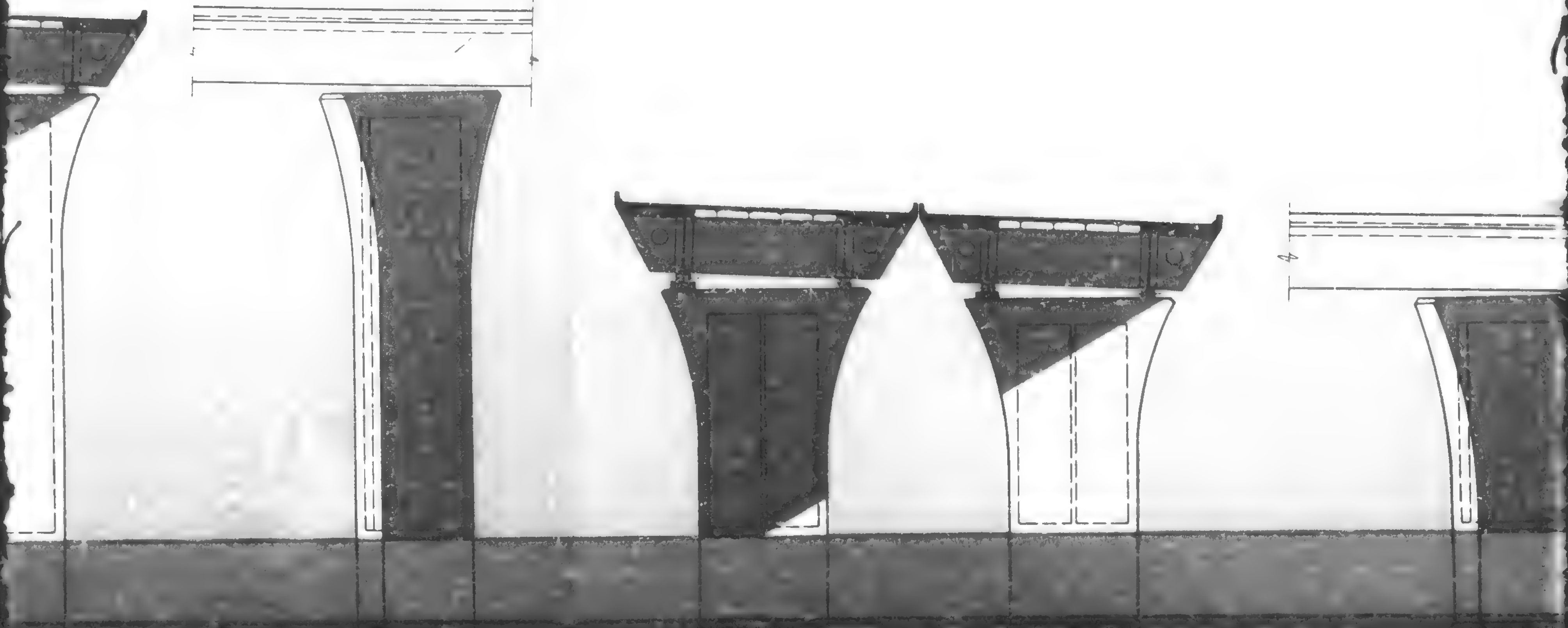
STATION 12+00

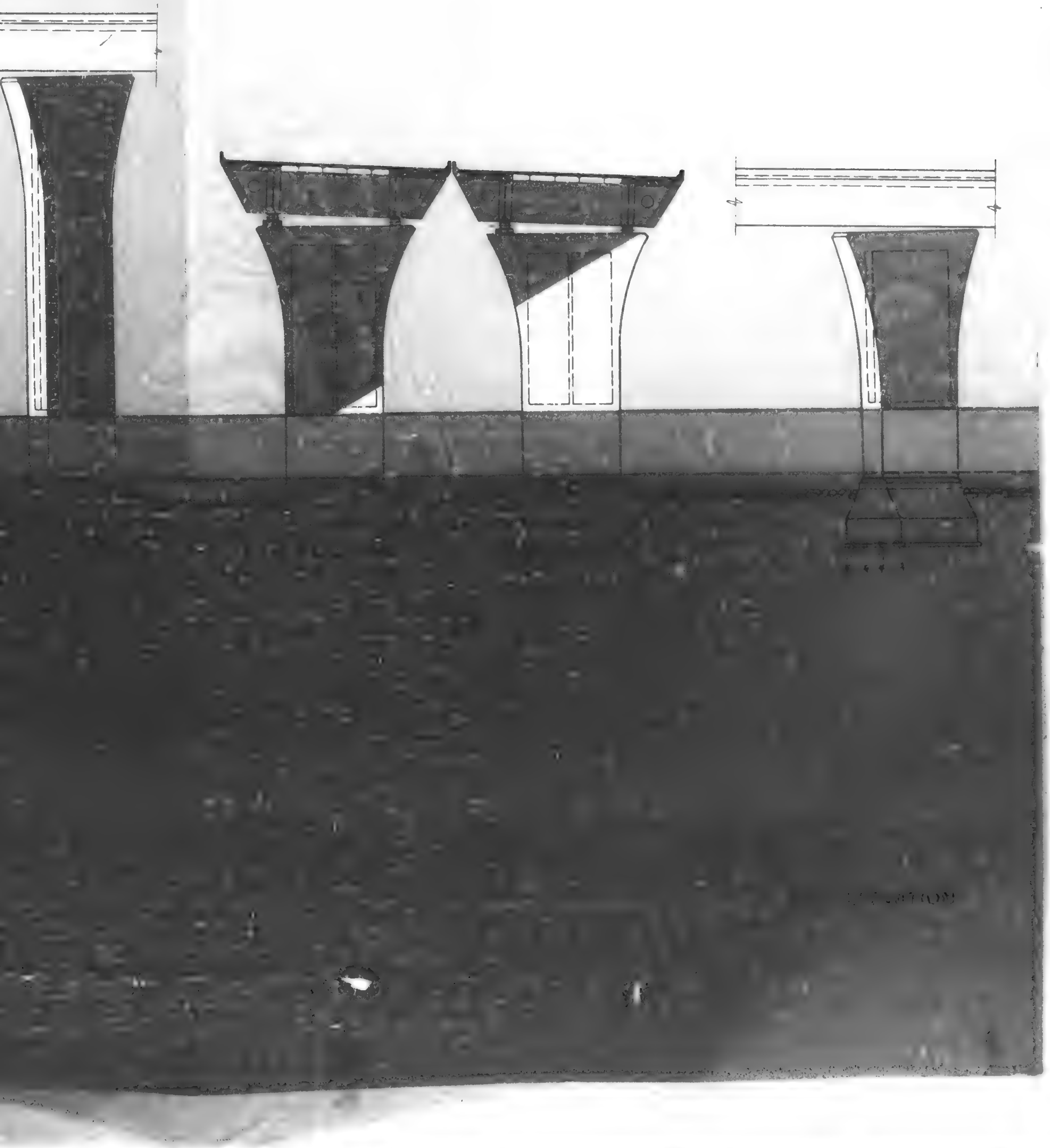

GROUND LINE
ION

FRONT ELEVATION

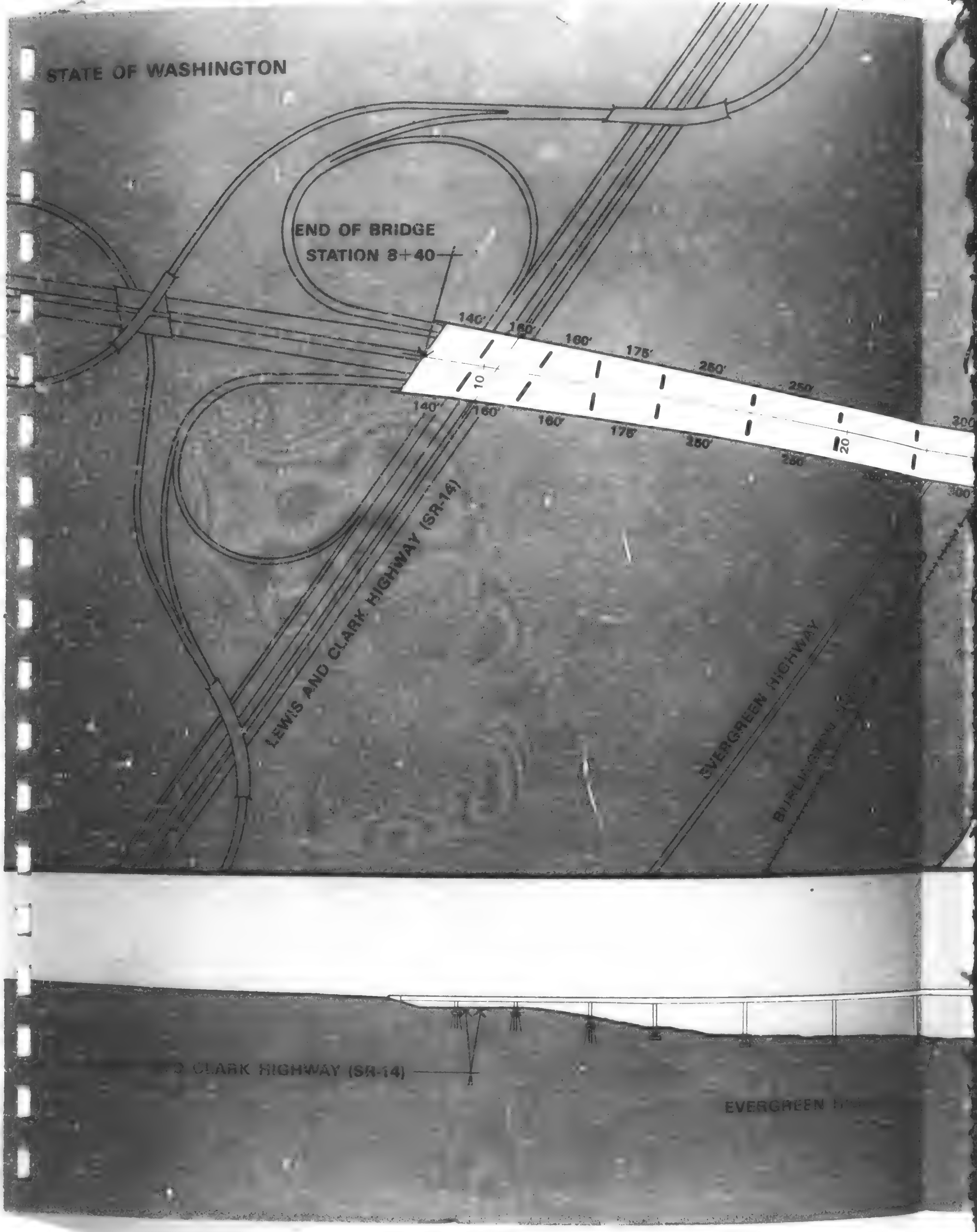
STATION 18 + 00

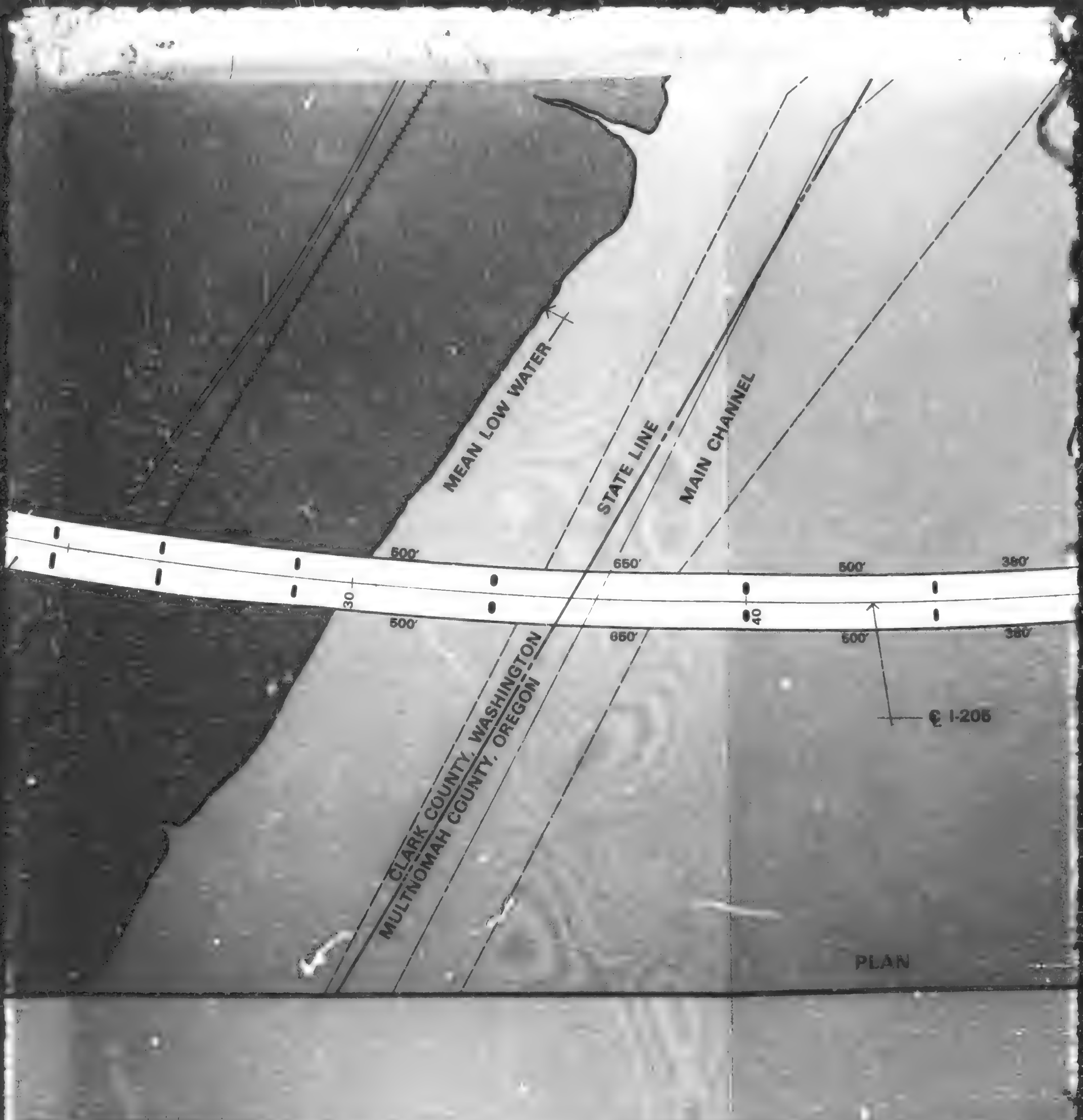

RIVERBED

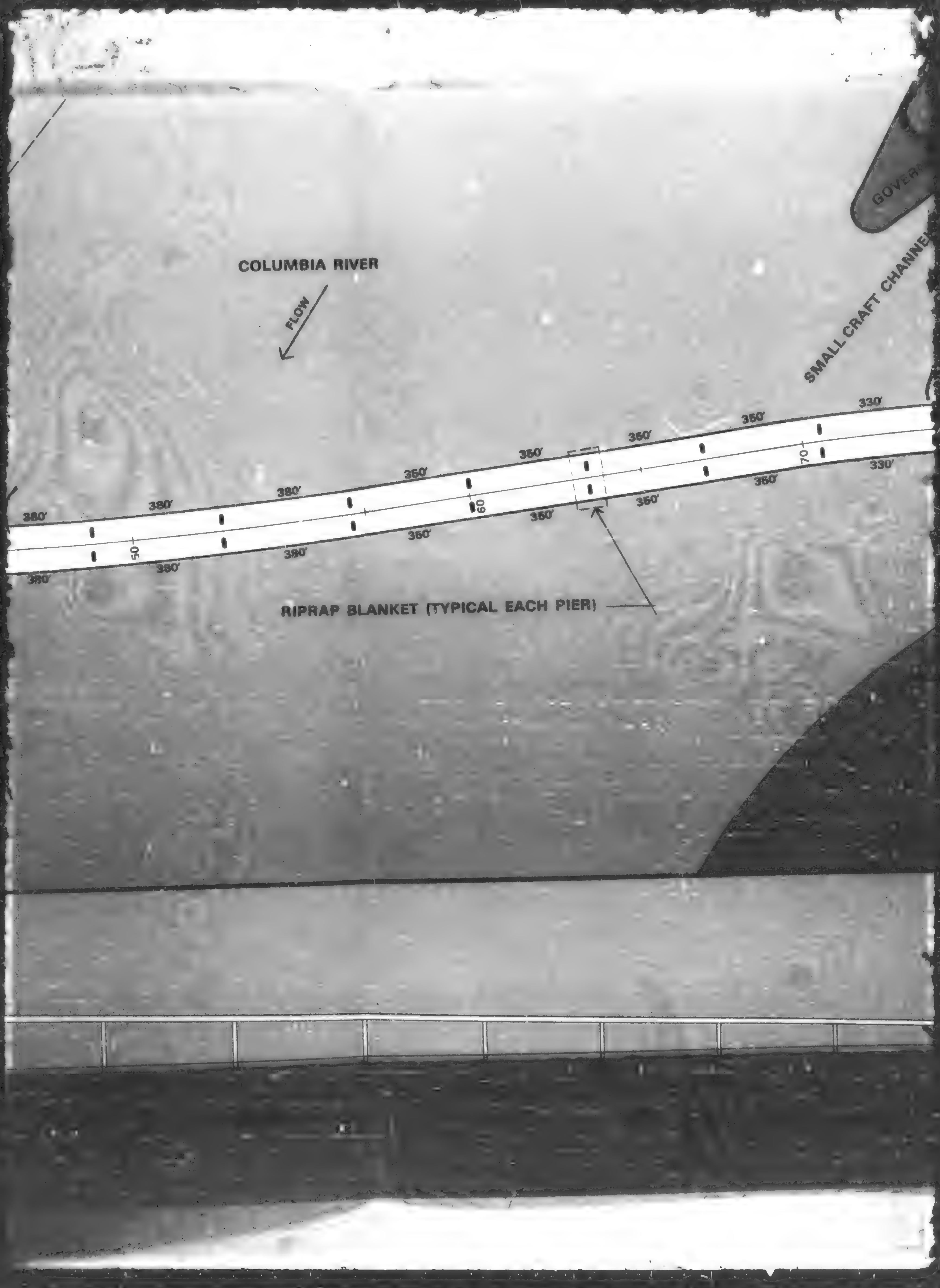


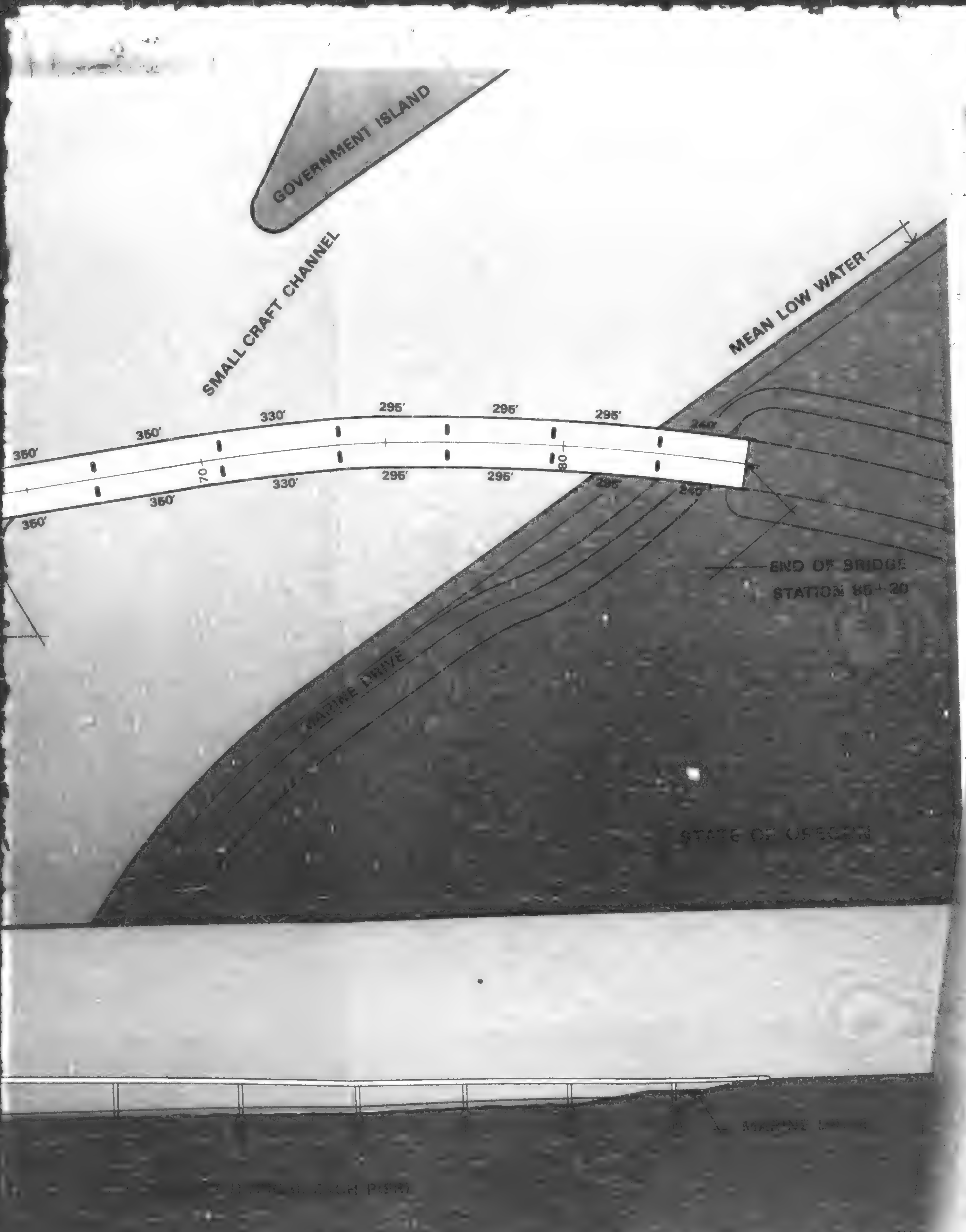

4
4

CONCEPT D
PRESTRESSED CONCRETE SUPERSTRUCTURE
GENERAL PLAN AND ELEVATION

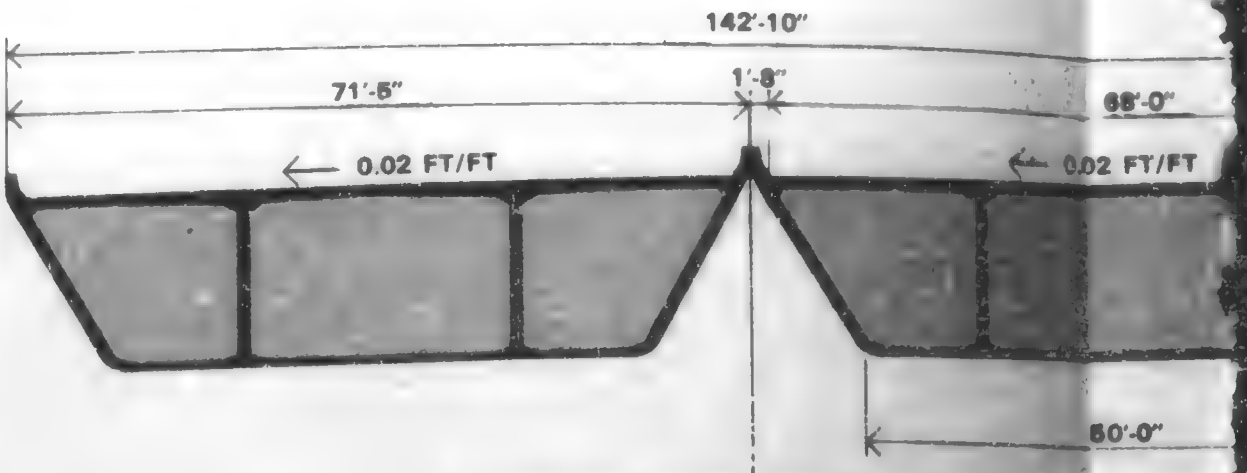

STATE OF WASHINGTON
END OF BRIDGE
STATION 8+40
LEWIS AND CLARK HIGHWAY (SR-14)
EVERGREEN HIGHWAY
BURLINGTON
D CLARK HIGHWAY (SR-14)
EVERGREEN H


MEAN LOW WATER
STATE LINE
MAIN CHANNEL
500′
650′
500′
380′
30
40
500′
650′
500′
380′
CLARK COUNTY, WASHINGTON
MULTNOMAH COUNTY, OREGON
℄ I-205
PLAN

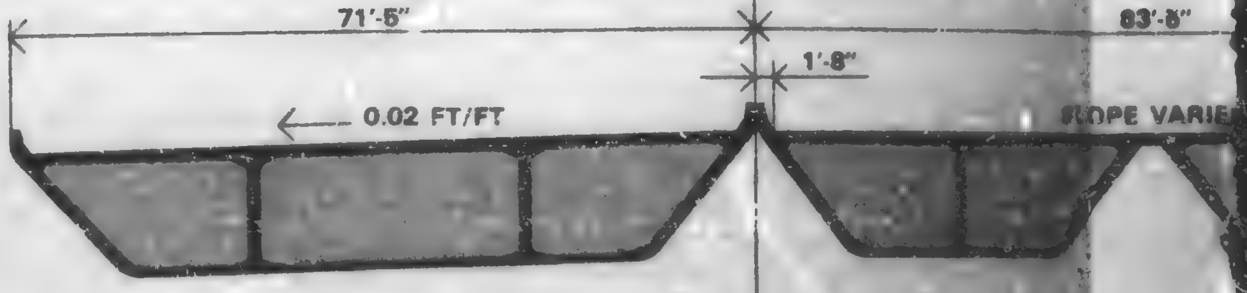

COLUMBIA RIVER
FLOW
GOVERN
SMALL CRAFT CHANNE
380'
380'
380'
350'
350'
350'
350'
330'
50
60
70
380'
380'
380'
350'
350'
350'
350'
330'
RIPRAP BLANKET (TYPICAL EACH PIER)


GOVERNMENT ISLAND
SMALL CRAFT CHANNEL
MEAN LOW WATER
350′
350′
330′
295′
295′
295′
240′
70
80
350′
350′
330′
295′
295′
295′
240′
END OF BRIDGE
STATION 85+20
MARINE DRIVE
STATE OF OREGON
MARINE DRIVE

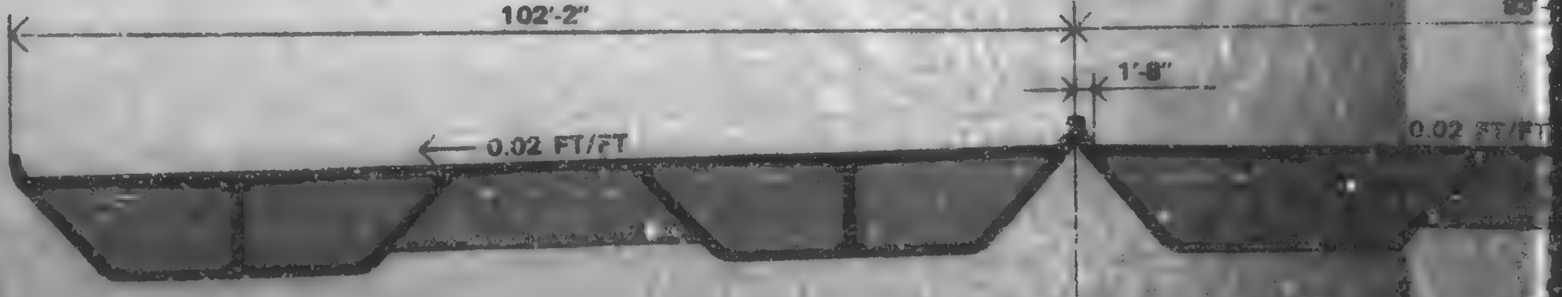
CONCEPT D
PRESTRESSED CONCRETE SUPERSTRUCTURE
SUPERSTRUCTURE CROSS SECTIONS


142'-10"
71'-5"
1'-8"
68'-0"
← 0.02 FT/FT
← 0.02 FT/FT
60'-0"

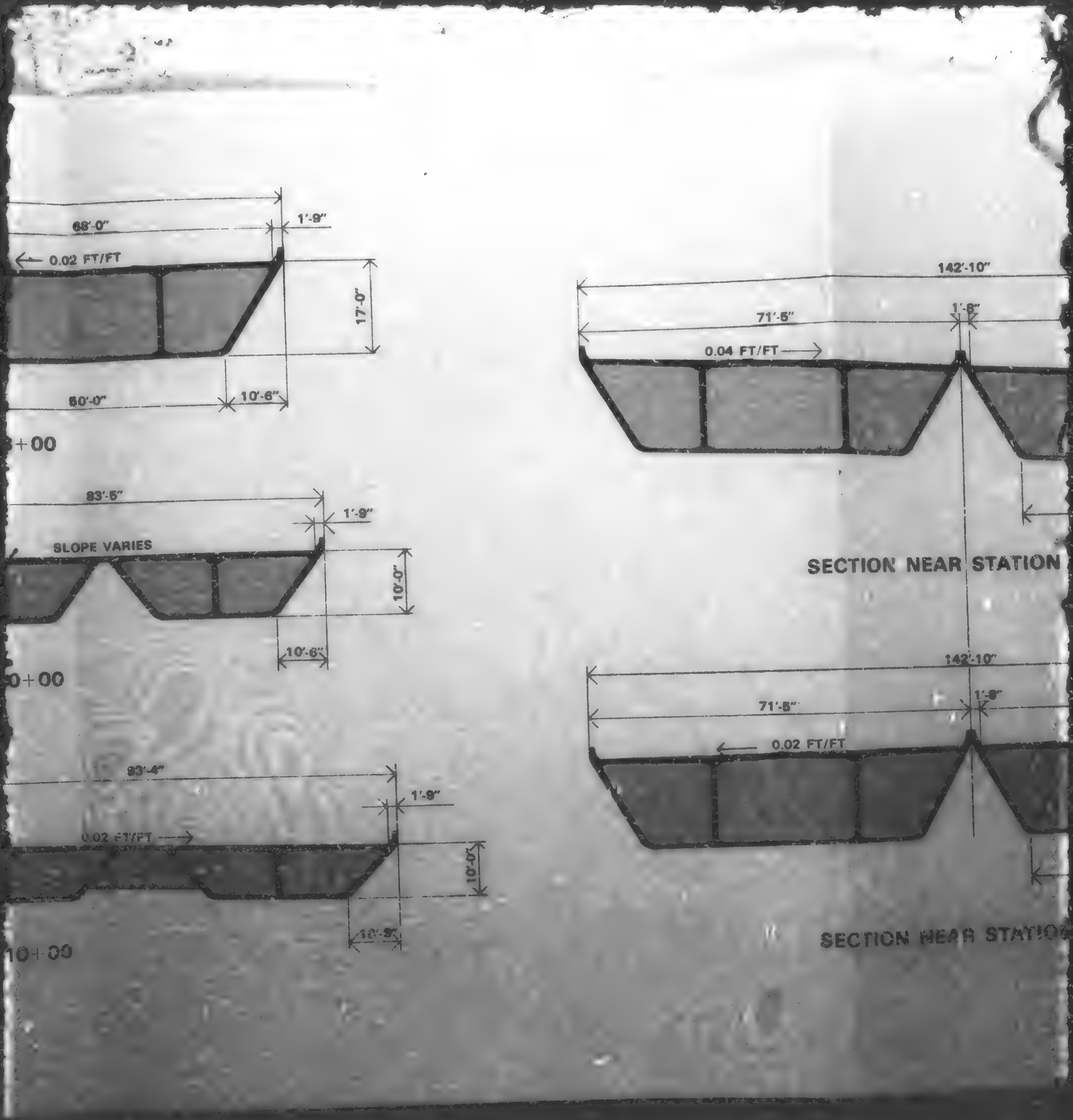
SECTION NEAR STATION 28+00

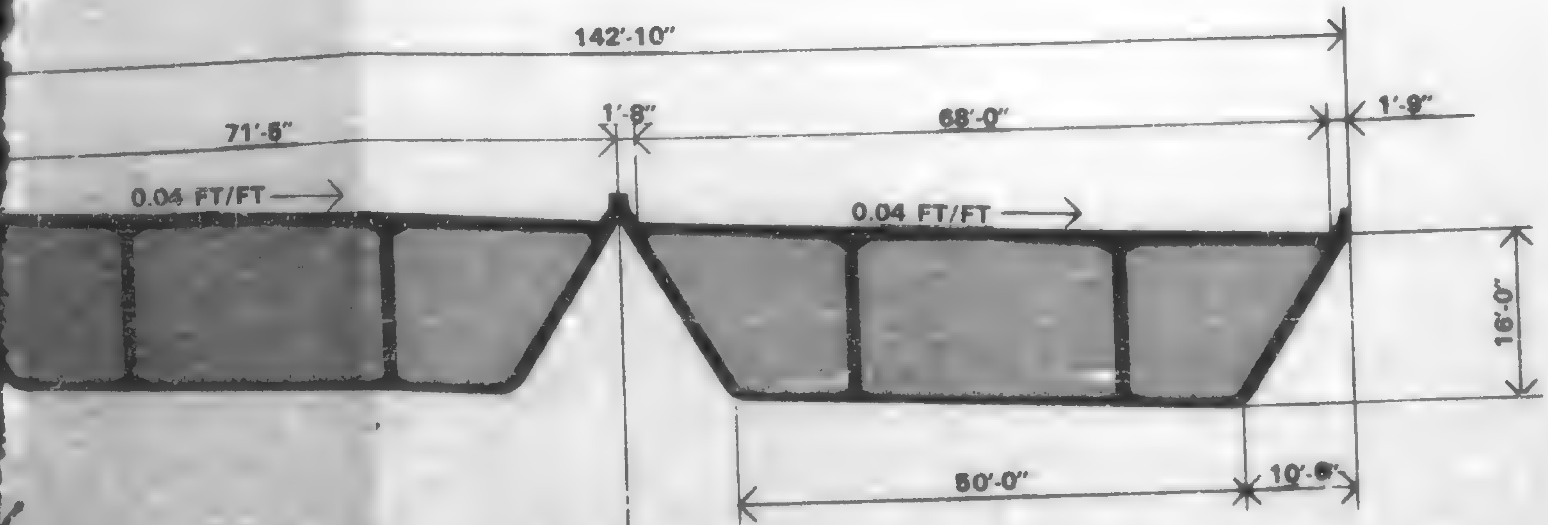

71'-5"
83'-8"
1'-8"
← 0.02 FT/FT
SLOPE VARIES

SECTION NEAR STATION 20+00

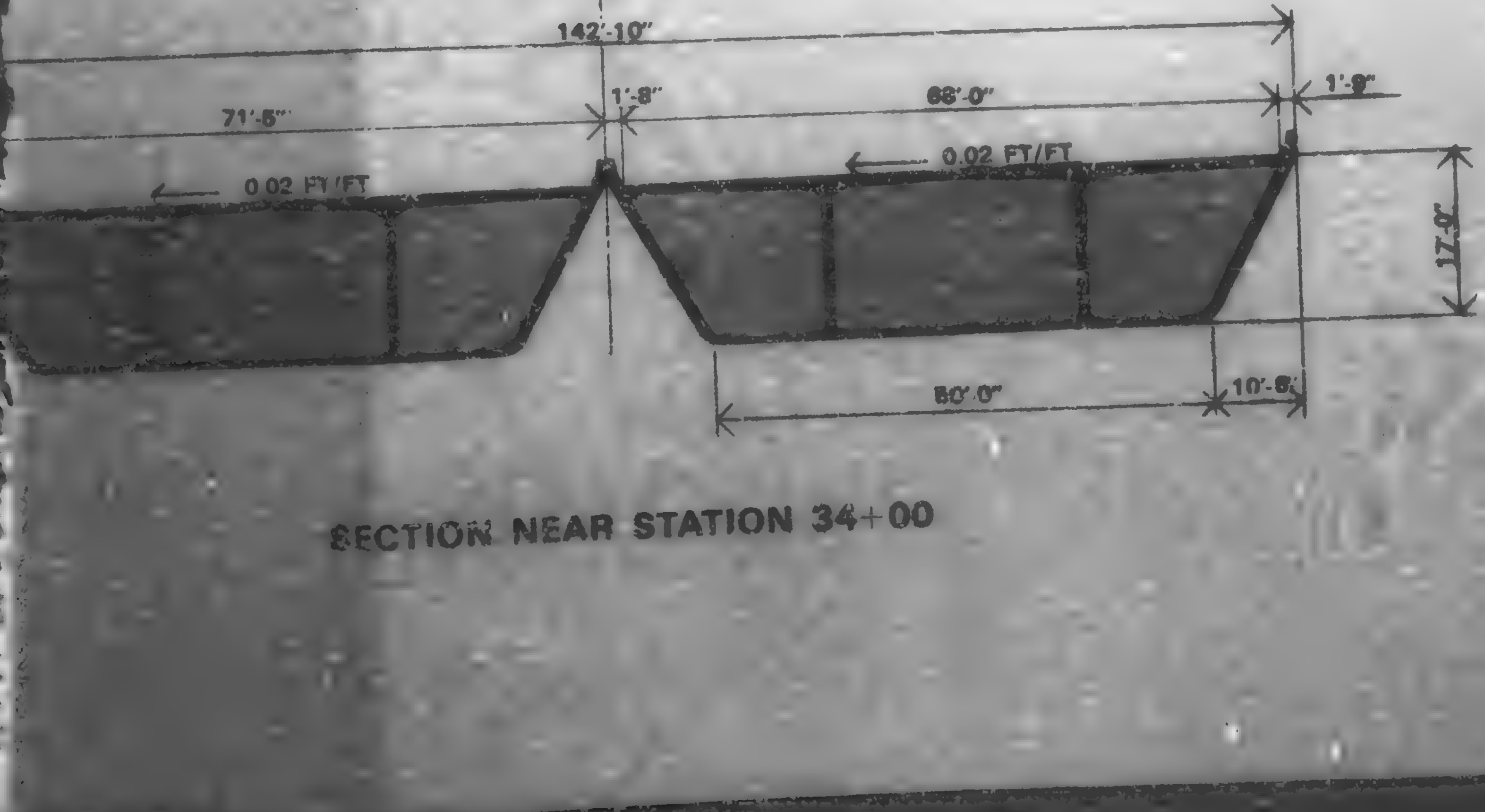

102'-2"
83'-
1'-8"
← 0.02 FT/FT
0.02 FT/FT

SECTION NEAR STATION 10+00


68'-0"
1'-9"
← 0.02 FT/FT
17'-0"
50'-0"
10'-6"
+00
83'-5"
1'-9"
SLOPE VARIES
10'-0"
10'-6"
0+00
83'-4"
1'-9"
0.02 FT/FT →
10'-0"
10'-9"
10+00
142'-10"
71'-5"
1'-8"
0.04 FT/FT →
SECTION NEAR STATION
142'-10"
71'-5"
1'-8"
← 0.02 FT/FT
SECTION NEAR STATIO

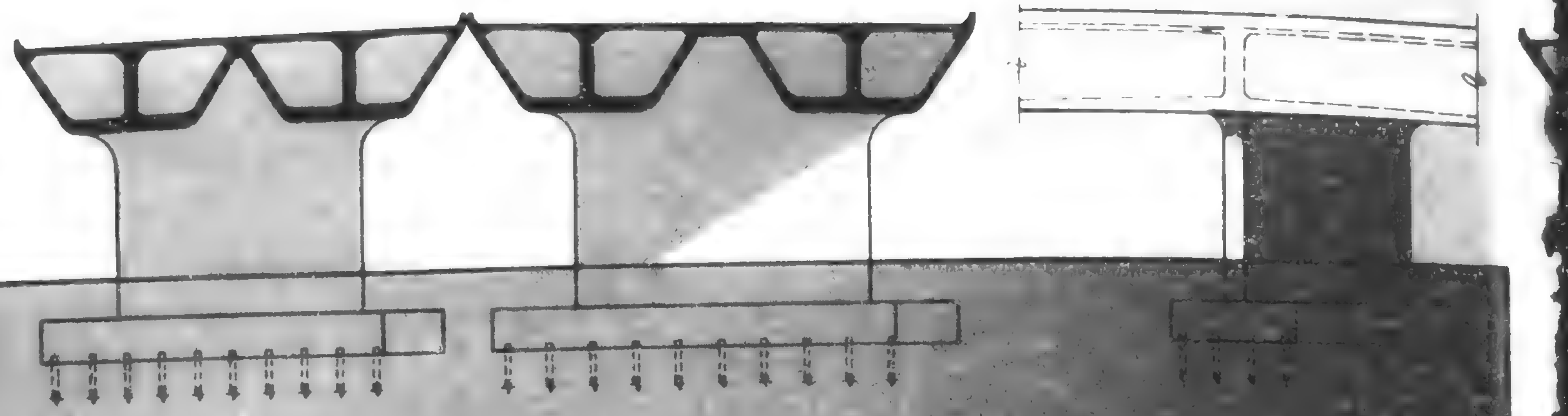

142'-10"
71'-6"
1'-8"
68'-0"
1'-9"
0.04 FT/FT
0.04 FT/FT
16'-0"
50'-0"
10'-6"

SECTION NEAR STATION 78+00


142'-10"
71'-6"
1'-8"
68'-0"
1'-9"
0.02 FT/FT
0.02 FT/FT
17'-0"
50'-0"
10'-6"

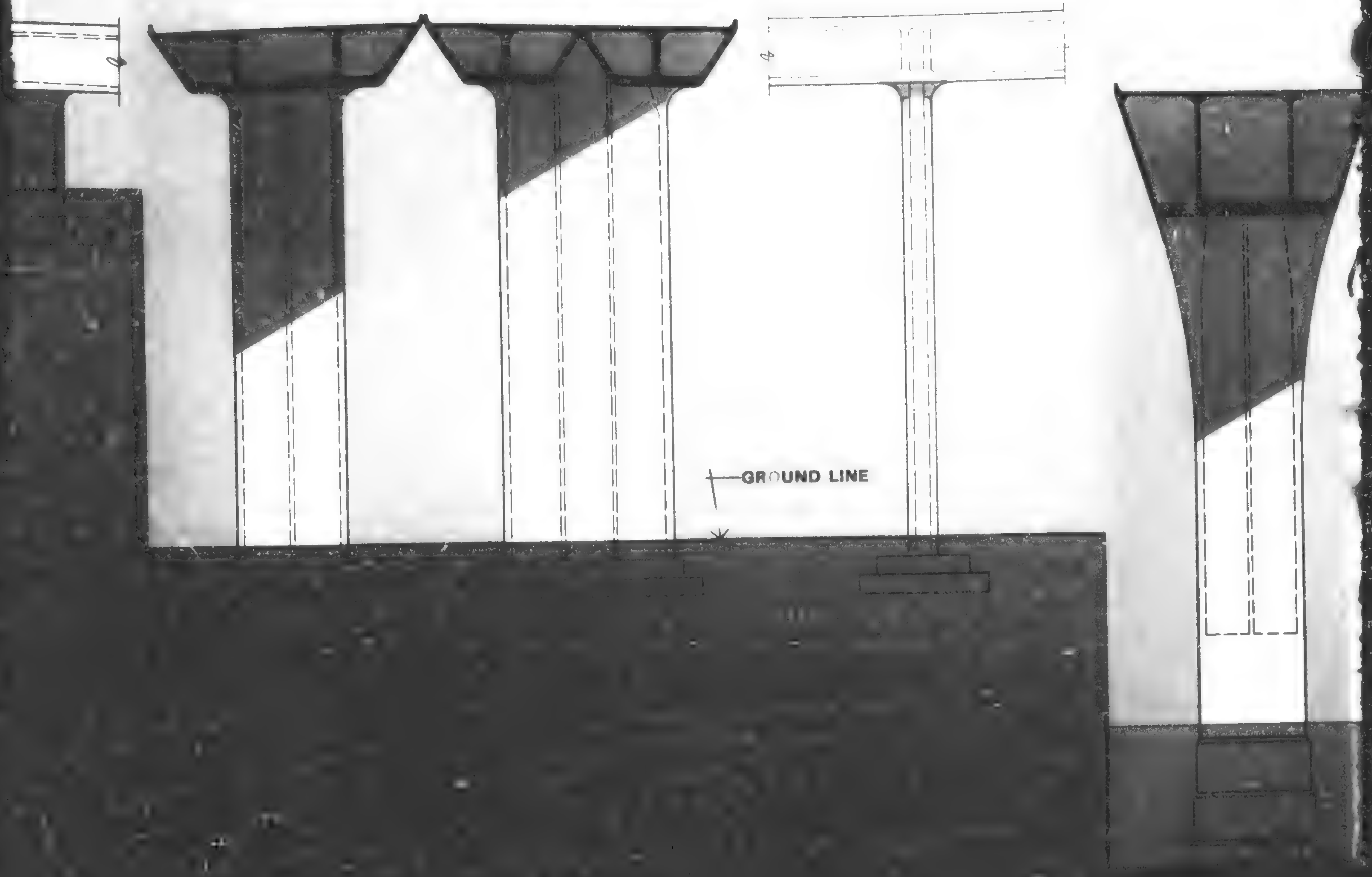
SECTION NEAR STATION 34+00

CONCEPT D
PRESTRESSED CONCRETE SUPERSTRUCTURE
PIERS

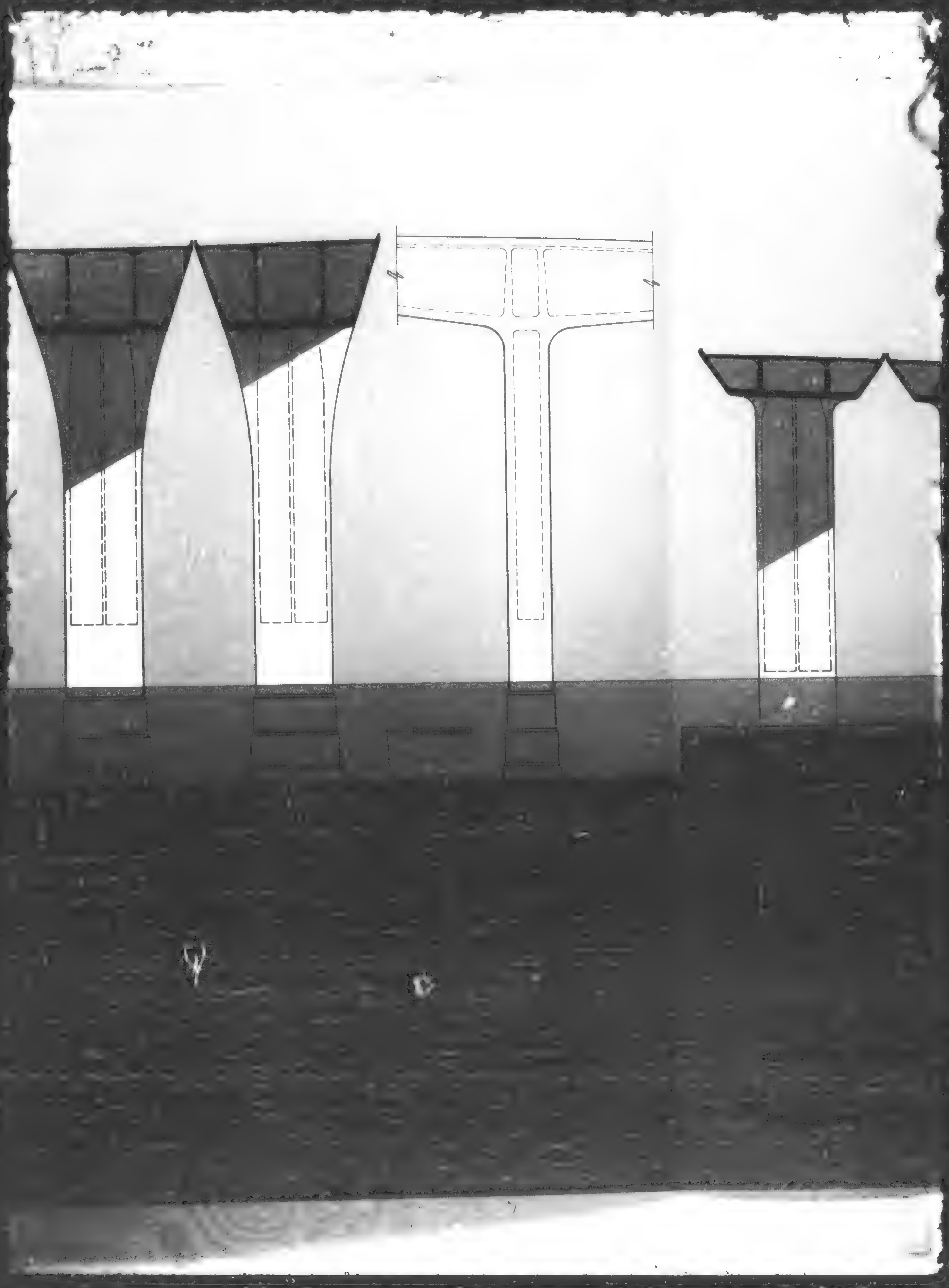


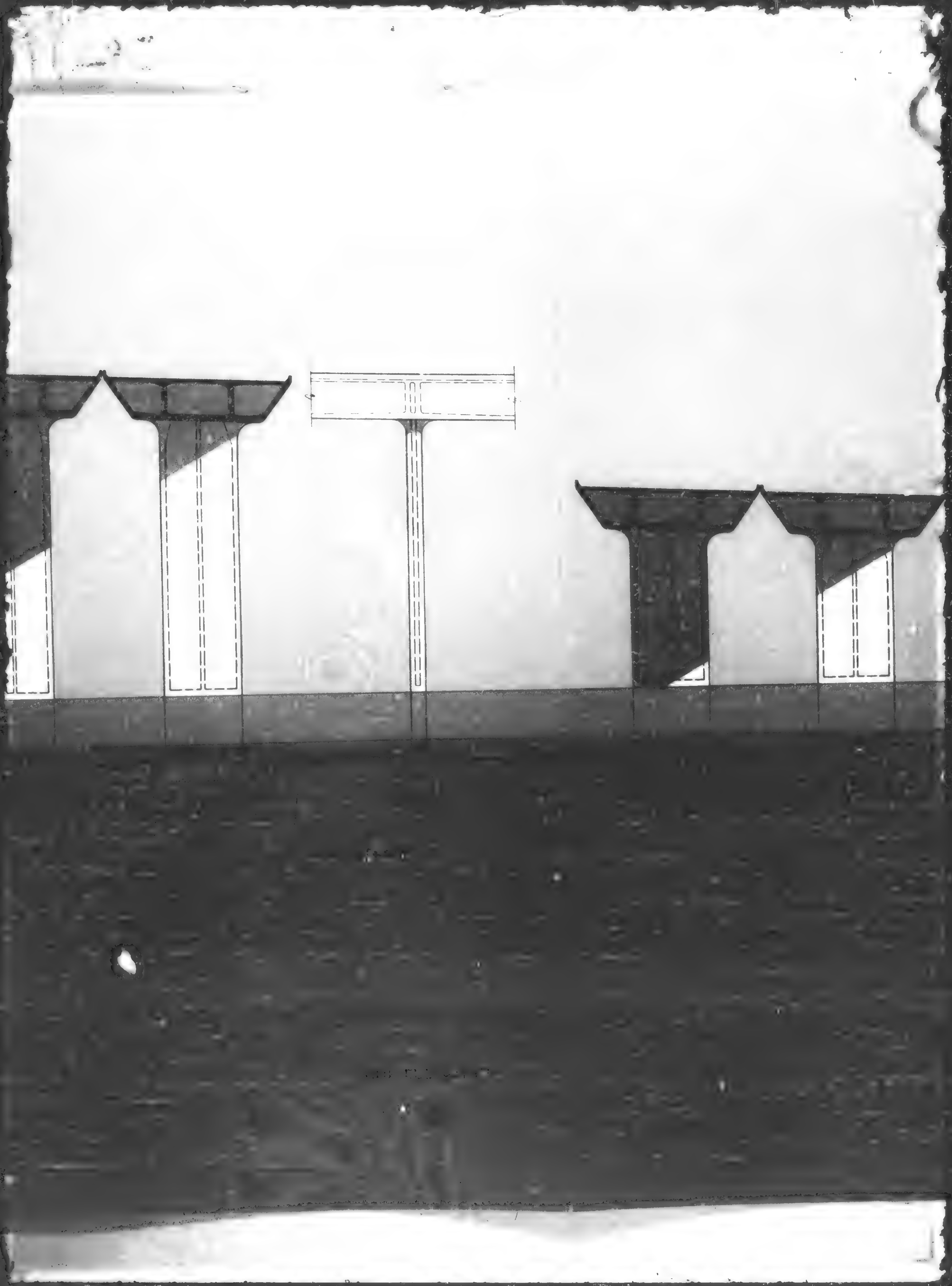
FRONT ELEVATION

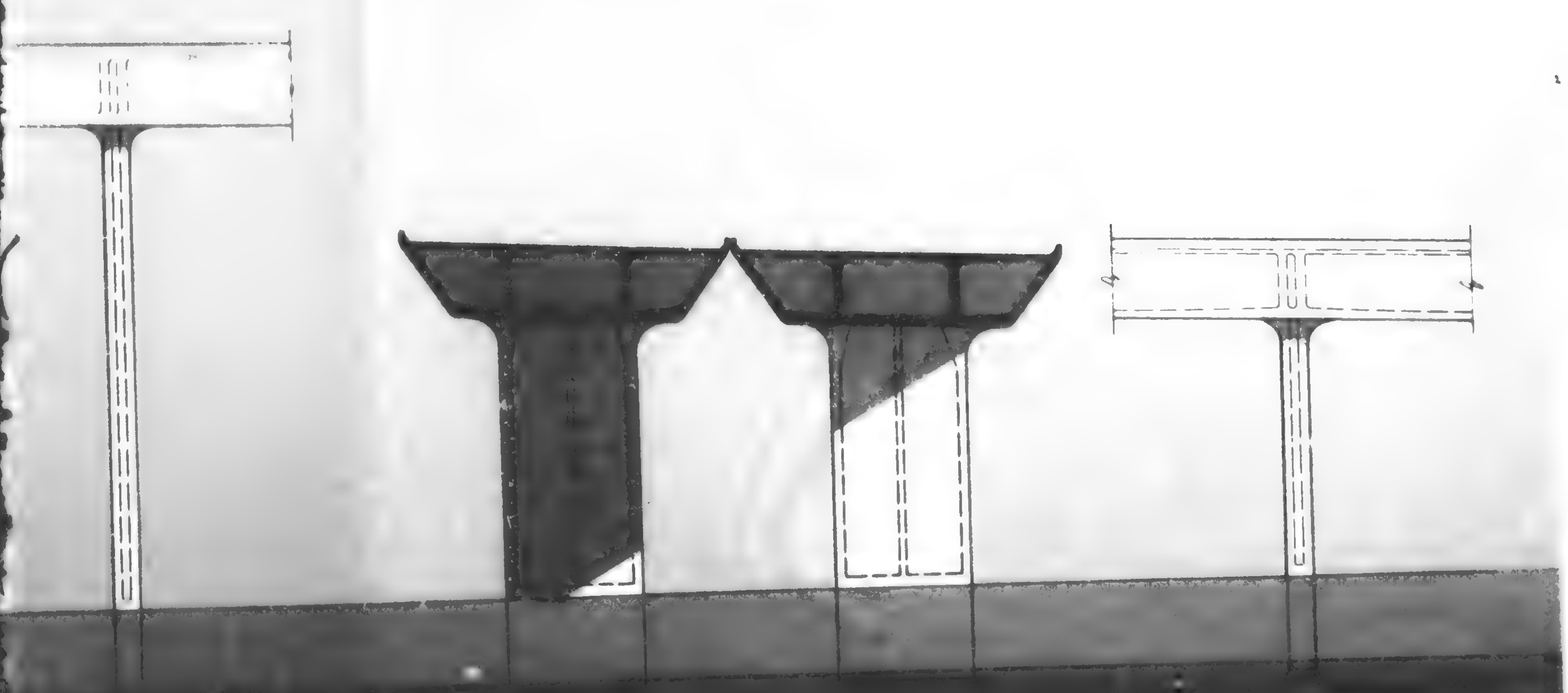
STATION 12+00


GROUND LINE

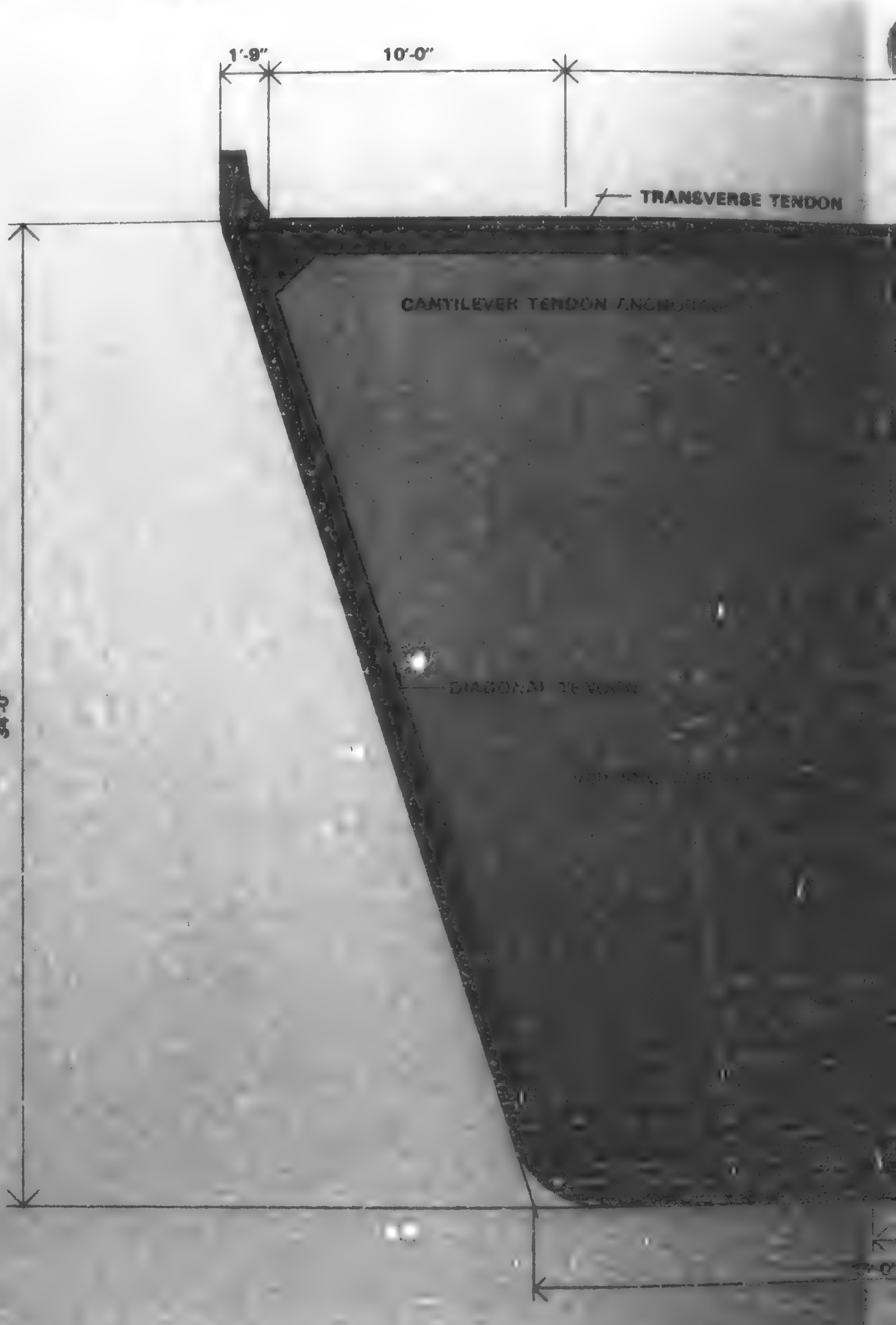
SIDE ELEVATION


RIVERBED

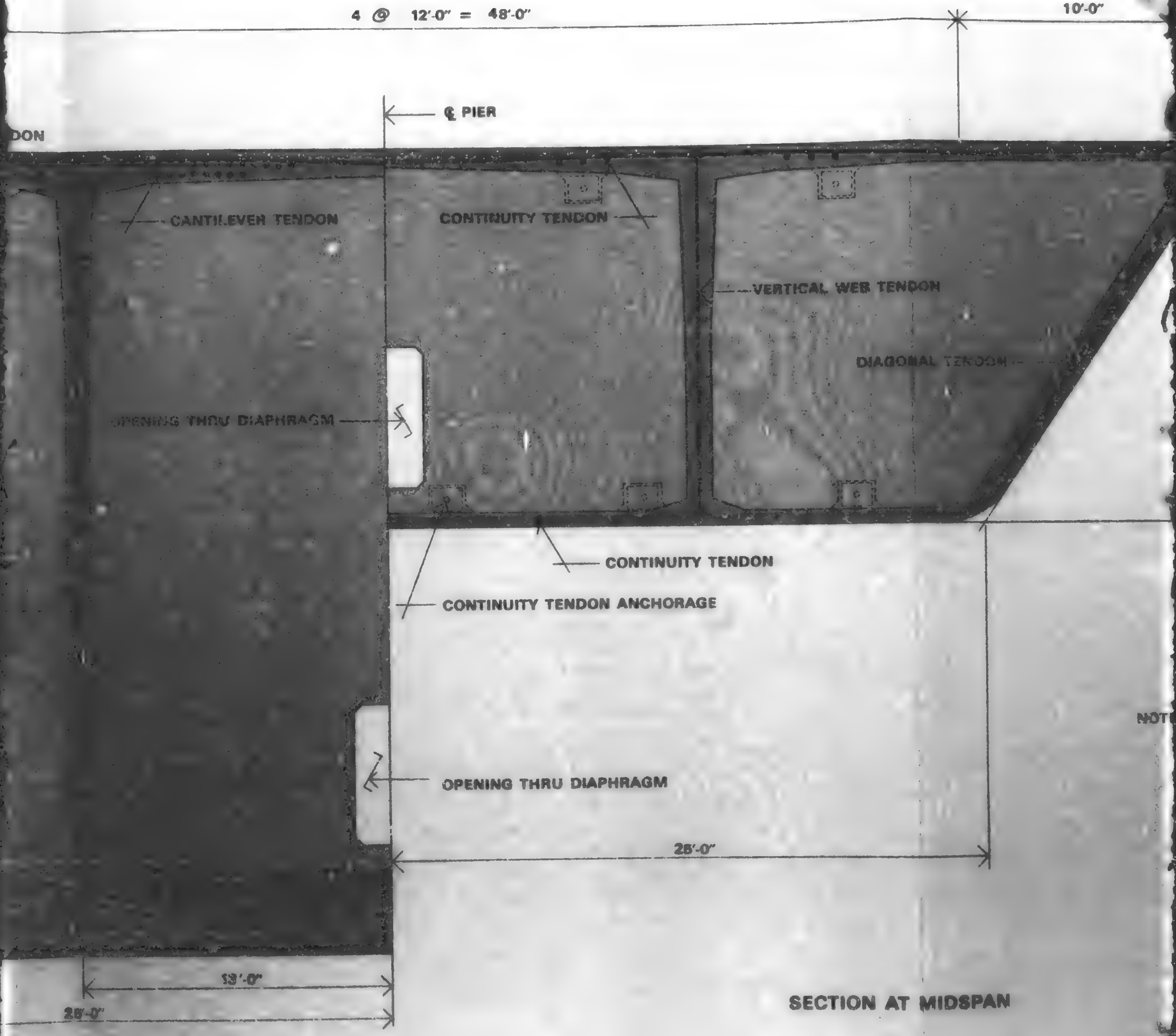




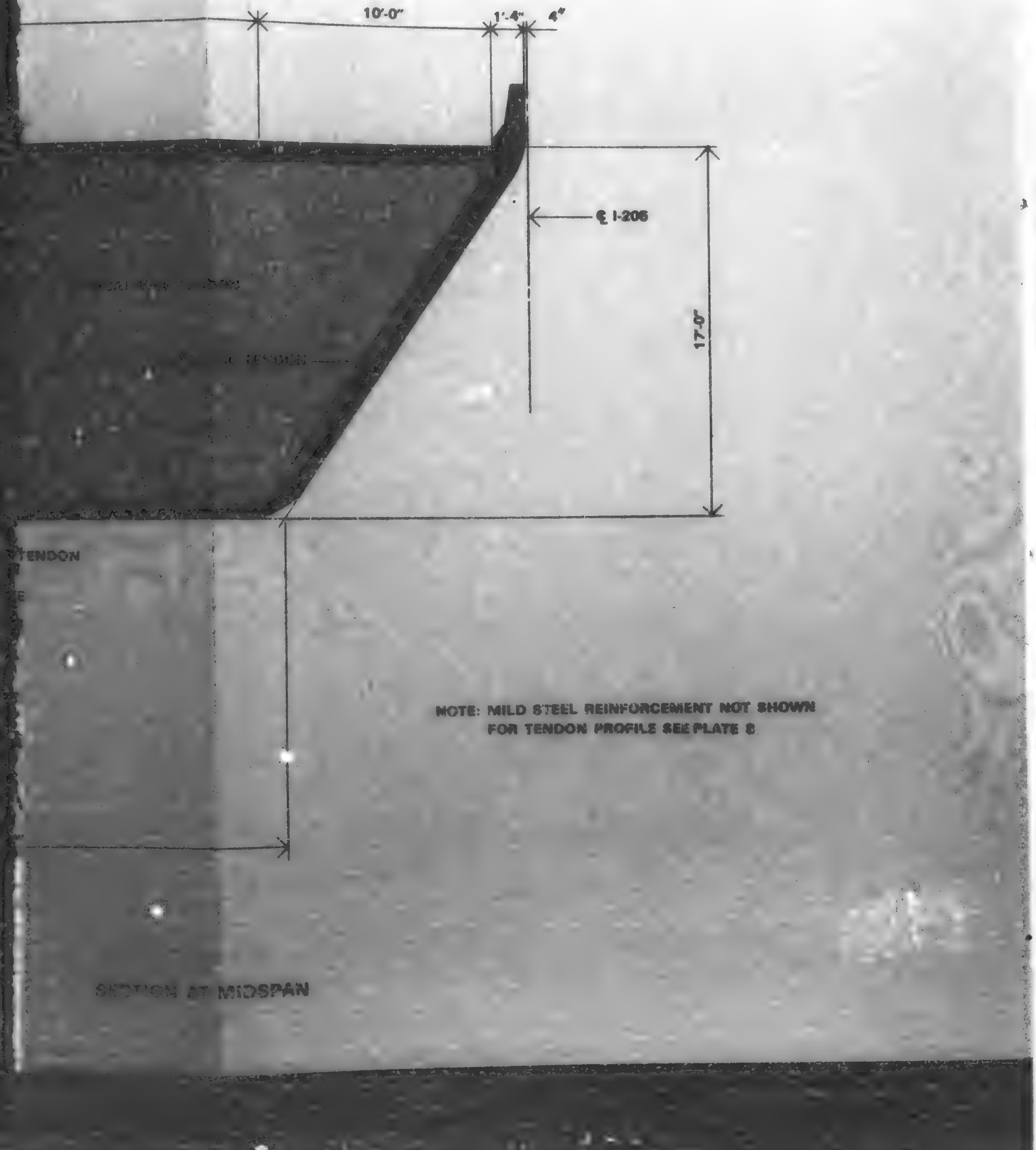
CONCEPT D
PRESTRESSED CONCRETE SUPERSTRUCTURE
TENDON ARRANGEMENT


1'-9"
10'-0"
TRANSVERSE TENDON
CANTILEVER TENDON ANCHORAGE
DIAGONAL TENDON
34'-0"

SECTION NEAR PIER


4 @ 12'-0" = 48'-0"
10'-0"
℄ PIER
DON
CANTILEVER TENDON
CONTINUITY TENDON
VERTICAL WEB TENDON
DIAGONAL TENDON
OPENING THRU DIAPHRAGM
CONTINUITY TENDON
CONTINUITY TENDON ANCHORAGE
OPENING THRU DIAPHRAGM
NOT
25'-0"
13'-0"
26'-0"

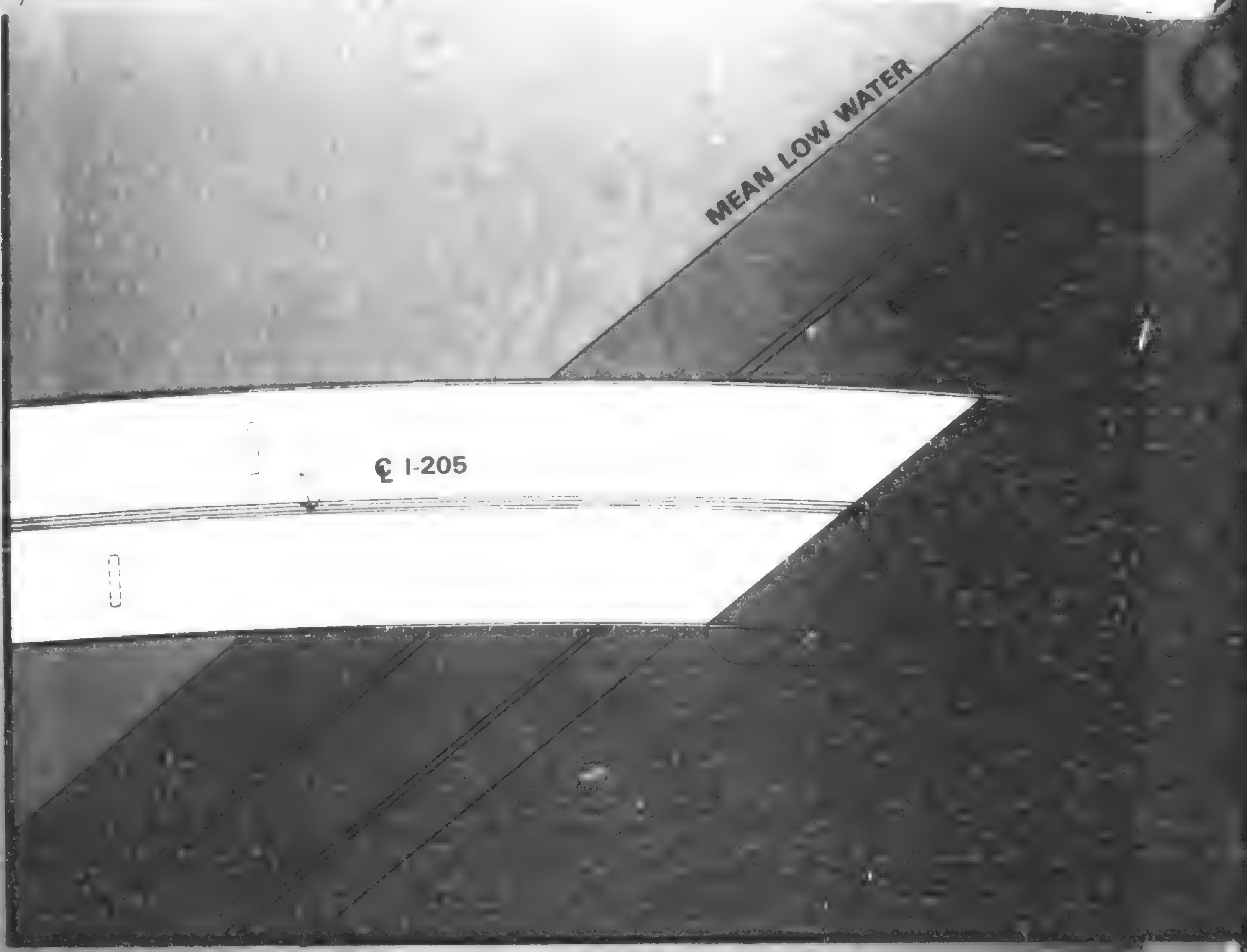
SECTION AT MIDSPAN


10'-0"
1'-4"
4"
℄ I-205
17'-0"
TENDON
TENDON

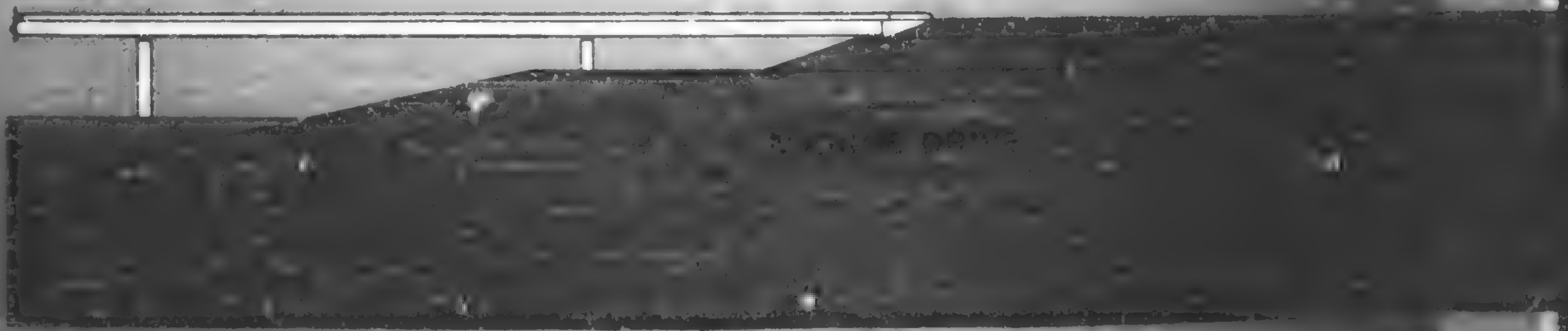
NOTE: MILD STEEL REINFORCEMENT NOT SHOWN
FOR TENDON PROFILE SEE PLATE 8

SECTION AT MIDSPAN

MARINE DRIVE CROSSING

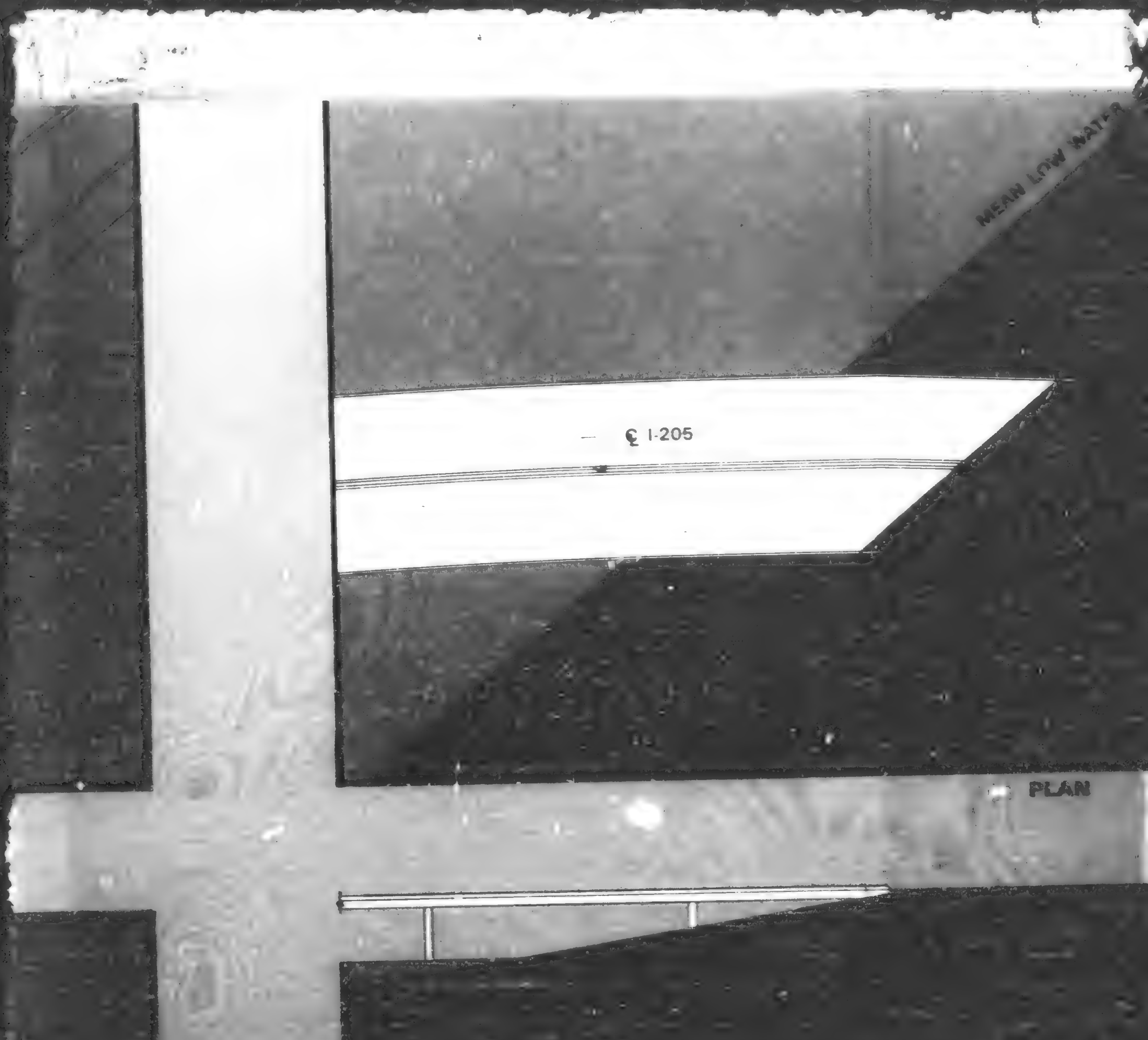

MEAN LOW WATER
℄ I-205

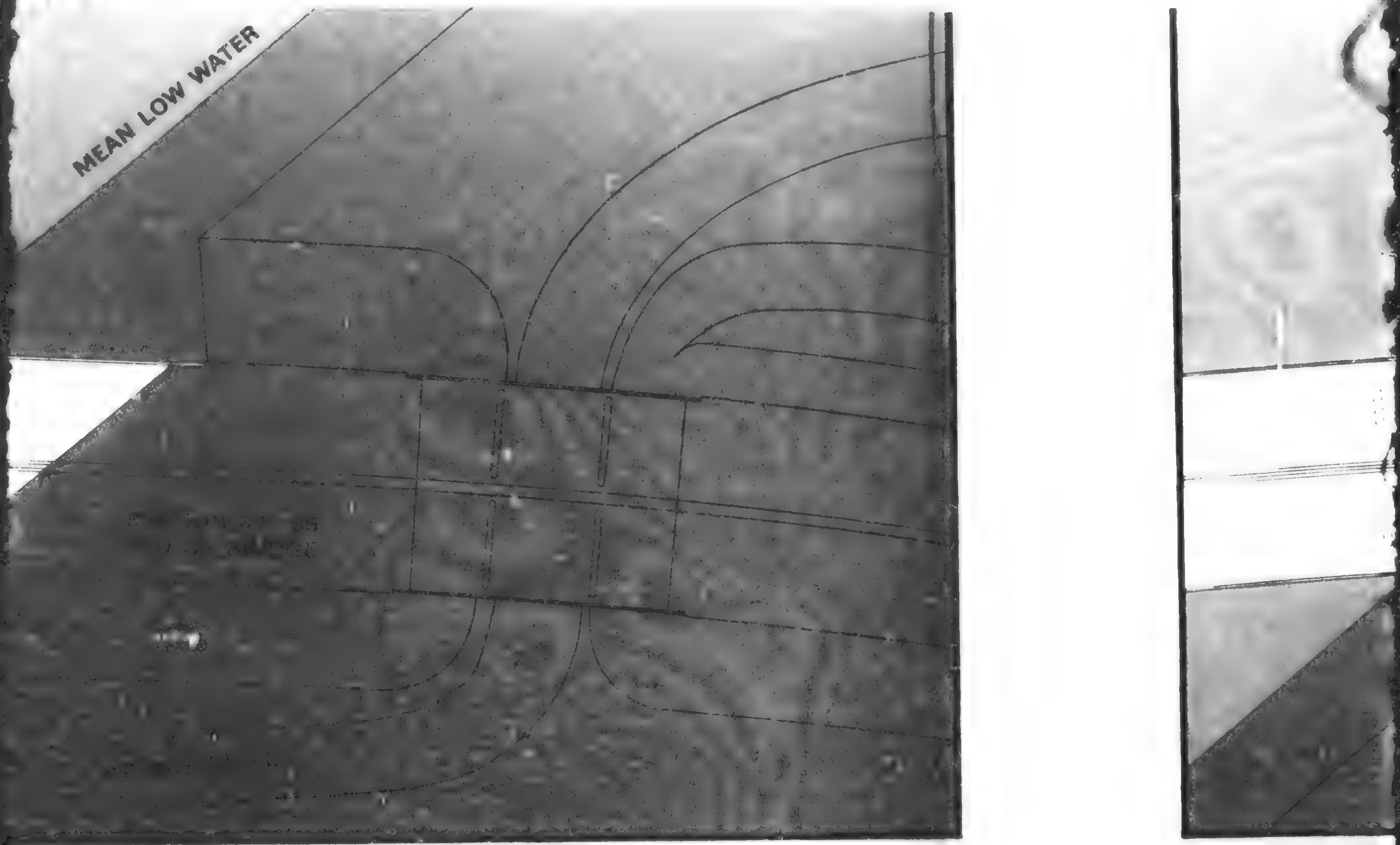
PLAN



ELEVATION

MARINE DRIVE UNDER BRIDGE


MEAN LOW WATER
℄ I-205
PLAN
ELEVATION
MARINE DRIVE UNDER

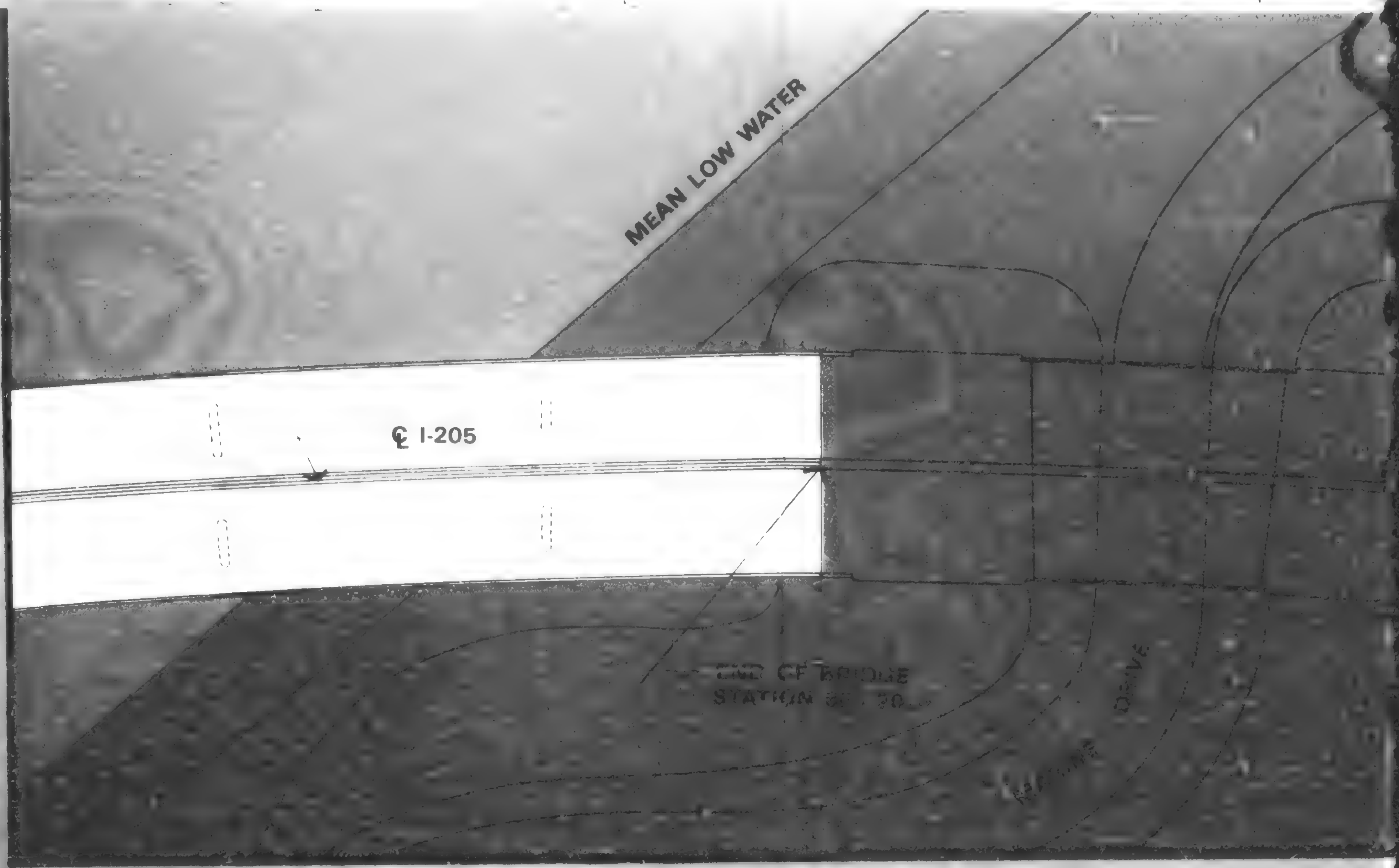

MEAN LOW WATER

PLAN

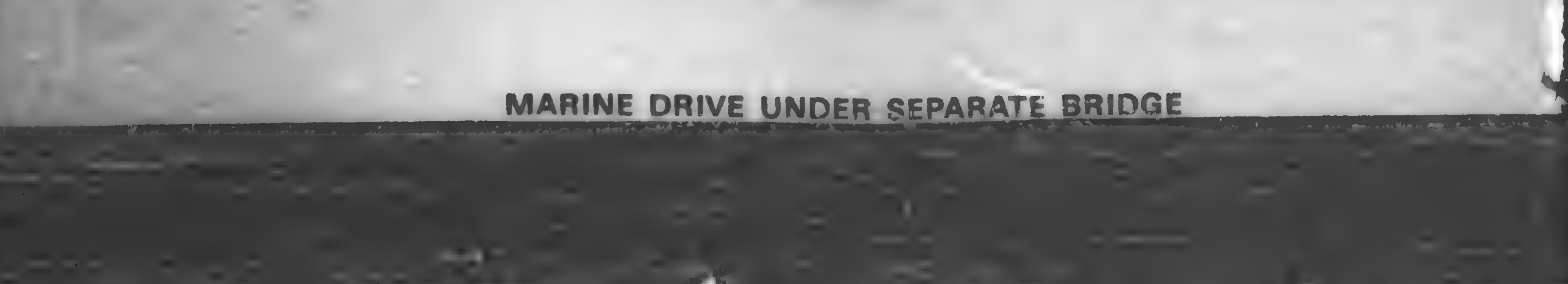
MARINE DRIVE

ELEVATION

E UNDER SEPARATE BRIDGE

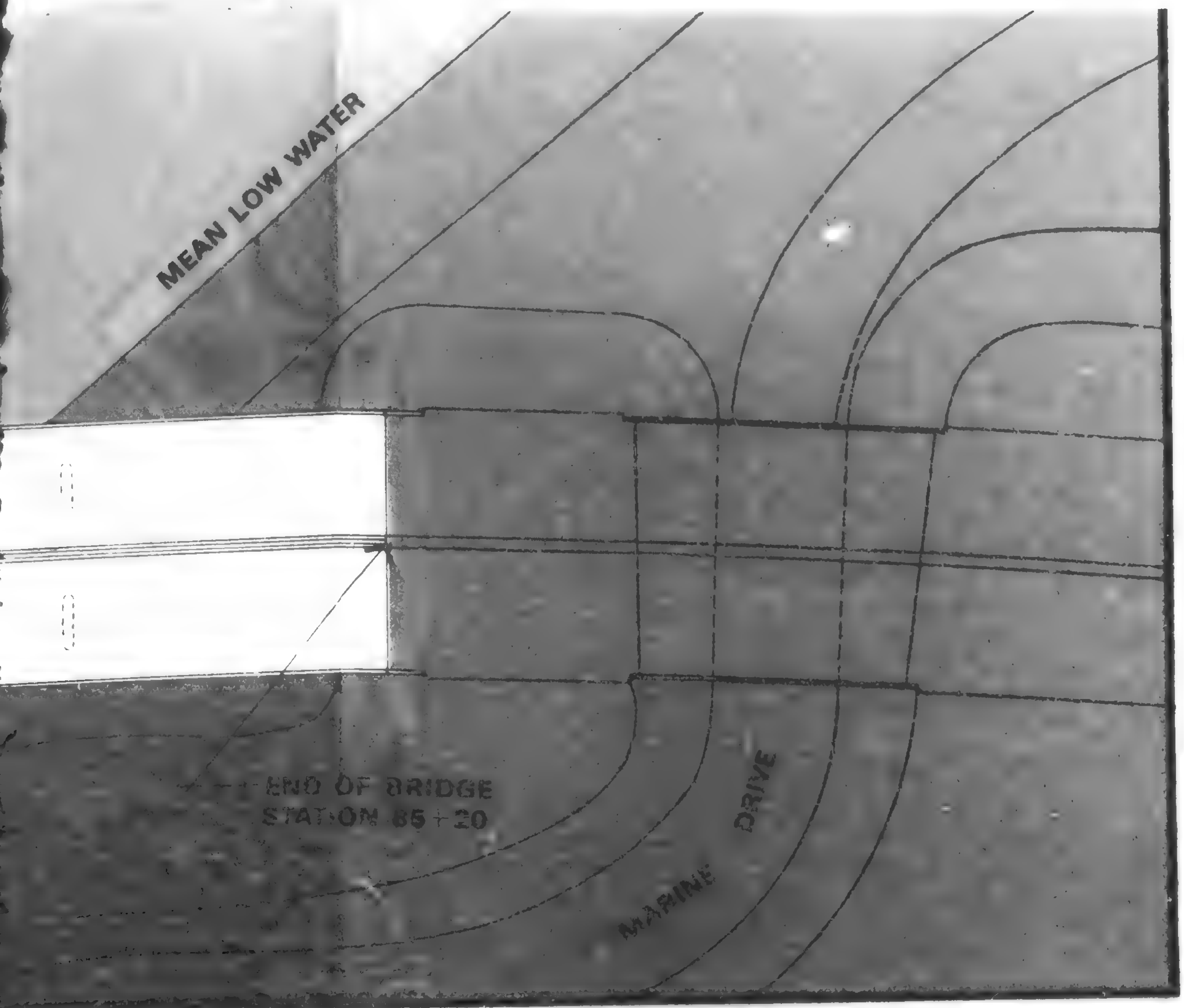

MEAN LOW WATER
℄ I-205
END OF BRIDGE
STATION [illegible] 70
DRIVE

PLAN

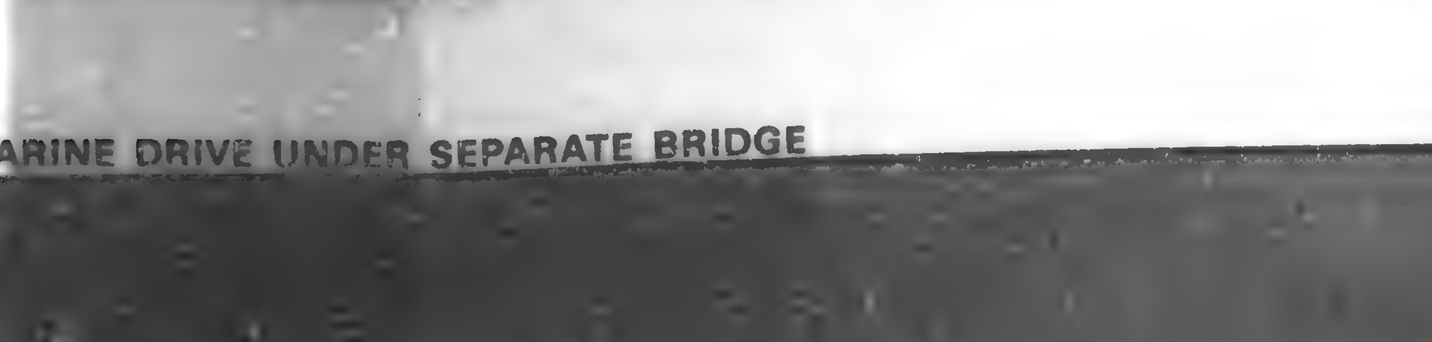


ELEVATION

MARINE DRIVE UNDER SEPARATE BRIDGE


MEAN LOW WATER
END OF BRIDGE
STATION 85+20
MARINE
DRIVE

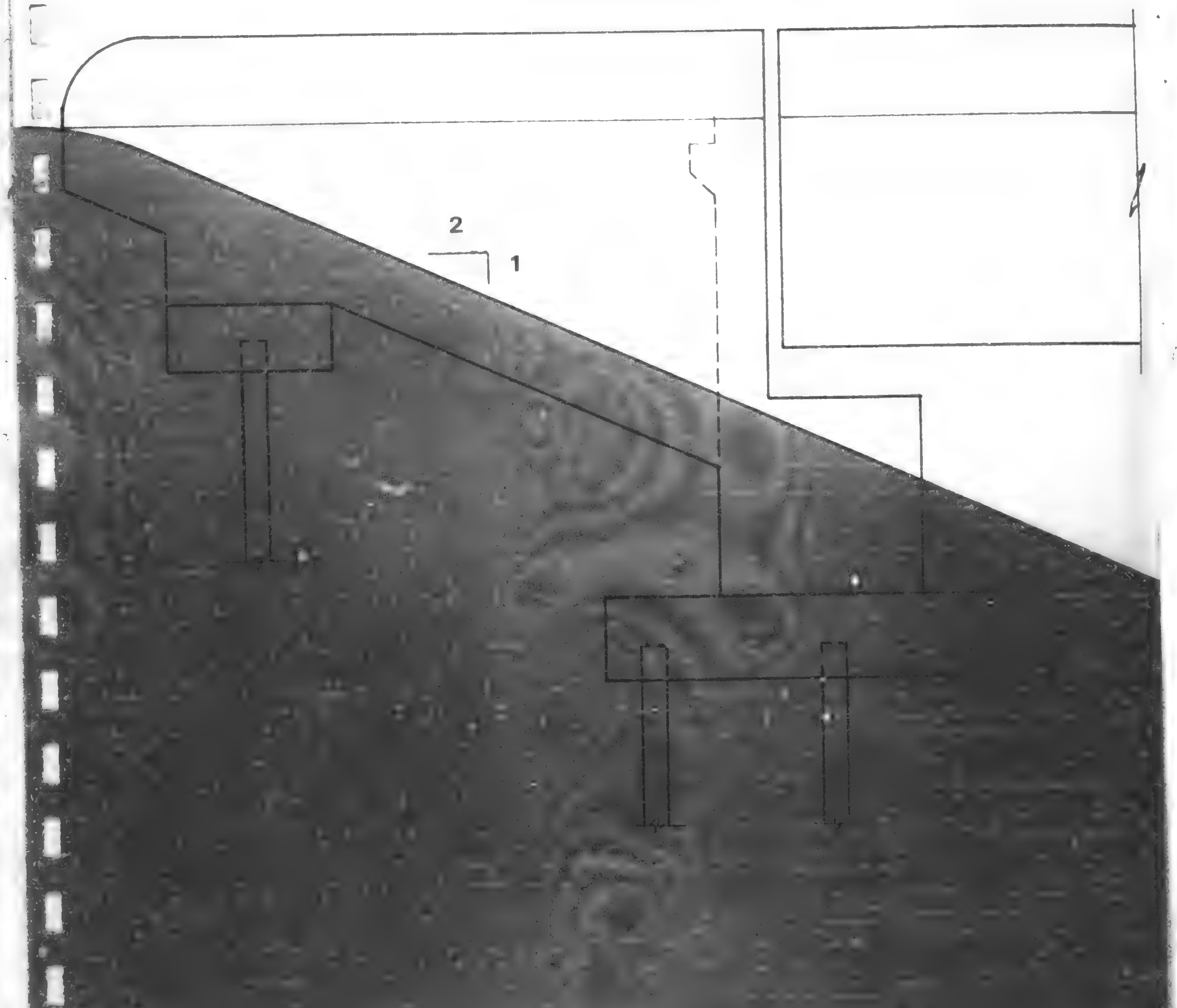
PLAN


MARINE DRIVE

ELEVATION

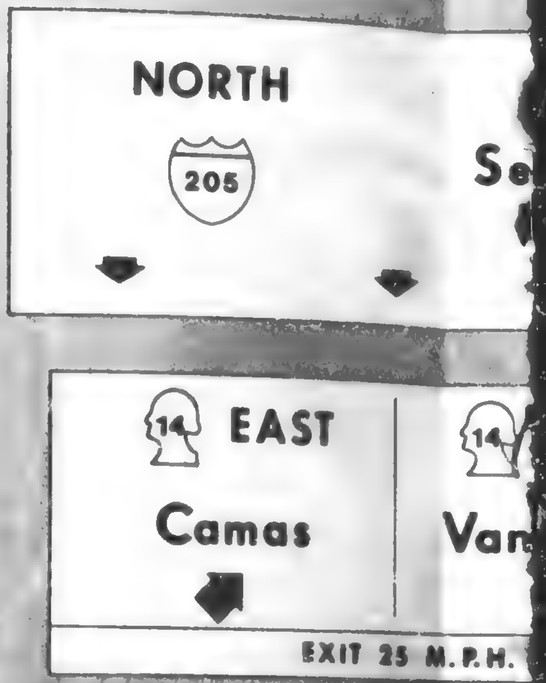
ARINE DRIVE UNDER SEPARATE BRIDGE

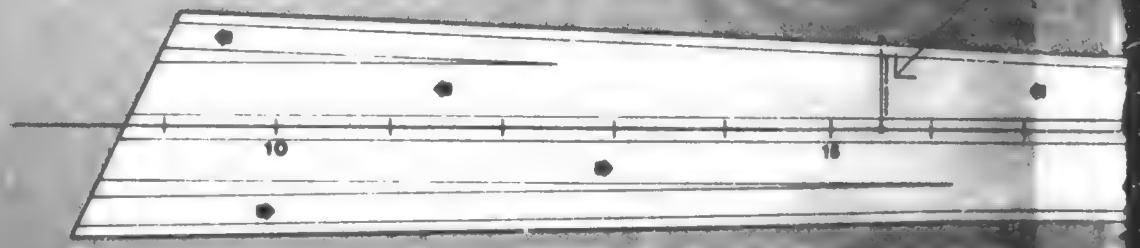
ABUTMENTS



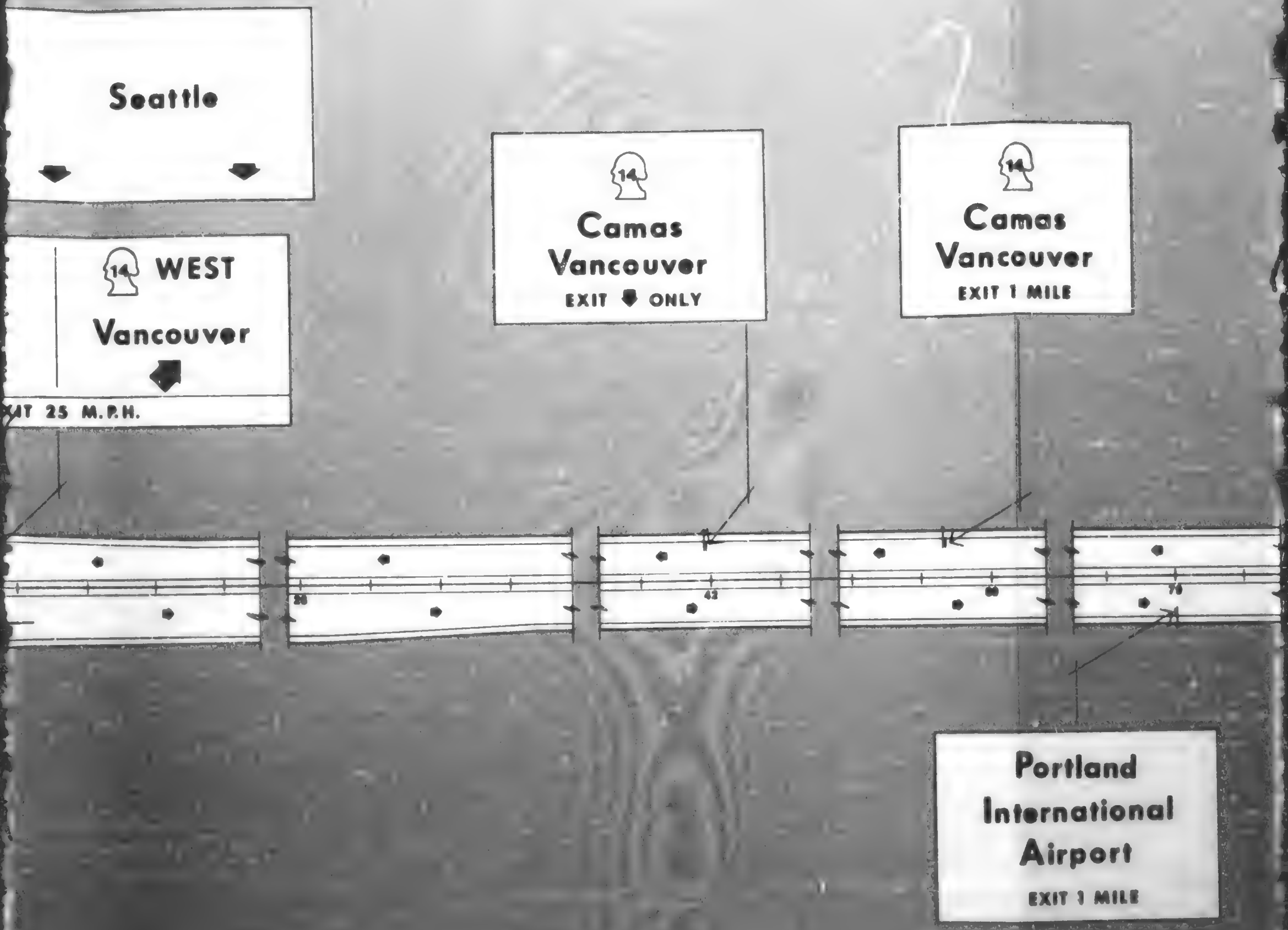
SIDE ELEVATION

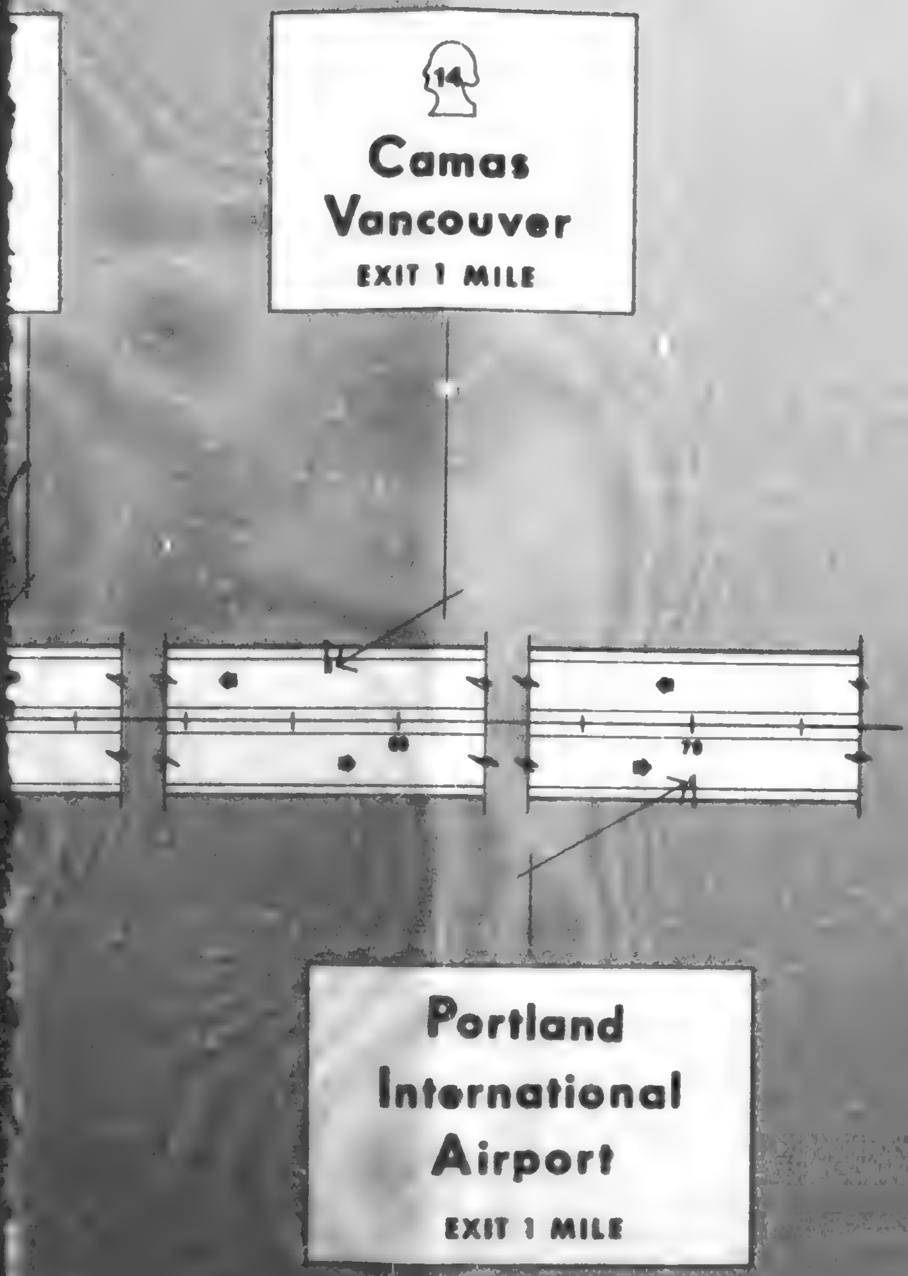
SIGNING


NORTH
205
Se
14 EAST
Camas
14
Van
EXIT 25 M.P.H.

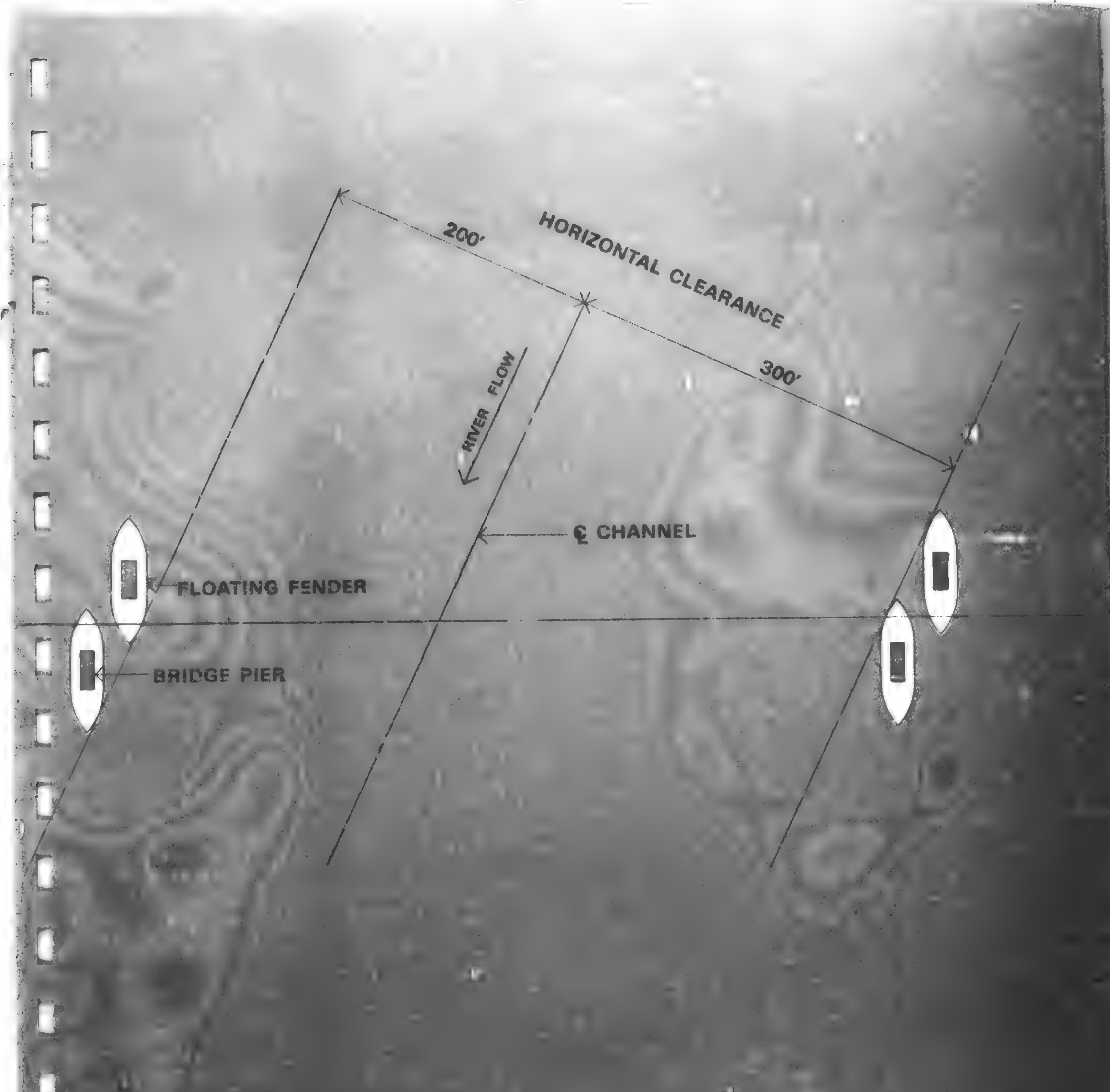


[redacted]

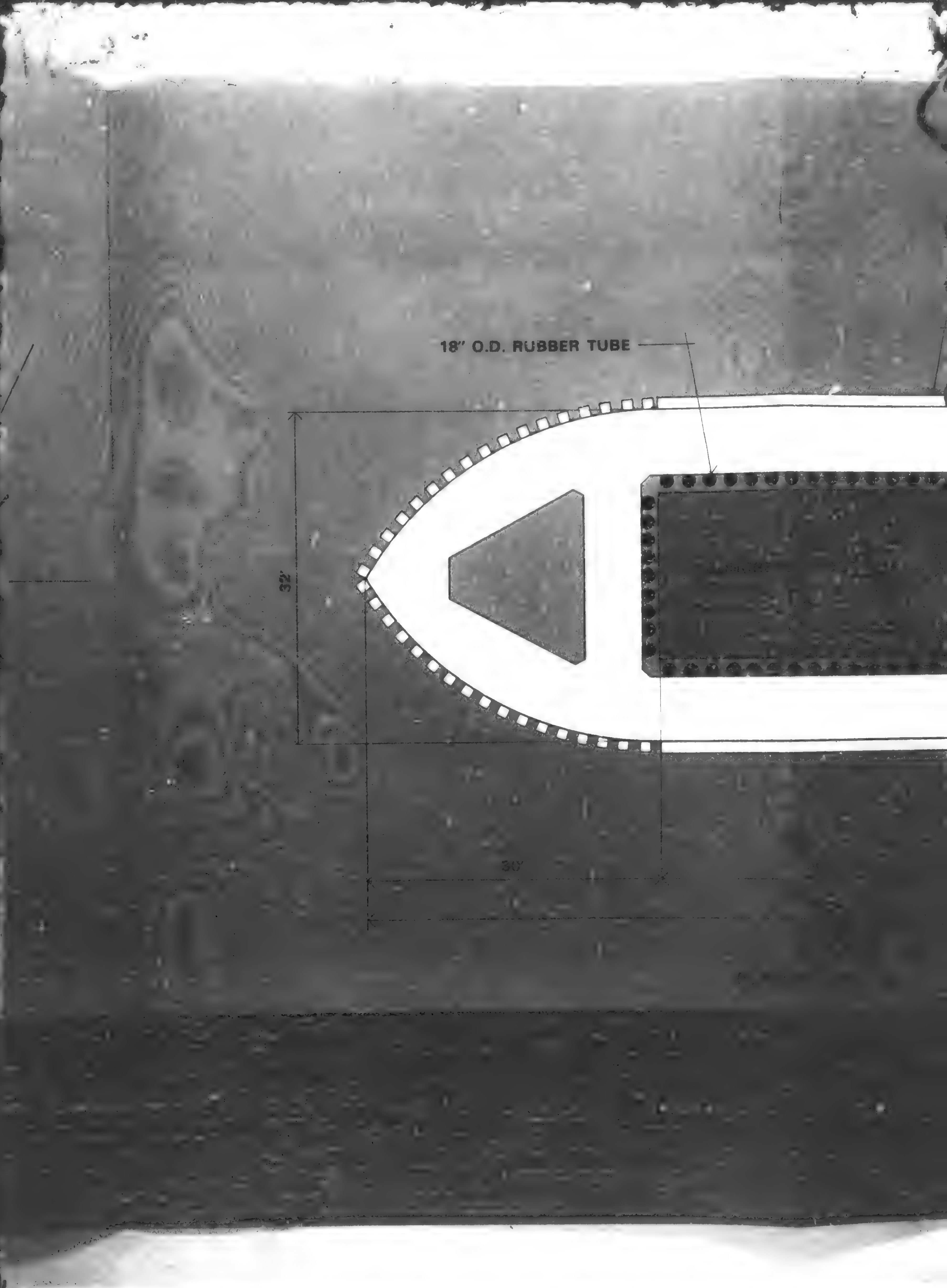

Seattle
14 WEST
Vancouver
XIT 25 M.P.H.
14
Camas
Vancouver
EXIT ONLY
14
Camas
Vancouver
EXIT 1 MILE
28
42
60
70
Portland
International
Airport
EXIT 1 MILE

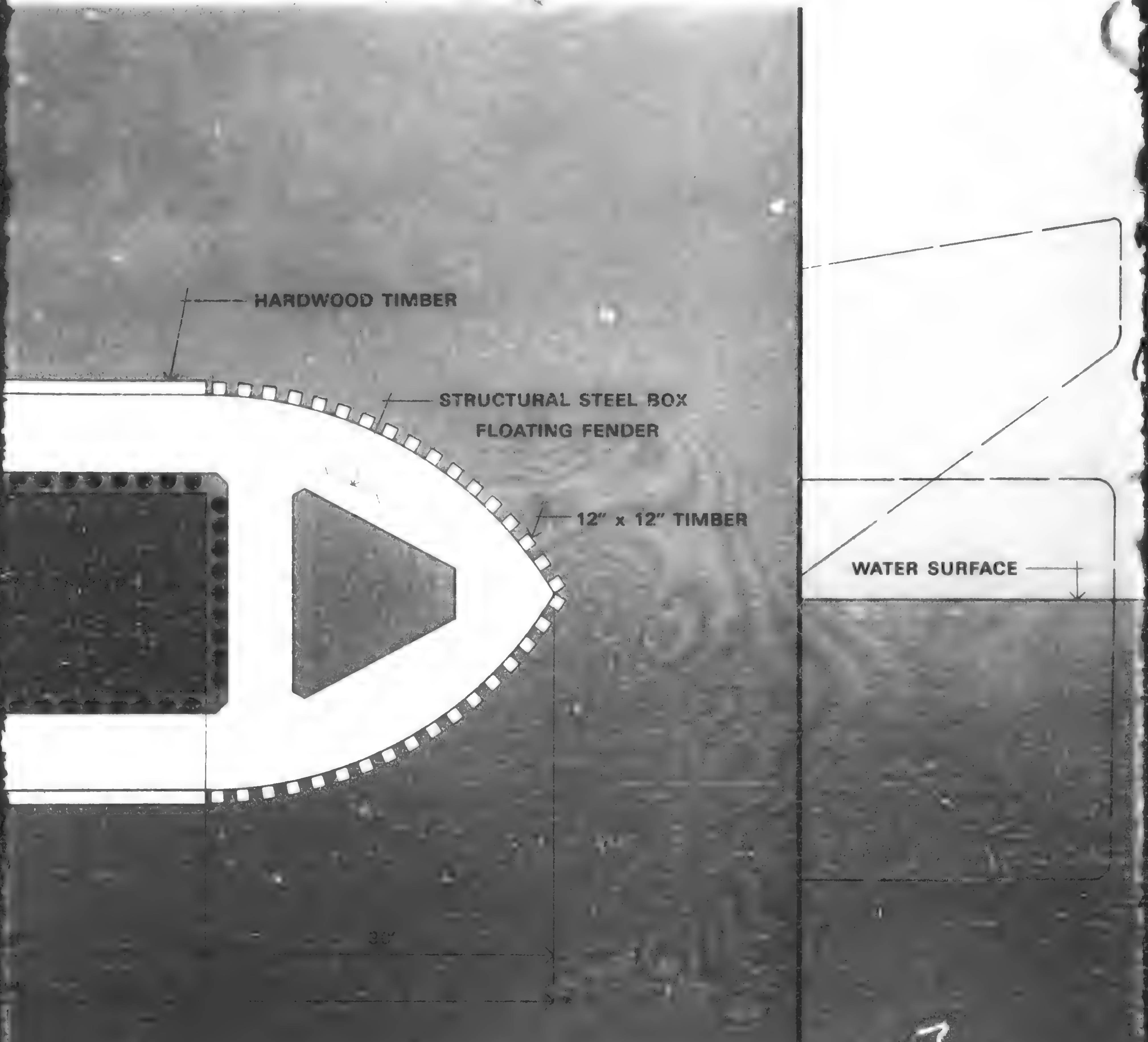

14
Camas
Vancouver
EXIT 1 MILE
Portland
International
Airport
EXIT 1 MILE

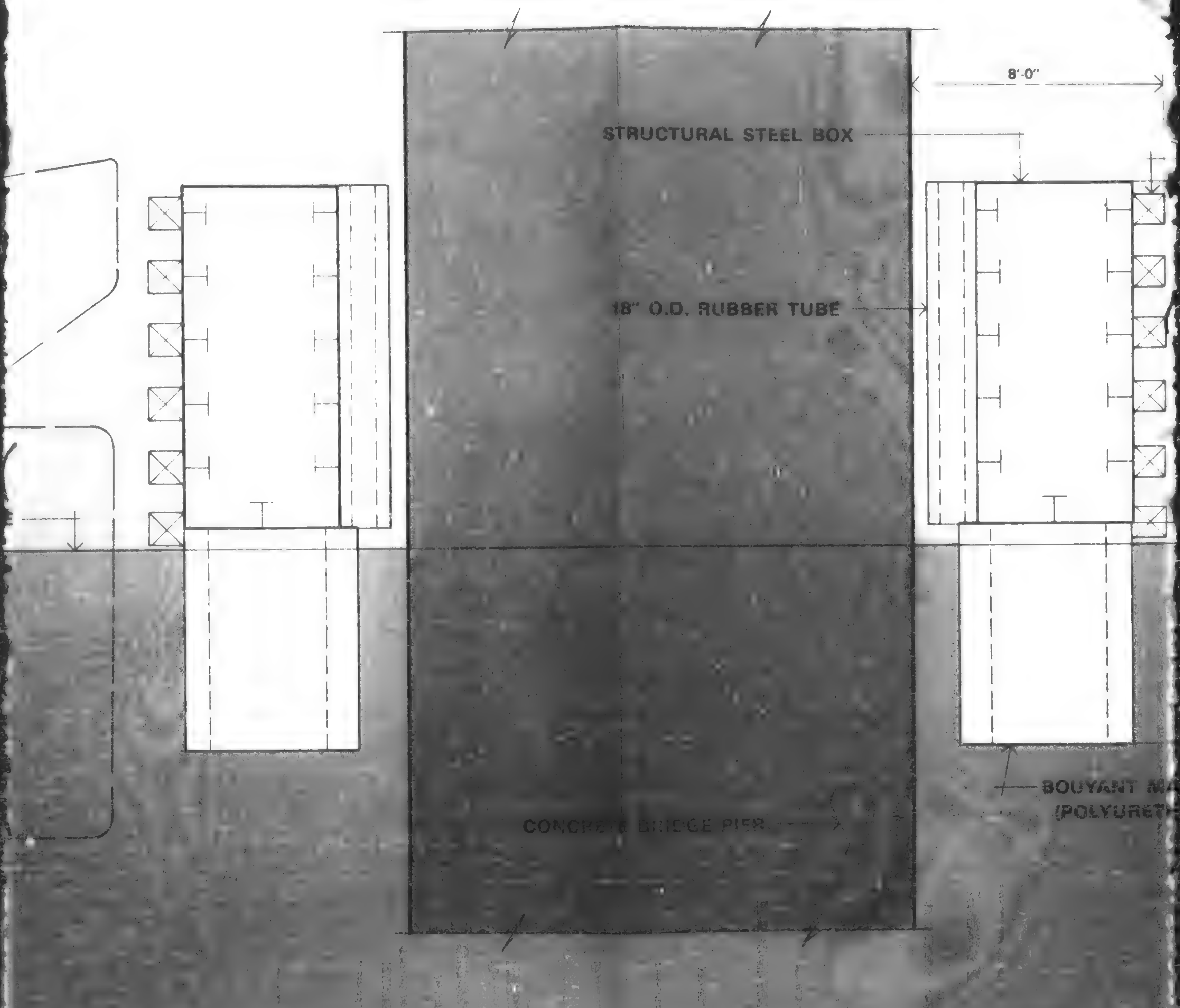
FENDERS


HORIZONTAL CLEARANCE
200′
300′
RIVER FLOW
℄ CHANNEL
FLOATING FENDER
BRIDGE PIER

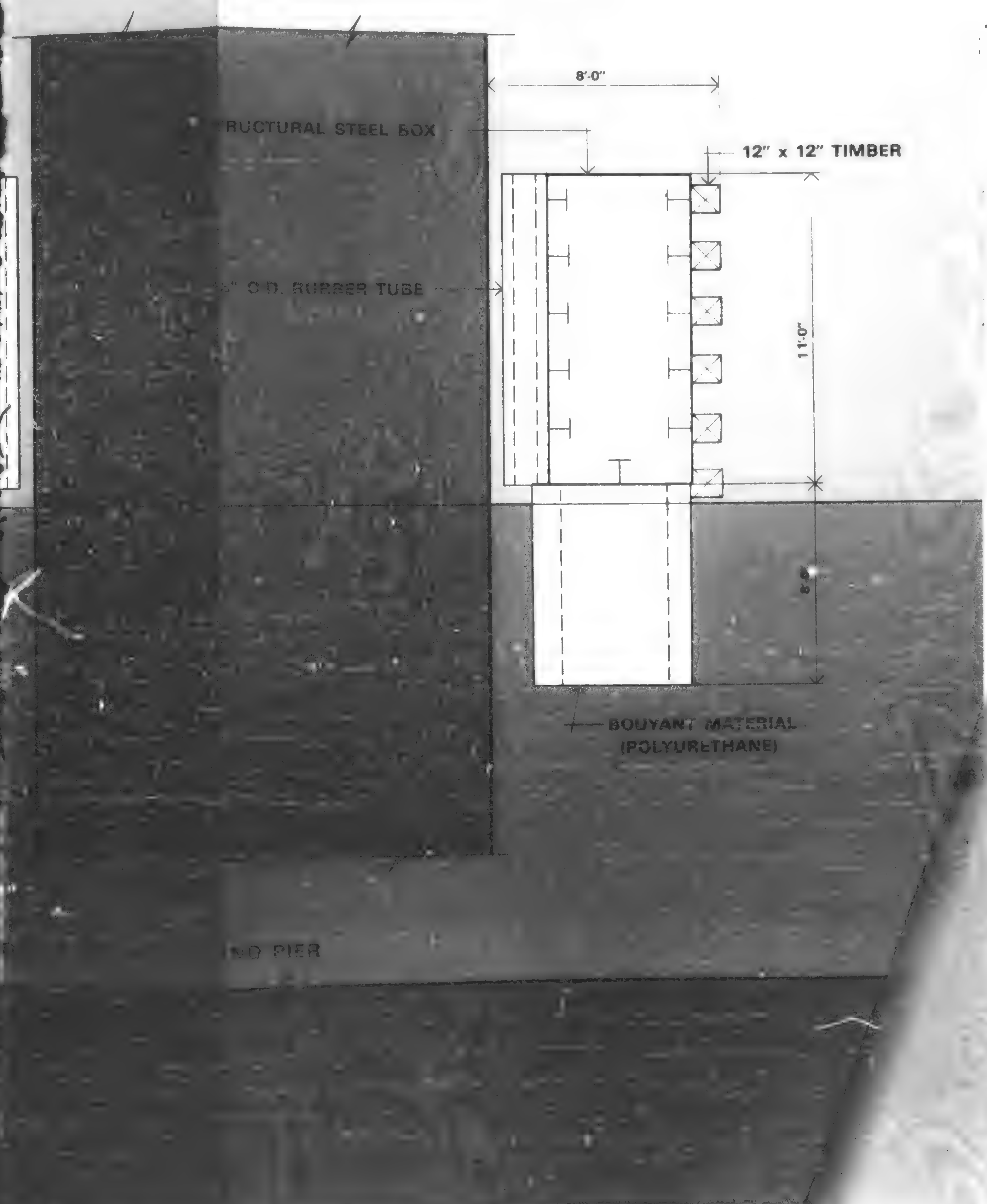
PLAN AT RIVER CHANNEL


18" O.D. RUBBER TUBE
32'
30'

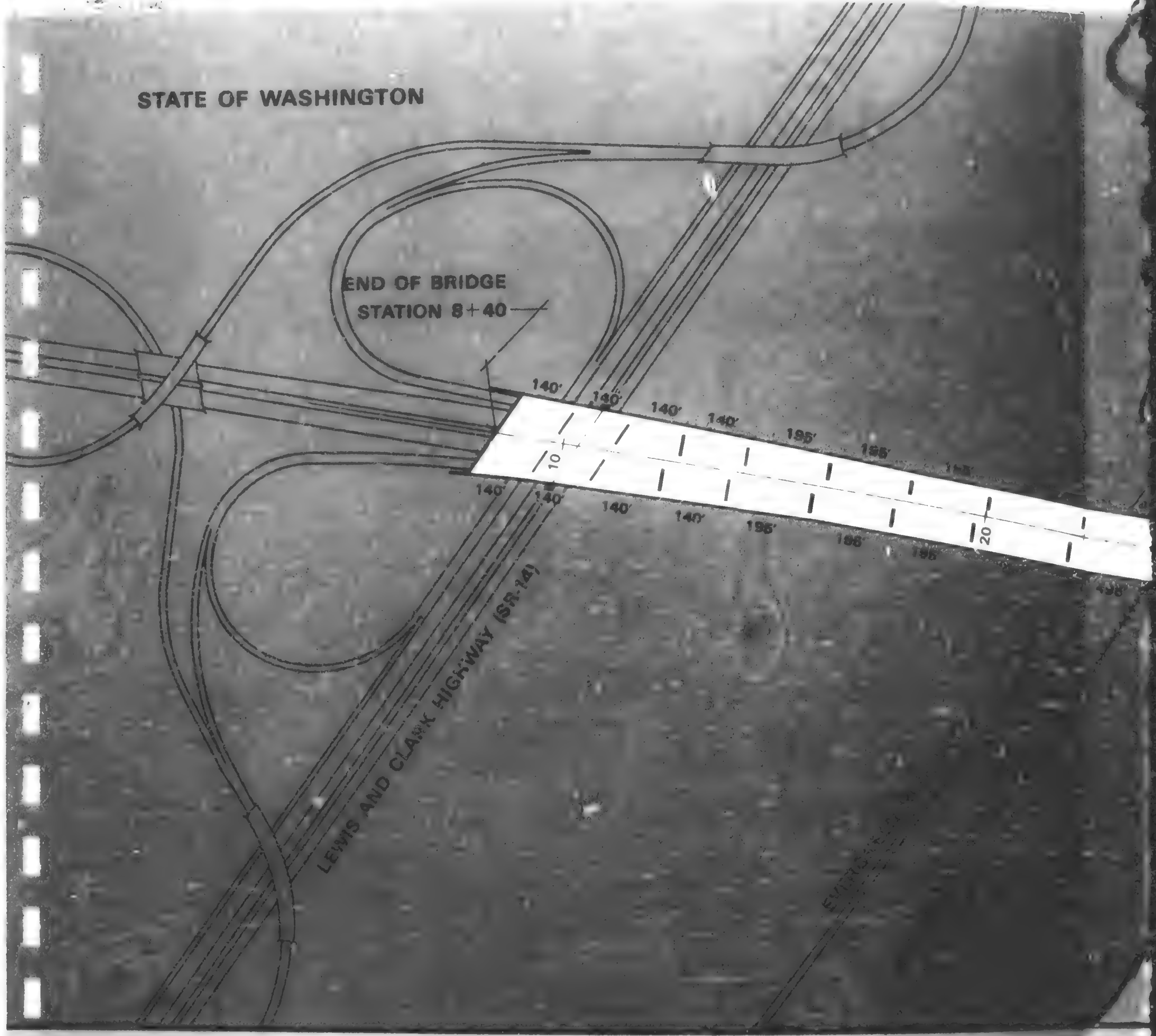

HARDWOOD TIMBER
STRUCTURAL STEEL BOX
FLOATING FENDER
12" x 12" TIMBER
WATER SURFACE
30'

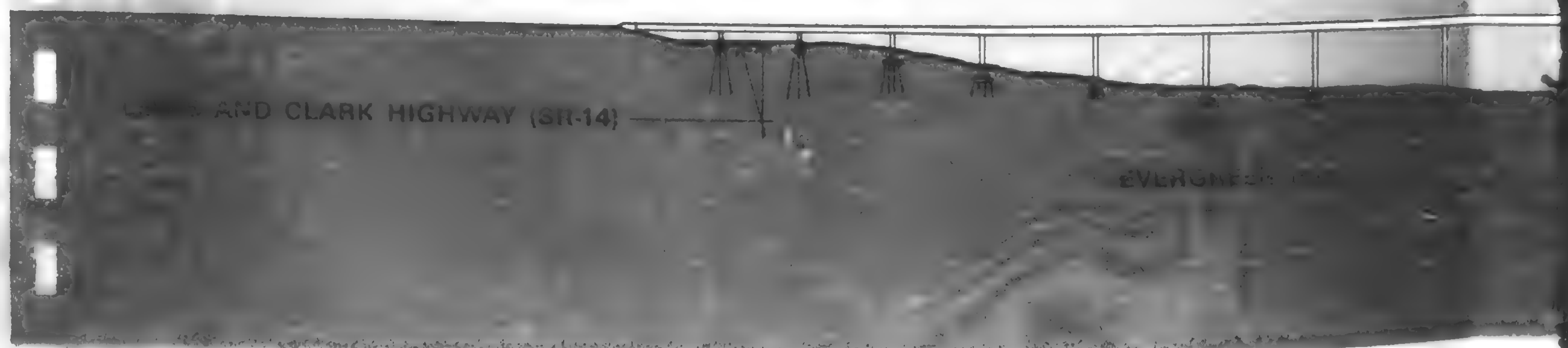

8'-0"
STRUCTURAL STEEL BOX
18" O.D. RUBBER TUBE
CONCRETE BRIDGE PIER
BOUYANT MA
(POLYURETH

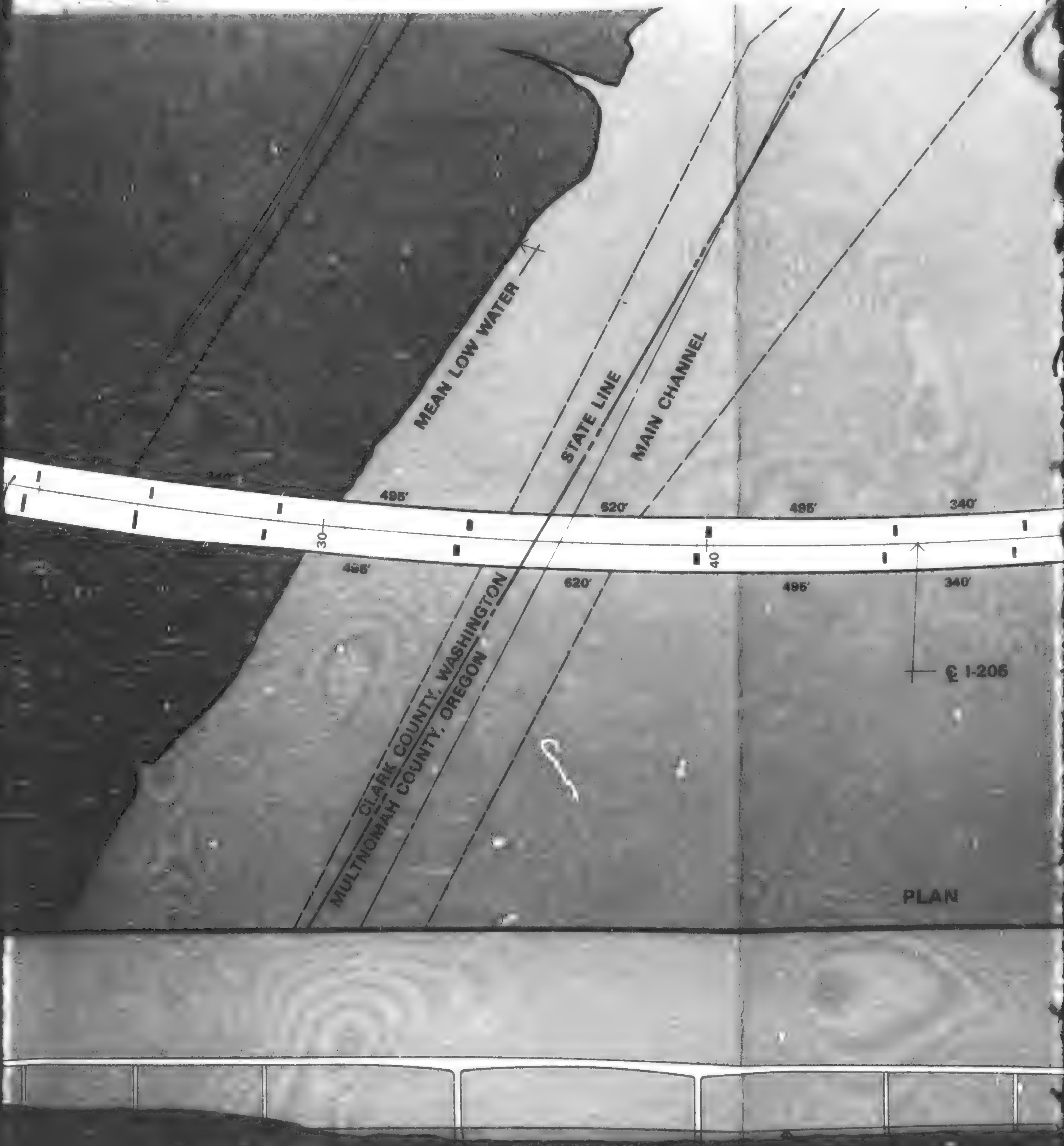
SECTION THRU FENDER AND PIER

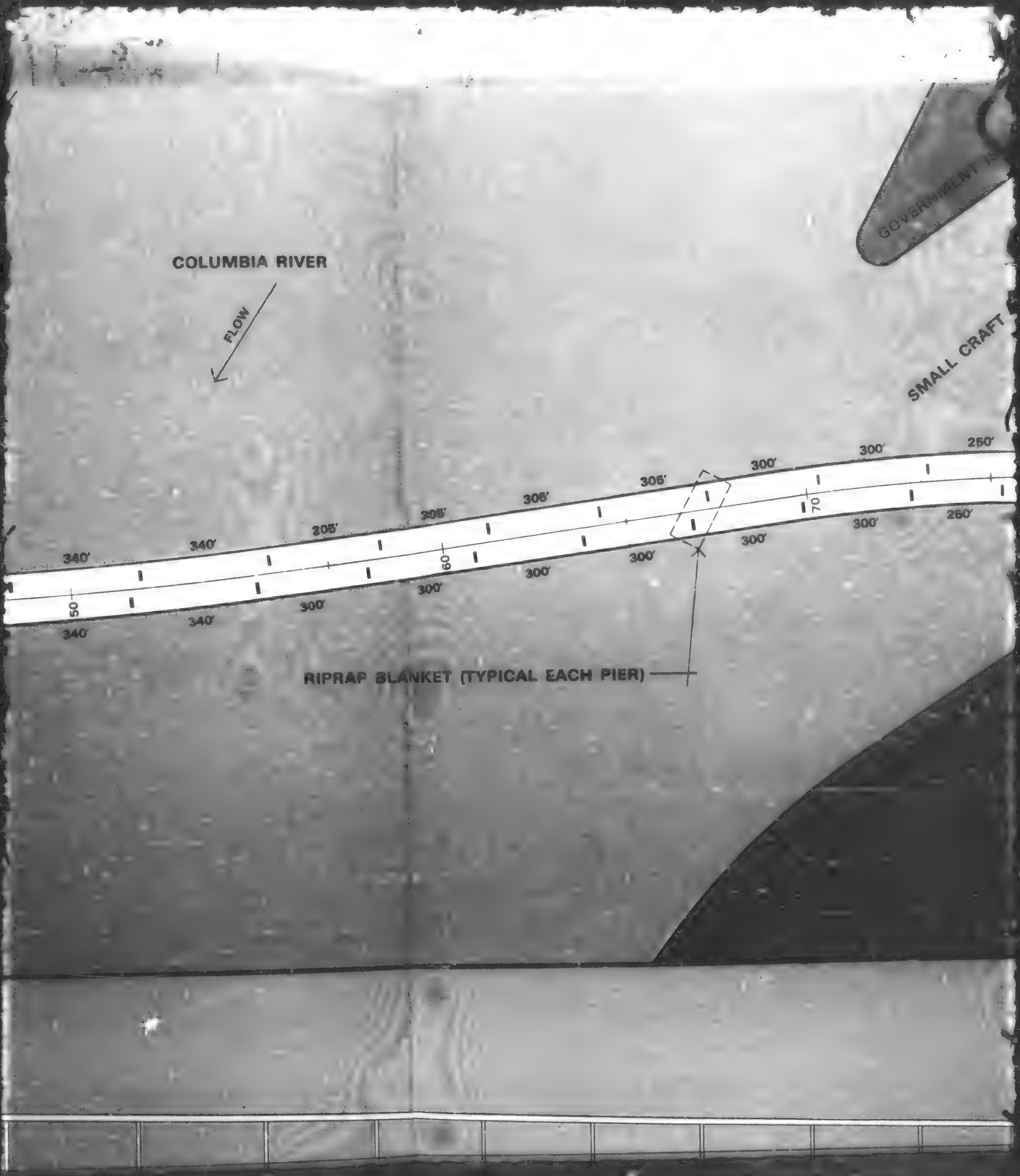

8'-0"
RUCTURAL STEEL BOX
12" x 12" TIMBER
" O.D. RUBBER TUBE
11'-0"
8'-0"
BOUYANT MATERIAL
(POLYURETHANE)
ND PIER

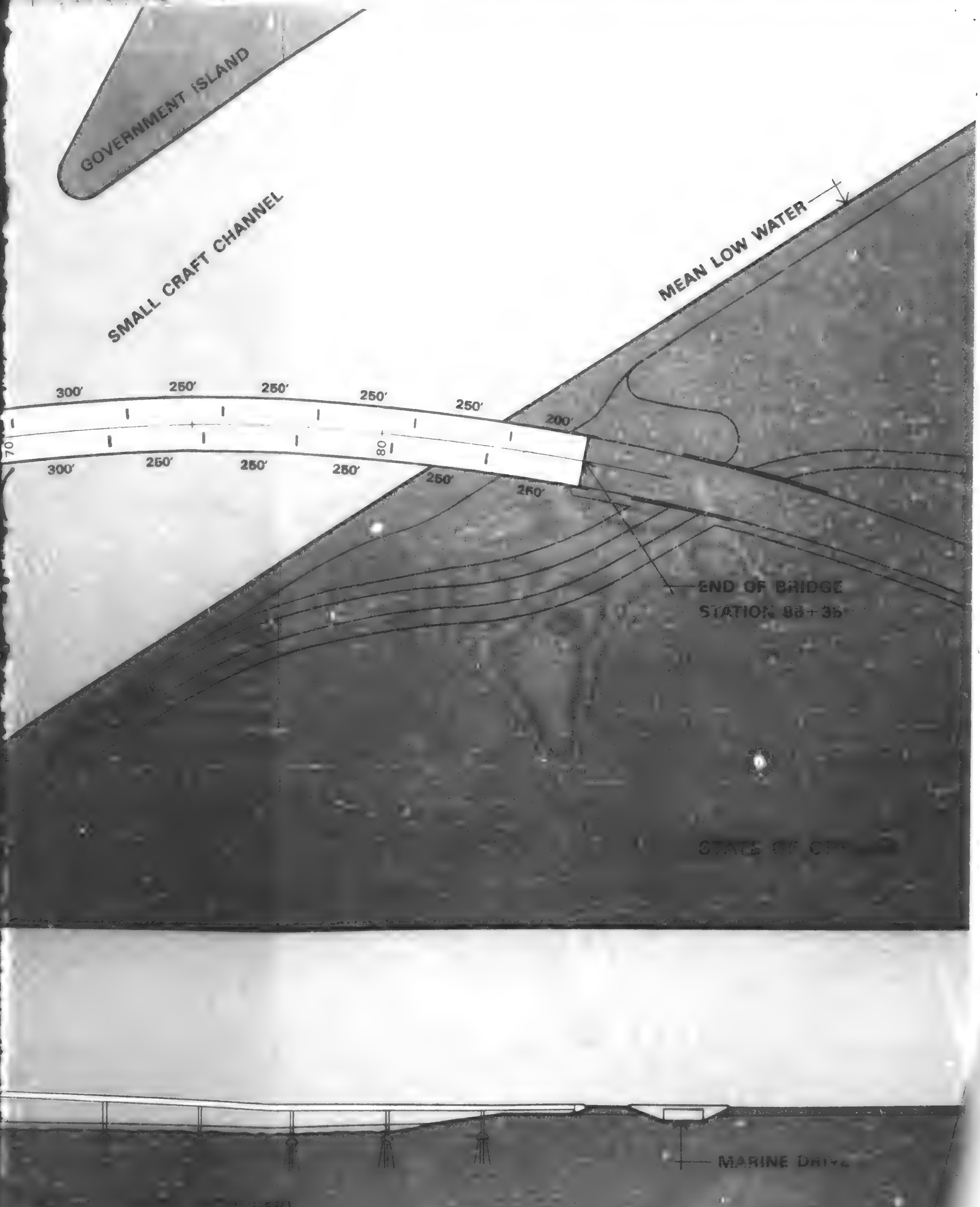
RECOMMENDED CONCEPT
PRESTRESSED CONCRETE SUPERSTRUCTURE
GENERAL PLAN AND ELEVATION


STATE OF WASHINGTON
END OF BRIDGE
STATION 8+40
LEWIS AND CLARK HIGHWAY (SR-14)

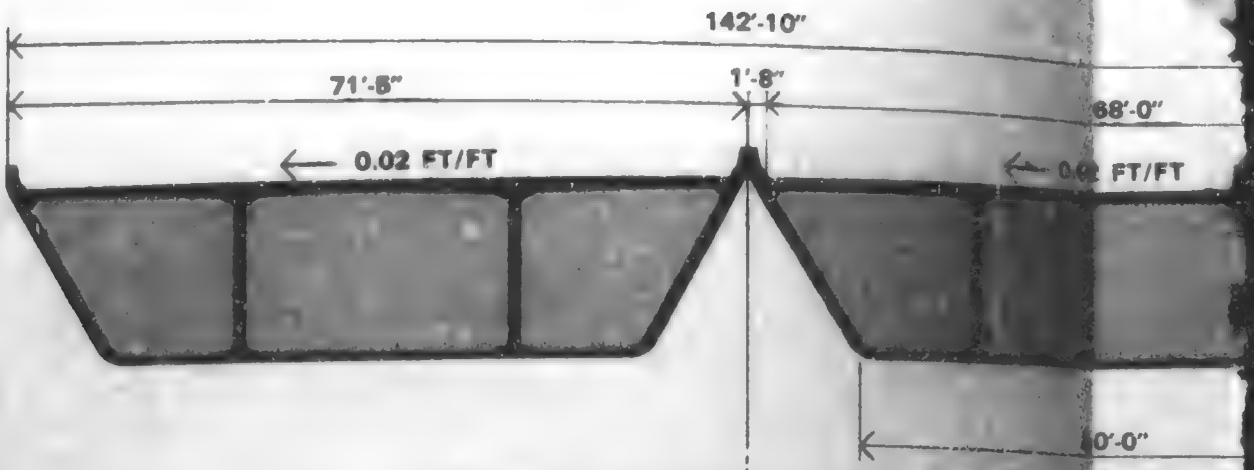

AND CLARK HIGHWAY (SR-14)


MEAN LOW WATER
STATE LINE
MAIN CHANNEL
CLARK COUNTY, WASHINGTON
MULTNOMAH COUNTY, OREGON
℄ I-205
PLAN

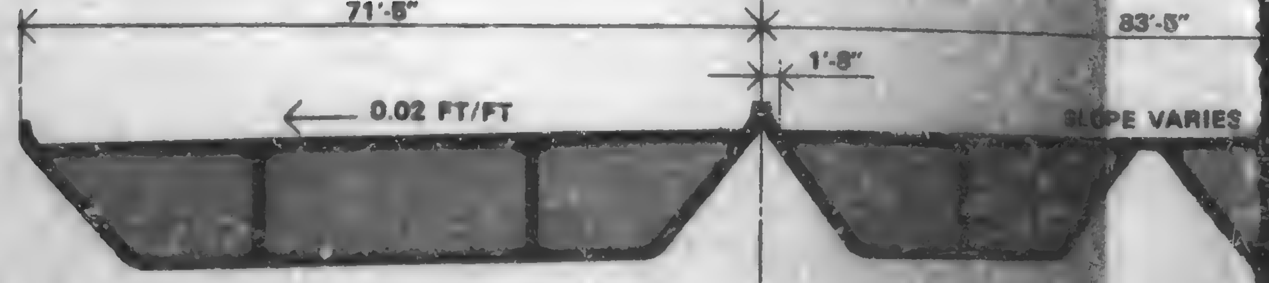

COLUMBIA RIVER
FLOW
GOVERNMENT IS
SMALL CRAFT
RIPRAP BLANKET (TYPICAL EACH PIER)


GOVERNMENT ISLAND
SMALL CRAFT CHANNEL
MEAN LOW WATER
END OF BRIDGE
STATION 85+35
STATE OF OREGON
MARINE DRIVE
PIER

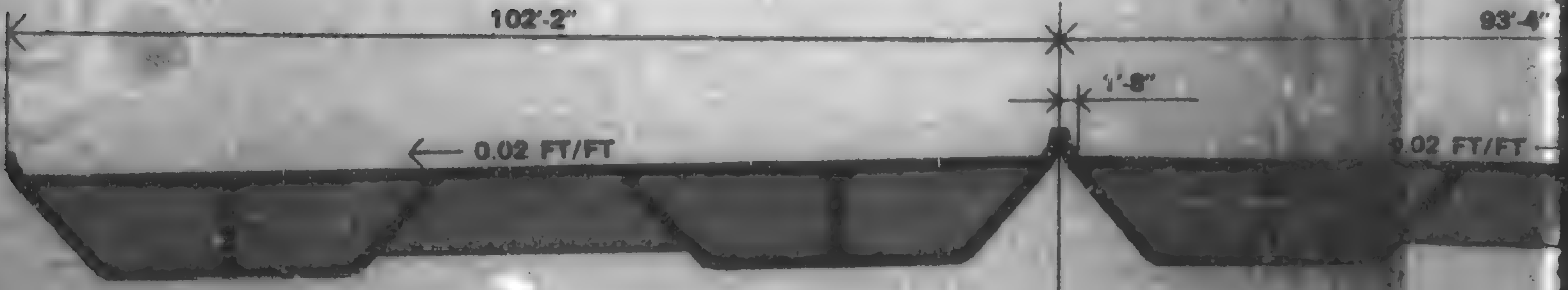
RECOMMENDED CONCEPT
PRESTRESSED CONCRETE SUPERSTRUCTURE
SUPERSTRUCTURE CROSS SECTIONS


142'-10"
71'-5"
1'-8"
68'-0"
0.02 FT/FT
0.02 FT/FT
0'-0"

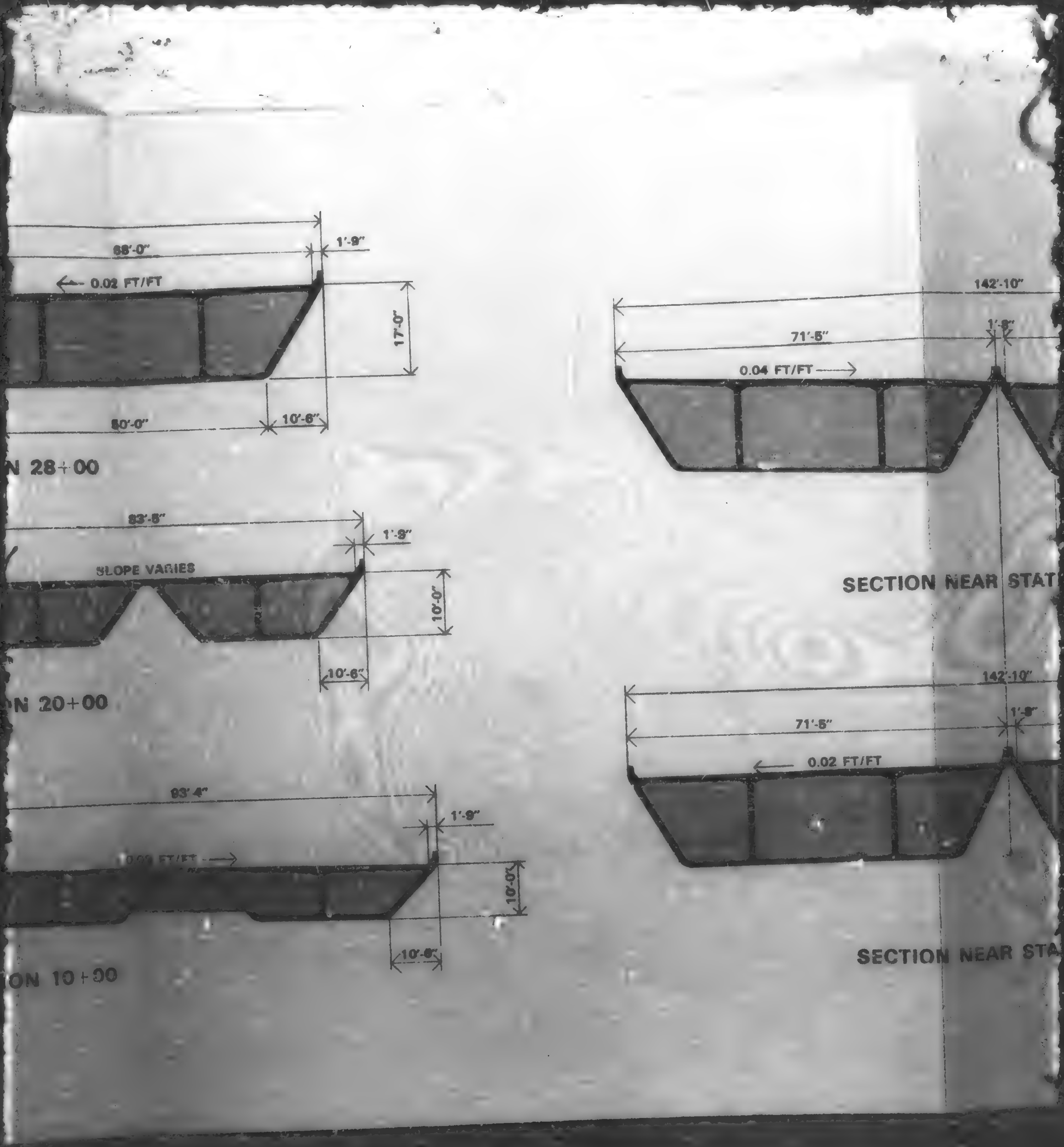
SECTION NEAR STATION 28+00

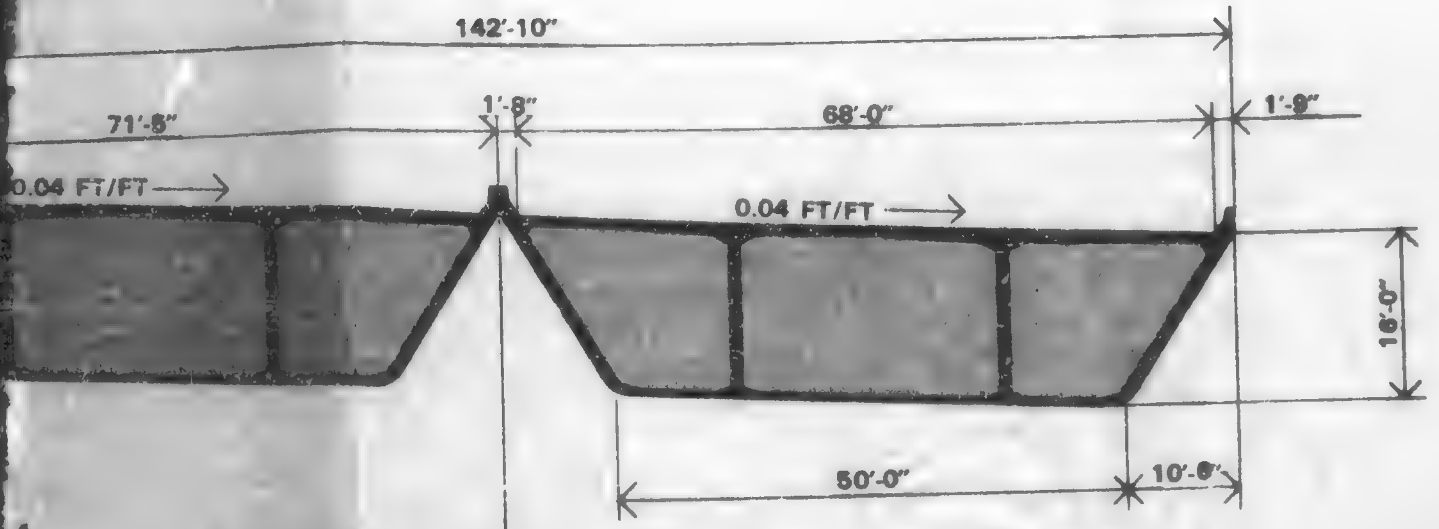

71'-5"
83'-5"
1'-8"
0.02 FT/FT
SLOPE VARIES

SECTION NEAR STATION 20+00


102'-2"
93'-4"
1'-8"
0.02 FT/FT
0.02 FT/FT

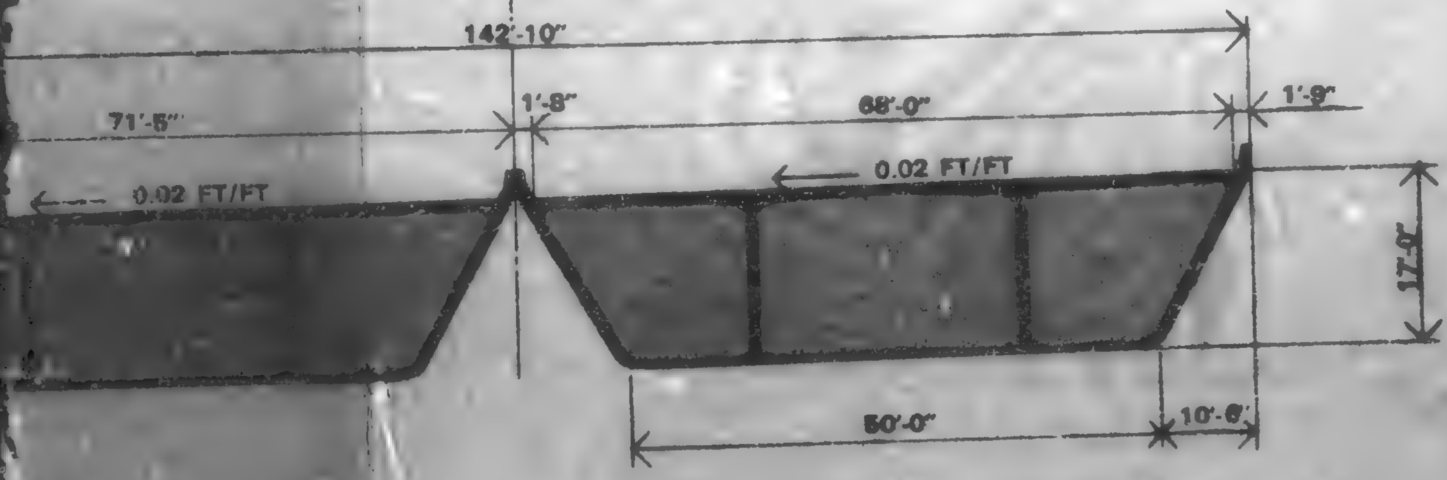
SECTION NEAR STATION 10+00


68'-0"
1'-9"
0.02 FT/FT
17'-0"
80'-0"
10'-6"
N 28+00
83'-5"
1'-9"
SLOPE VARIES
10'-0"
10'-6"
N 20+00
93'-4"
1'-9"
0.02 FT/FT
10'-0"
10'-6"
ON 10+00
142'-10"
71'-5"
1'-9"
0.04 FT/FT
SECTION NEAR STAT
142'-10"
71'-5"
1'-9"
0.02 FT/FT
SECTION NEAR STA



142'-10"
71'-8"
1'-8"
68'-0"
1'-9"
0.04 FT/FT
0.04 FT/FT
16'-0"
50'-0"
10'-6"

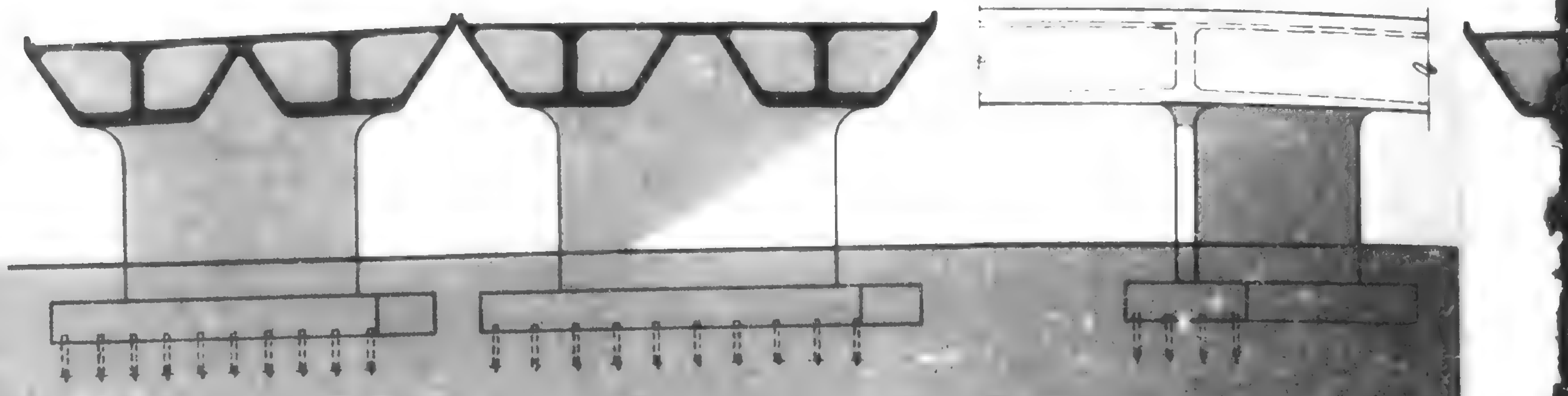
SECTION NEAR STATION 78+00



142'-10"
71'-5"
1'-8"
68'-0"
1'-9"
0.02 FT/FT
0.02 FT/FT
17'-0"
50'-0"
10'-6"

SECTION NEAR STATION 34+00

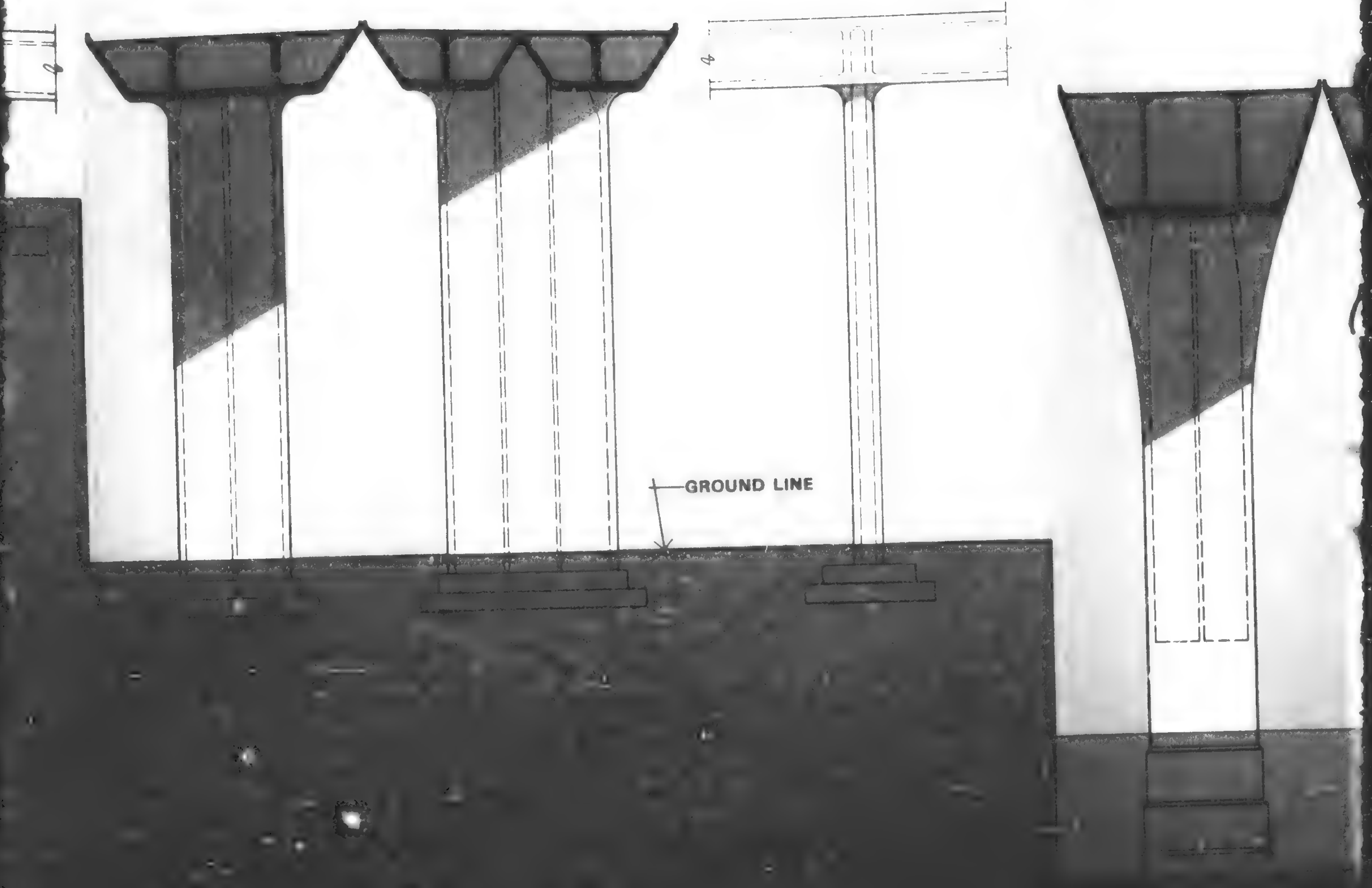
RECOMMENDED CONCEPT
PRESTRESSED CONCRETE SUPERSTRUCTURE
PIERS

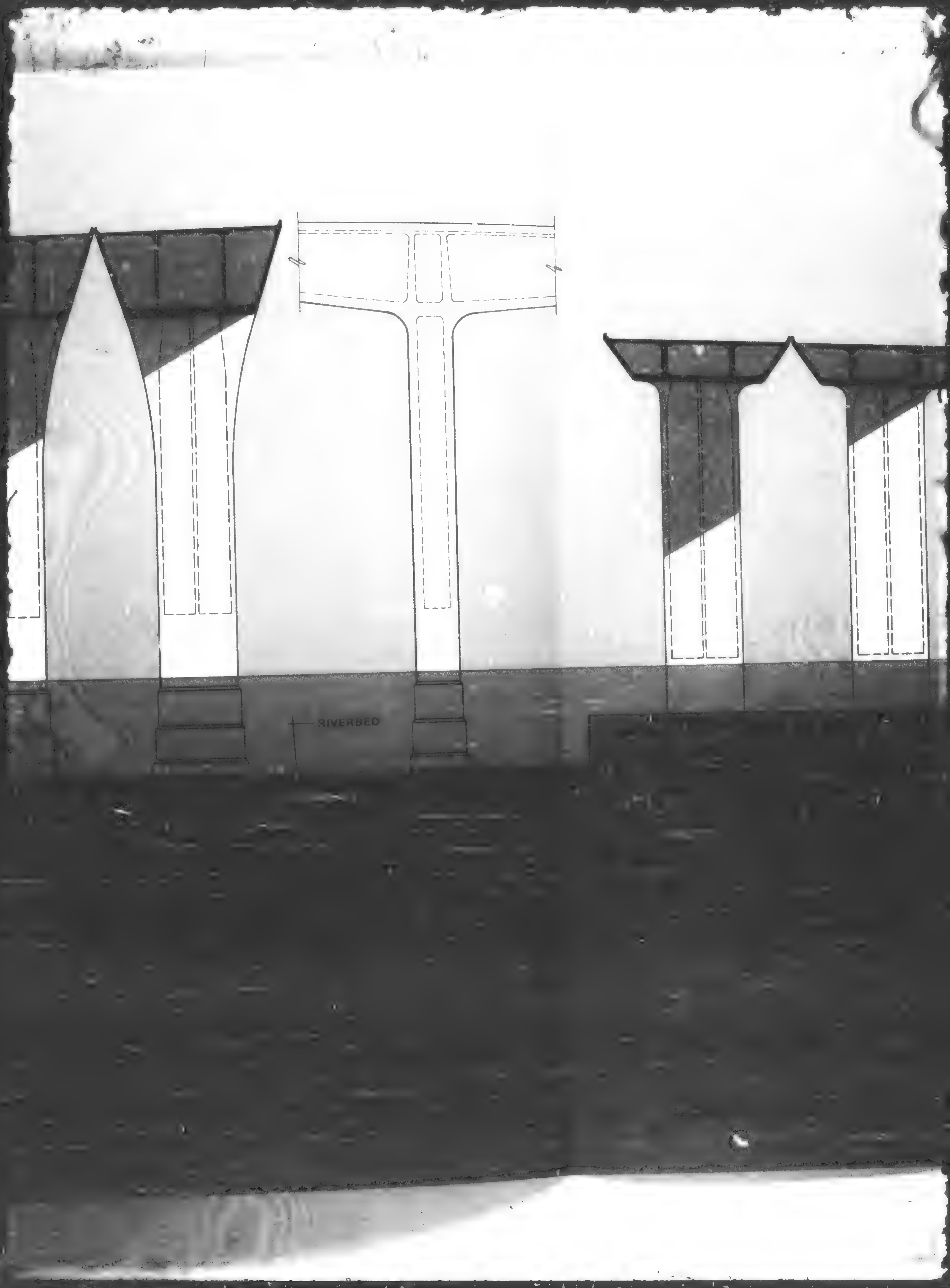


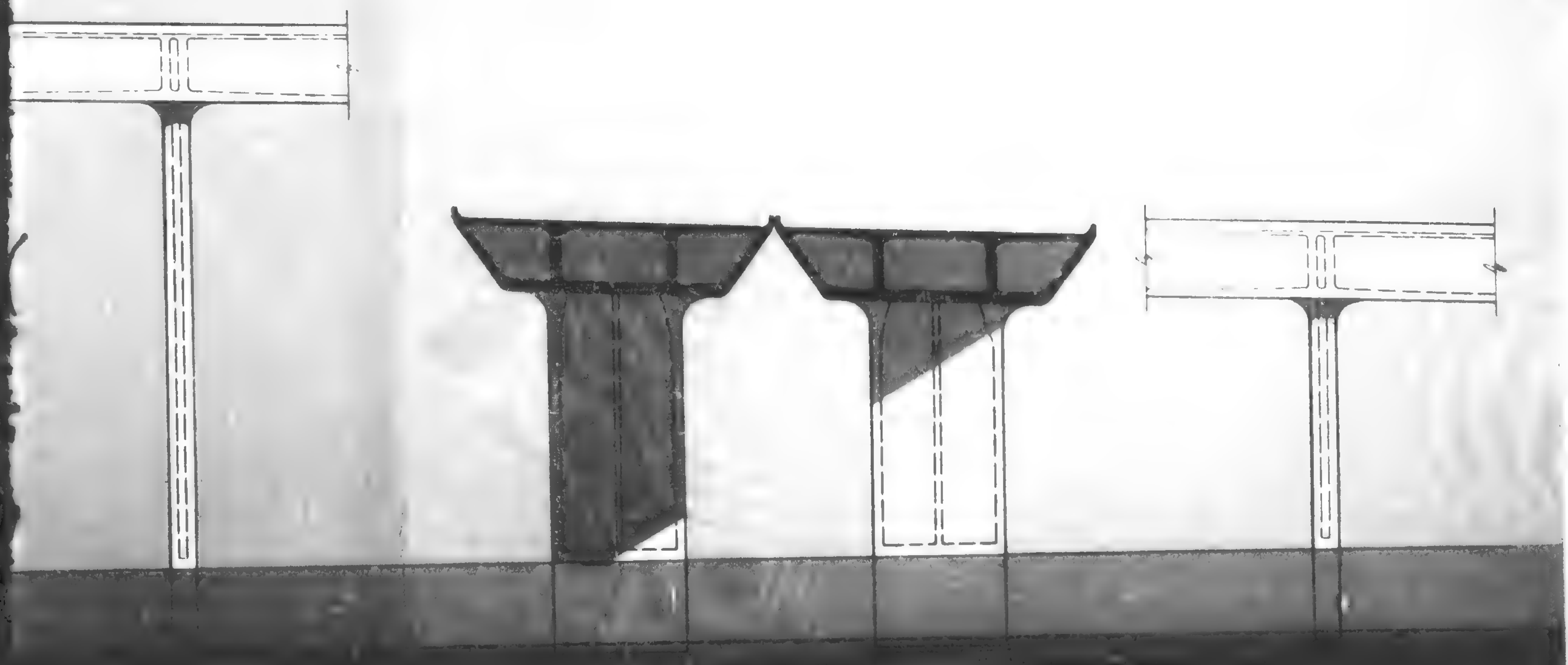
FRONT ELEVATION

SIDE ELEV

STATION 12+00


GROUND LINE


RIVERBED



8905.

Consult.

MAY 3 - 1971

FOR [illegible]

April 29, 1971

Mr. William F. Newman
News Staff
Seattle Daily Journal of Commerce
Journal Building
83 Columbia Street
Seattle, Washington 98104

Dear Mr. Newman:

Sverdrup and Parcel and Associates, Inc., have completed a preliminary study of the I-205 bridge across the Columbia River at Portland. There have been no computer-plotted diagrams. We do not have the comments of the State of Washington or the Federal Highway Administration regarding this report and hence would have no information to offer at this time.

It is expected that a type selection will be made before mid-June, at which time data concerning the type selection will be released. At that time, detailed design will begin and we will keep you advised of its progress.

Very truly yours,

R. L. Porter
State Highway Engineer

By

Tom Edwards
Deputy State Highway Engineer

TE:ja

bc R. L. Porter
A. E. Johnson (enc.)
Victor D. Wolfe

Since 1893 serving
Pacific Northwest Industry
Journal Bldg., 83 Columbia St.

Covering Washington, Oregon,
Idaho, Montana, British
Columbia, Alaska and Hawaii

Seattle
Daily Journal of Commerce

April 27, 1971

Edwards

R.L. Porter
State Highway Engineer
Oregon Division of Highways
State Highway Building
Salem, Ore. 97310

Dear Mr. Porter:

We understand that Sverdrup & Parcel and Associates, Inc., has completed computer-plotted diagrams and other drawings and details related to construction of the I-205 bridge to cross the Columbia River at Portland.

We would like to have, for publication in our newspaper, one or more of these drawings and other information on the bridge--progress in planning as of now, approximate bidding date, construction details.

Sincerely,

William F. Newman

William F. Newman
News Staff

RECEIVED
APR 29 1971
OFFICE OF
STATE HIGHWAY ENGINEER

8905

RECEIVED
APR 8 - 1971
Consult.

April 6, 1971

Mr. George H. Andrews
Director of Highways
Department of Highways
Highways-Licenses Building
Olympia, Washington 98501

Dear Mr. Andrews:

Sverdrup & Parcel and Associates have submitted their preliminary foundation report and design concept analysis for the I-205 bridge across the Columbia River. In compliance with the terms of the contract, it is now incumbent upon us to approve a design concept in order that they may proceed with final detailing.

We have submitted five copies of the report to the Federal Highway Administration this date. After your Division and the Federal Highway Administration have had time to study the report, we will request a meeting of the parties involved to arrive at a selection of the final design. I would anticipate that this would occur in late April or early May.

Very truly yours,

R. L. Porter
State Highway Engineer

By

Tom Edwards
Deputy State Highway Engineer

TE:ja

Enc. (5)

bc R. L. Porter
F. B. Klaboe
A. E. Johnson
Victor D. Wolfe
Ivan Merchant

NOTED
TOM EDWARDS

8905

Consult

RECEIVED
APR 8 - 1971

April 6, 1971

Mr. R. E. Simpson
Division Engineer
Federal Highway Administration
Box 300
Salem, Oregon 97308

Library

Dear Mr. Simpson:

Sverdrup & Parcel and Associates have submitted the preliminary design report for the proposed Columbia River Bridge on I-205. The report is in two volumes, which encompasses design concept and preliminary foundation excavation.

We are forwarding five copies for your perusual. We are also this date forwarding five copies to the State of Washington and will request a meeting of the parties involved after each jurisdiction has had a chance to study the report.

Very truly yours,

R. L. Porter
State Highway Engineer

By

Tom Edwards
Deputy State Highway Engineer

TE:ja

Enc. (5)

bc R. L. Porter
F. B. Klaboe
A. E. Johnson
Victor D. Wolfe
Ivan Merchant

8[illegible]5 Consult

8

RECEIVED
FEB 24 1971

OREGON STATE HIGHWAY DIVISION

HIGHWAY BUILDING • SALEM, OREGON • 97310

February 22, 1971

Mr. R. E. Simpson
Division Engineer
Federal Highway Administration
P. O. Box 300
Salem, Oregon 97308

NOTED
A. E. JOHNSON

Attention Mr. Herbert A. Schell, Jr.

Dear Mr. Simpson:

Phase A - Preliminary Design
Columbia River Bridge 9555
I-205

On January 26, 1971, the Highway Division met with personnel from Sverdrup & Parcel, our consultants on the subject job, in the Metropolitan office in Portland to discuss progress to date.

At that meeting the consultant handed the State a roll of miscellaneous drawings for study. These drawings consisted of twenty sheets which covered Schemes 1 and 2, structural steel alternates, and Schemes 3 and 4, prestressed concrete box girder alternates. A copy of each of these prints is attached for your information.

At this meeting on January 26 the State took exception to the orientation of the piers as prepared by the consultant and also to the type of pier shaft indicated by the consultant in the above-mentioned drawings. The State requested the consultant to study the problem of pier orientation and also to study revised shaft types to eliminate much of the massiveness of the shapes proposed.

I am enclosing three copies of a study entitled, "I-205 Columbia River Bridge Interim Study, Pier Shafts and Pier Location and Orientation" together with the transmittal letter therefor.

Mr. R. E. Simpson
Page 2
February 22, 1971

An additional copy has been requested from the consultant and will be sent to you at the earliest possible time. It is requested that the enclosed material be studied and that you advise the State of your comments and recommendations on the enclosed material.

Very truly yours,

R. L. Porter
State Highway Engineer
By

Ivan D. Merchant
Bridge Engineer

IDM:dh
Enclosure

cc A. E. Johnson

P.S. The additional copy mentioned above arrived and is enclosed, along with the other three copies of the study, "I-205 Columbia River Bridge Interim Study, Pier Shafts and Pier Location and Orientation".

RECEIVED
FEB 23 1971
OFFICE OF
STATE HIGHWAY ENGINEER

8905

RECEIVED
FEB 4 1971

Consult

FOR

Form FHWA-121 (12-67)
UNITED STATES GOVERNMENT

Memorandum

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
Box 300
Salem OR 97308

File

DATE: January 27, 1971

In reply refer to: 08-35-EC

TO : Mr. R. L. Porter, State Highway Engineer
Salem, Oregon

FROM : For R. E. Simpson, Division Engineer
Salem, Oregon

SUBJECT: Oregon Project I-205-7(2)303
Columbia River Bridge
Consultant Agreement - Sverdrup & Parcel and Associates

NOTED
A. E. JOHNSON

This is to confirm Mr. H. A. Schell's verbal approval effective December 24, 1970, for the additional foundation work under the subject consultant agreement as shown in the revised schedule furnished with the consultant's December 23 letter to the Oregon State Highway Division. It is estimated this will increase the cost for foundation investigation by $29,250.

Orig to Merchant
2-2-71

NOTED
TOM EDWARDS

RECEIVED
JAN 29 1971
OFFICE OF
STATE HIGHWAY ENGINEER

BUY U.S. SAVINGS BONDS REGULARLY ON THE PAYROLL SAVINGS PLAN

Cons.
Prel. Repts.
9555

SVERDRUP & PARCEL AND ASSOCIATES, Inc.
Consulting Engineers
505 - 106TH AVENUE N. E.
P. O. BOX 369
BELLEVUE, WASHINGTON 98004

December 23, 1970

Oregon State Highway Division
Highway Building
Salem, Oregon 97310

Attention: Mr. Ivan D. Merchant
Bridge Engineer

Gentlemen:

Subject: Phase A - Preliminary Design
Columbia River Bridge No. 9555
Route I-205

Test holes for the Preliminary Foundation Investigation have disclosed conditions which require additional investigation beyond the minimum program set forth in our agreement. On the Washington shore, where the top of dense gravels is near ground surface, we have encountered a sand layer under the gravel. Near Government Island in the river, the top of gravel is somewhat lower than anticipated and a layer of silty material has been discovered below the gravel. These conditions require deeper drilling and one additional test hole in the river.

In order to establish adequate foundation design criteria, we recommend that the drilling program for the preliminary phase be revised as shown on the enclosed schedule. We will be pleased to furnish additional data if desired and will appreciate your early consideration of the revised drilling program.

Very truly yours,

SVERDRUP & PARCEL AND ASSOCIATES, Inc.

R. D. Bane

R. D. Bane, P. E.
Assistant Vice President

Enclosure

cc: Robert L. Schroeder,
Metropolitan Engineer

RECEIVED
FEB 2[illegible] 1971
OFFICE OF
STATE HIGHWAY ENGINEER

NOTED
IVAN D. MERCHANT

IV. PAYMENT

Fee Schedule

A. Preliminary

No.	Unit	Unit & Quantity	Unit Price	Amount
1	Foundation Investigation			
	(a) Administration Fee	All	L. S.	$ 12,500.00
	(b) Foundation Report	All	L. S.	7,500.00
	(c) Mobilization & Demobilization	All	L. S.	11,500.00
	(d) Land Drilling	1700 L. Ft.	$16.50/L. Ft.	28,050.00
	(e) Water Drilling	2300 L. Ft.	$20.50/L. Ft.	47,150.00
	(f) Split Tube Sampling	450 Only	$ 5.00/Ea.	2,250.00
	(g) Analysis of Split Tube Sampling for Water Content, Gradation & Atterburg Limits	50 Only	$55.00/Ea.	2,750.00
	(h) Undisturbed Samples	20 Only	$11.00/Ea.	220.00
	(i) Analysis of Undisturbed Samples	All	L. S.	6,000.00
2	Preliminary Report Complete	All	L. S.	186,300.00
	Total Preliminary			$304,220.00

8905

RECEIVED
JAN 12 1971
FOR FILING

[illegible]

OREGON STATE
HIGHWAY DIVISION
METROPOLITAN SECTION
5821 N. E. Glisan   Portland, Oregon 97213   Phone 229-6971

January 6, 1971

Robert Nordlander,
Director of Public Works
Multnomah County
2115 S. E. Morrison
Portland, Oregon

Re: Relocated Marine Drive
I-205

Dear Mr. Nordlander:

Based on the Port of Portland's master plan for the Portland International Airport, relocated Marine Drive would cross under I-205 at Station 84+00. The profile for I-205 structure is controlled by the flight pattern from the north runway at this point. Considering super rate, structural depth, etc. as the control, the finished grade of Marine Drive would be at elevation 19.0. We are on the same datum plane as the County in this area.

Please advise if elevation 19.0 as a finished grade for Marine Drive is satisfactory. If not, Marine Drive could be moved northerly to obtain a higher elevation. This would conflict with the Port's plans for the relocated south channel for the Columbia River.

Our consulting firm for the Columbia River Bridge needs this information if a decision can be made.

Very truly yours,

Robert L. Schroeder
Metropolitan Engineer

By:

ORIGINAL SIGNED BY
J. H. VERSTEEG

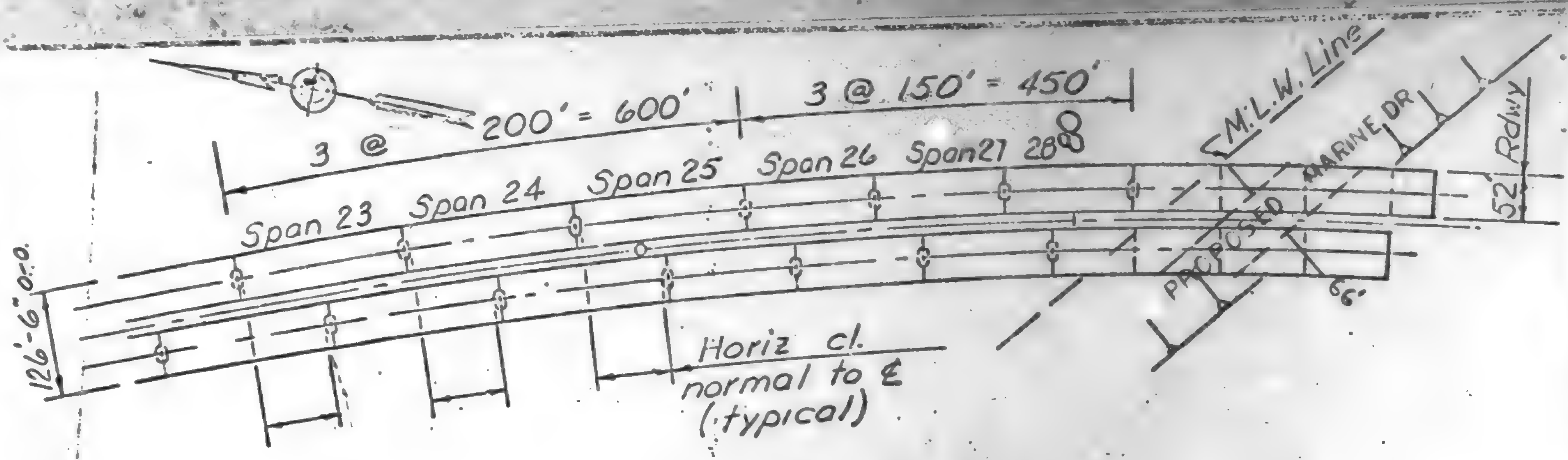
J. H. Versteeg
Assistant Metropolitan Engineer

NOTED
F.B. KLABOE

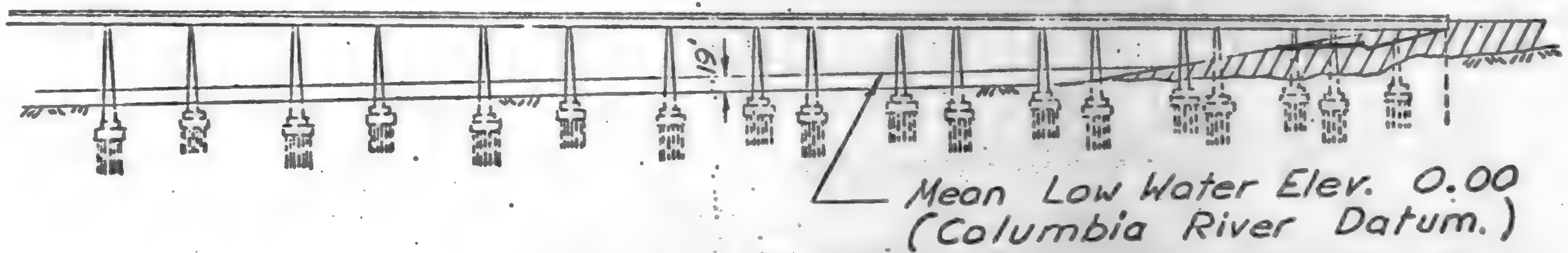
JHV:pb

cc: F. B. Klaboe
Ivan D. Merchant
Frank Hall
Jack Stiller, Port of Portland

RECEIVED
JAN 7 1971
OFFICE OF
STATE HIGHWAY ENGINEER


3 @ 200' = 600'
3 @ 150' = 450'
Span 23
Span 24
Span 25
Span 26
Span 27
28
M.L.W. Line
MARINE DR
PROPOSED
52' Rdwy
126'-6" o-o
66'
Horiz cl.
normal to ℄
(typical)

PLAN

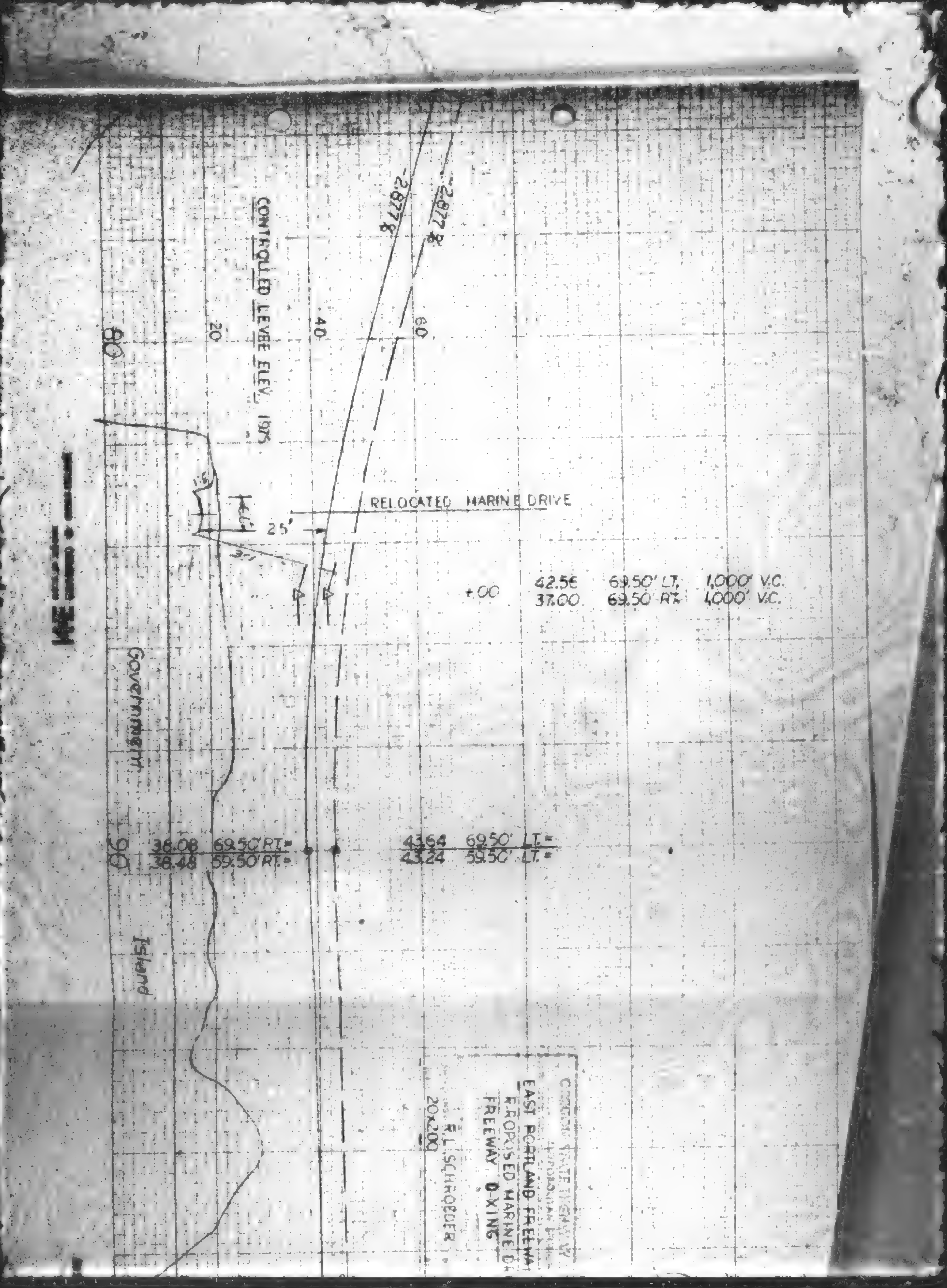

19'
Mean Low Water Elev. 0.00
(Columbia River Datum.)

ELEVATION

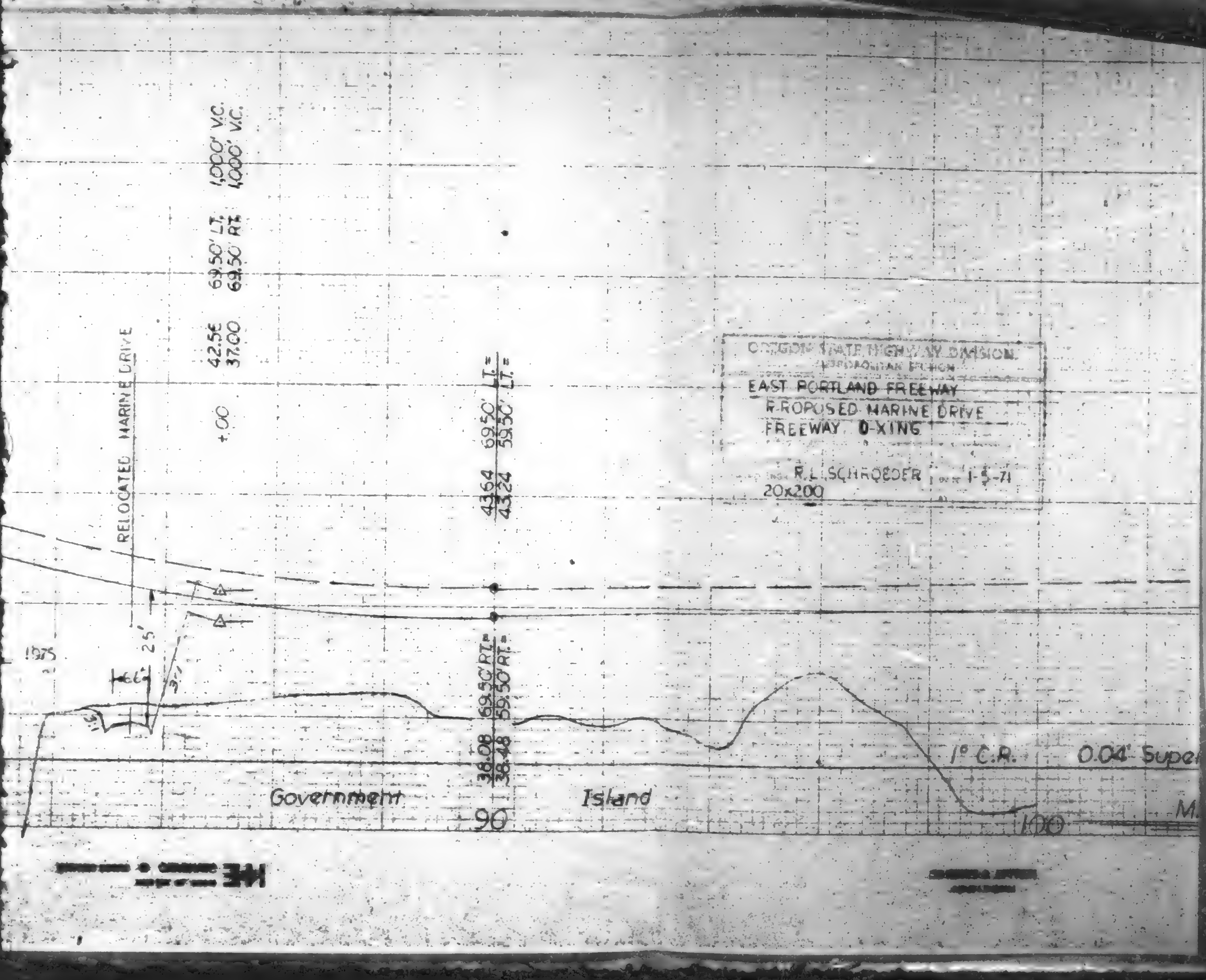
0 100 200 300
Scale in feet

SPAN	HORIZ CL	VERT CL
23	90'	67'
24	90'	60'
25	90'	53'
26	80'	46'
27	80'	42'

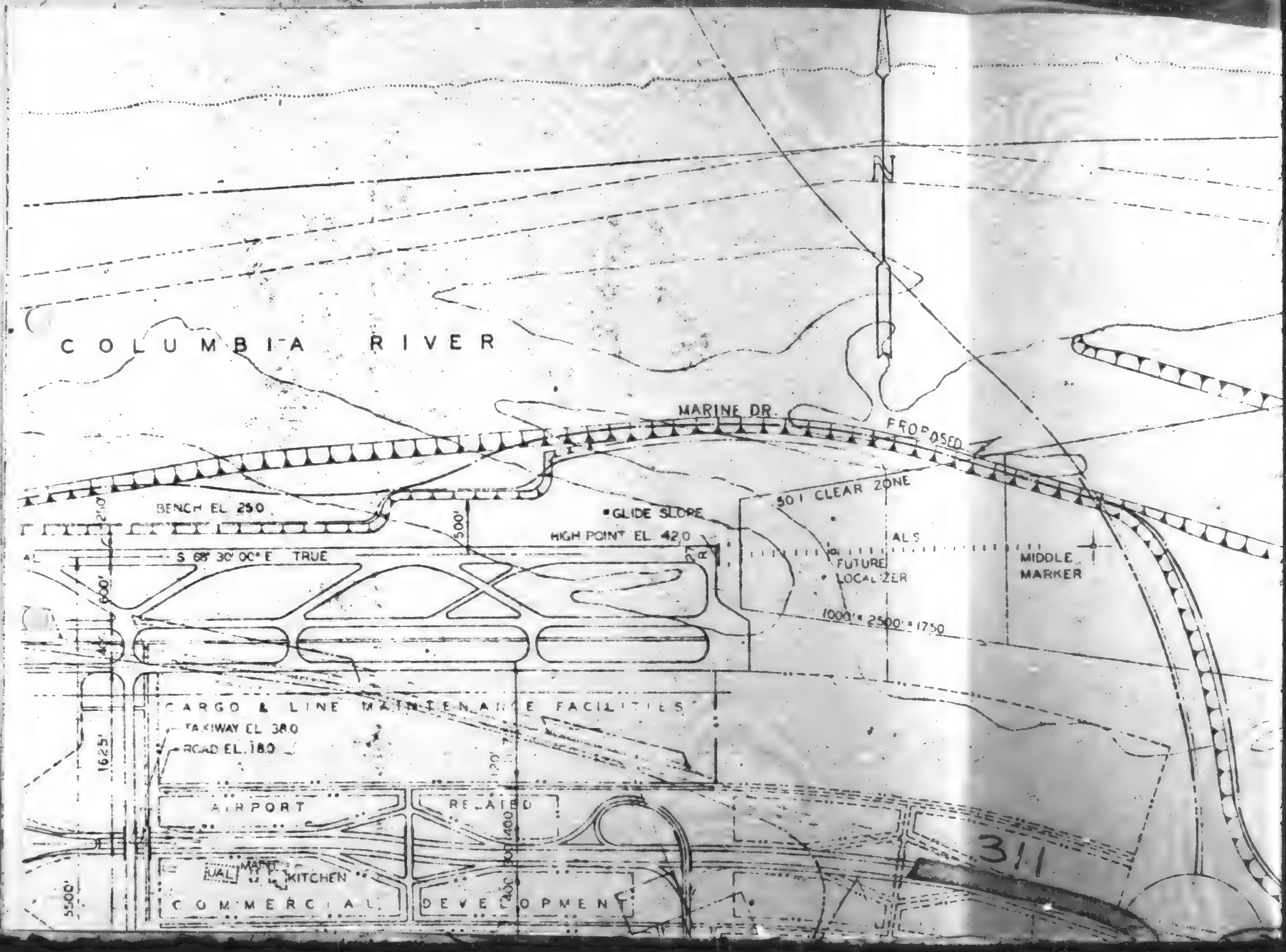
PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY COMMISSION
NOV. 21, 1969 SHEET 6 OF 6

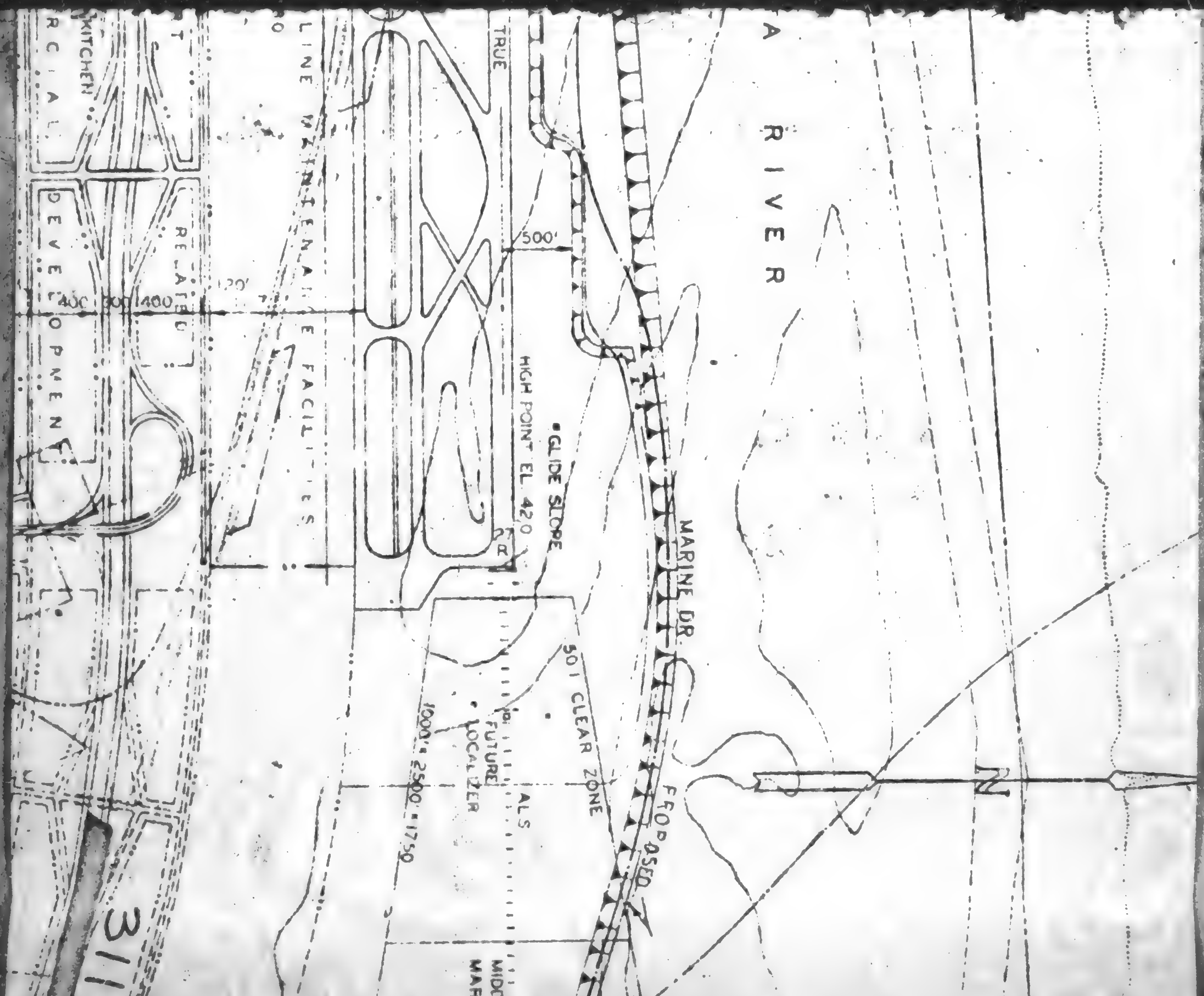


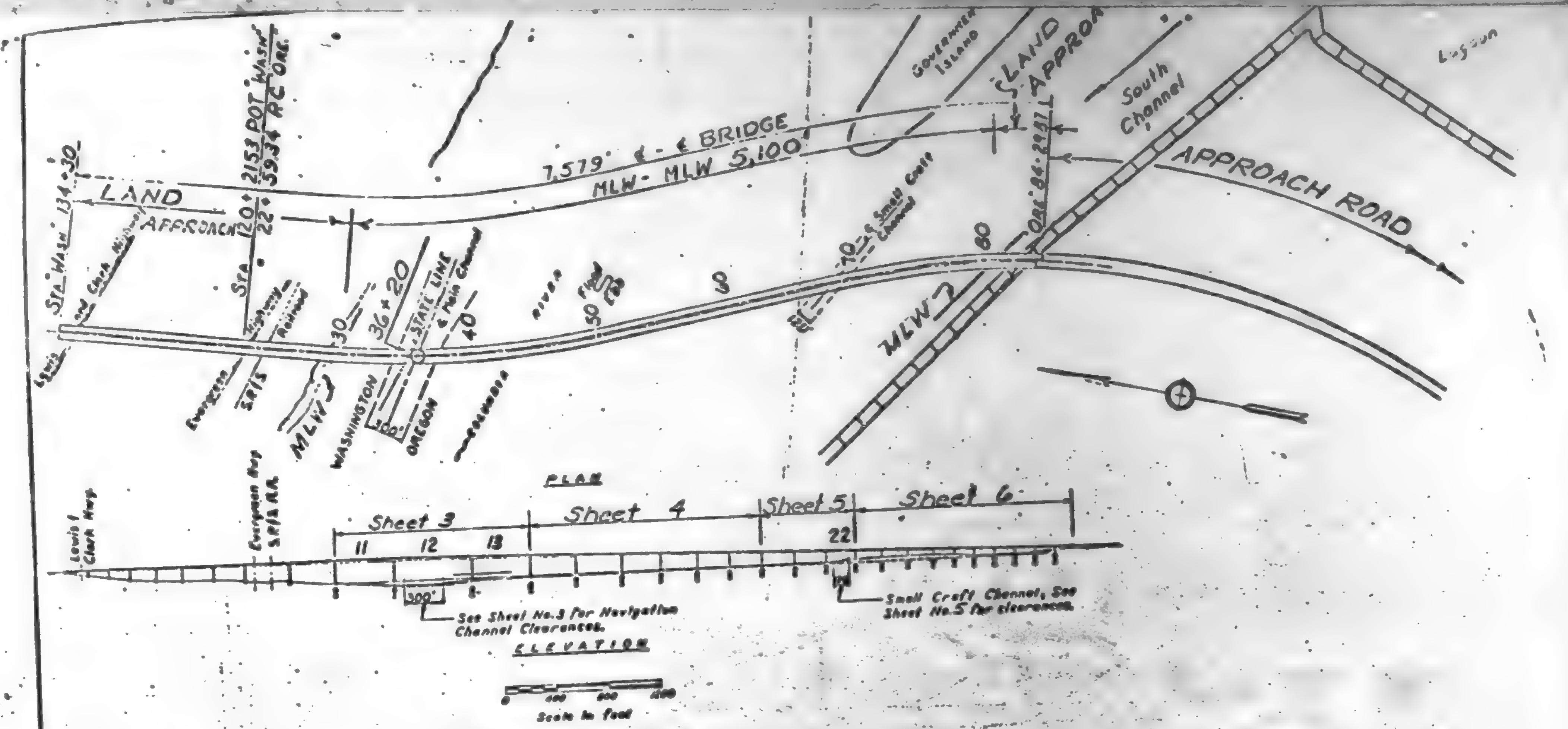
CONTROLLED LEVEE ELEV. 1975
-2.877%
-2.877%
20
40
60
80
90
RELOCATED MARINE DRIVE
25'
+.00
42.56
37.00
69.50' LT.
69.50' RT.
1,000' V.C.
1,000' V.C.
38.08 69.50' RT.=
38.48 59.50' RT.=
43.64 69.50' LT.=
43.24 59.50' LT.=
Government
Island
OREGON STATE HIGHWAY
EAST PORTLAND FREEWAY
PROPOSED MARINE DR
FREEWAY O-XING
R.L. SCHROEDER
20x200


RELOCATED MARINE DRIVE
+.00
42.5E
37.00
69.50' LT.
69.50' RT.
1,000' V.C.
1,000' V.C.
43.64
43.24
69.50' LT. =
59.50' LT. =
38.08
38.48
69.50' RT. =
59.50' RT. =
25'
1975
6.6'
1:5
3:1
Government
Island
90
100
1° C.R.
0.04' Super
M.

OREGON STATE HIGHWAY DIVISION
METROPOLITAN BRANCH
EAST PORTLAND FREEWAY
PROPOSED MARINE DRIVE
FREEWAY O-XING
R.L. SCHROEDER 1-5-71
20x200

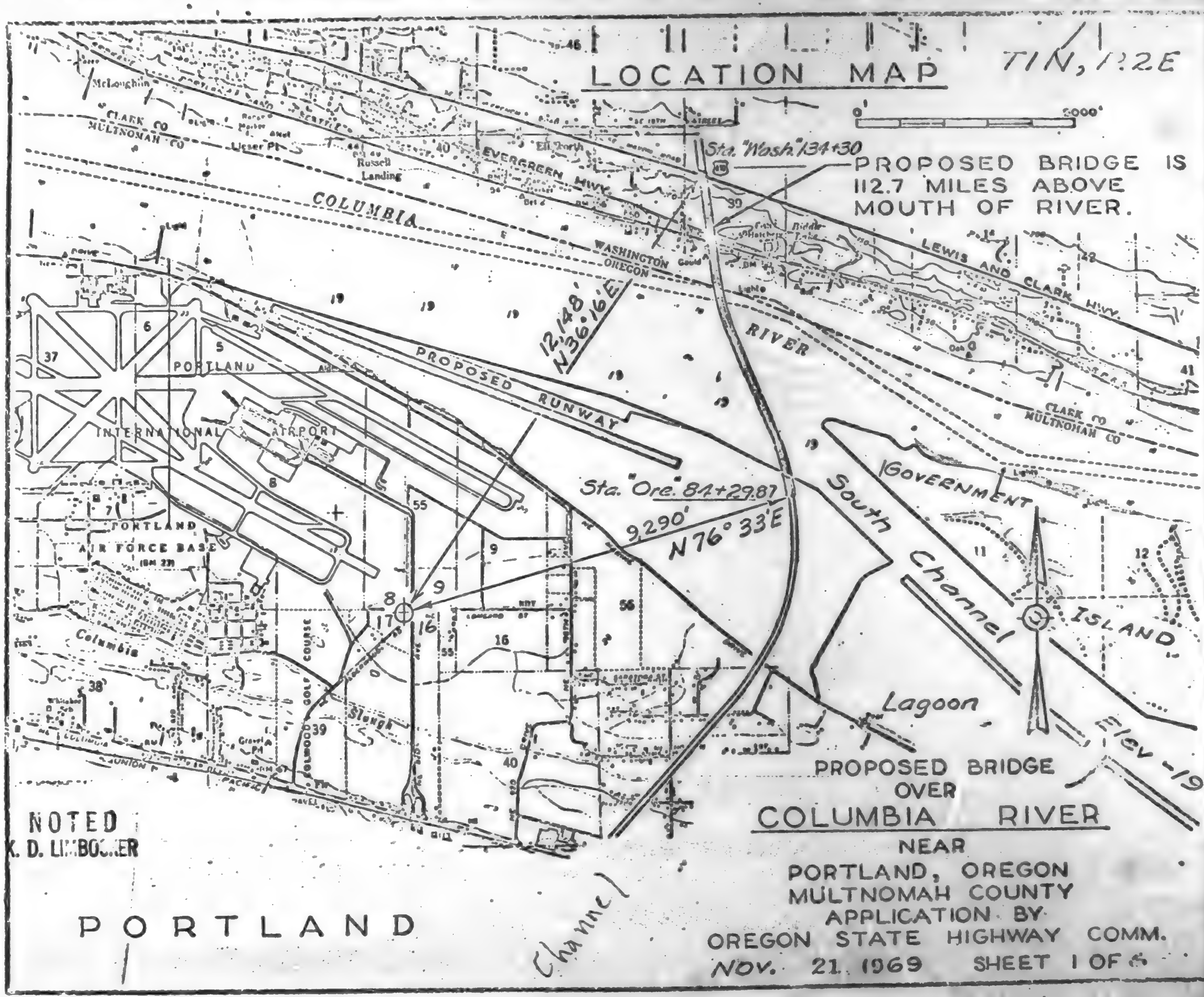

COLUMBIA RIVER
N
MARINE DR.
PROPOSED
BENCH EL 25.0
250'
500'
GLIDE SLOPE
HIGH POINT EL. 42.0
S 68° 30' 00" E TRUE
600'
40'
50:1 CLEAR ZONE
ALS
FUTURE
LOCALIZER
MIDDLE
MARKER
1000' × 2500' × 1750
CARGO & LINE MAINTENANCE FACILITIES
TAXIWAY EL 38.0
ROAD EL. 18.0
1625'
120'
AIRPORT
RELATED
UAL
MATS
KITCHEN
400
300
400
COMMERCIAL
DEVELOPMENT
5500'
311


A RIVER
MARINE DR.
PROPOSED
RELOCATED SOUTH
GLIDE SLOPE
HIGH POINT EL. 420
TRUE
500'
120'
400
300
400
RELATED
LINE MAINTENANCE FACILITIES
KITCHEN
RCIAL DEVELOPMENT
311
50:1 CLEAR ZONE
FUTURE LOCALIZER
ALS
1000'± 2500'± 1750
MIDDLE MARKER
27R
N


Sta. "Wash." 134+30
LAND APPROACH
Lewis and Clark Highway
Sta. 120+2153 Pot "Wash."
22+59.34 P.C. "Ore."
Evergreen Highway
S.P.&S. Railroad
MLW
30
WASHINGTON
36+20
STATE LINE
℄ Main Channel
300'
OREGON
40
COLUMBIA
RIVER
50
Flood
Ebb
7,579' ℄ - ℄ BRIDGE
MLW - MLW 5,100'
70 - ℄ Small Craft Channel
Government Island
ISLAND APPROA
MLW
80
"Ore." 84+29.41
South Channel
APPROACH ROAD
Lagoon
PLAN
Lewis & Clark Hwy.
Evergreen Hwy.
S.P.&S. R.R.
Sheet 3
Sheet 4
Sheet 5
Sheet 6
11
12
13
22
300'
See Sheet No. 3 for Navigation Channel Clearances.
Small Craft Channel, See Sheet No. 5 for clearances.
ELEVATION
0
400
800
1200
Scale in feet

Note:
See sheets 3, 4, 5
and 6 for all horizontal
and vertical clearances
in water spans.

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY COMMISSION
NOVEMBER 21, 1969 SHEET 2 OF 6



LOCATION MAP

TIN, R2E

PROPOSED BRIDGE IS
112.7 MILES ABOVE
MOUTH OF RIVER.

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY COMM.
NOV. 21, 1969 SHEET 1 OF 6

NOTED
K. D. LIMBOCKER

0'
5000'
McLoughlin
CLARK CO
MULTNOMAH CO
Russell Landing
EVERGREEN HWY.
Sta. "Wash." 134+30
COLUMBIA
RIVER
WASHINGTON
OREGON
LEWIS AND CLARK HWY.
CLARK CO
MULTNOMAH CO
12,148'
N36°16'E
PROPOSED RUNWAY
PORTLAND
INTERNATIONAL AIRPORT
PORTLAND
AIR FORCE BASE
Columbia
Slough
GOLF COURSE
UNION PACIFIC
Sta. "Ore." 84+29.87
9,290'
N76°33'E
South Channel
GOVERNMENT ISLAND
Lagoon
Elev -19
Channel
PORTLAND

8905

Consult

D
NOV 5 - 1

OREGON STATE
HIGHWAY DIVISION

HIGHWAY BUILDING • SALEM, OREGON • 97310

November 2, 1970

Sverdrup & Parcel & Associates, Inc.
P. O. Box 369
Bellevue, Washington

Attention Mr. R. Jack Allen

Gentlemen:

Illumination Design Criteria
Columbia River Bridge
I-205
Bridge No. 9555

In the recent meeting in Portland to discuss the subject bridge you requested information on the criteria to be followed in the design of the roadway illumination on the structure.

An average maintained illumination level of 1.0+ foot candles with a uniformity ratio of approximately 3:1 should be used for design purposes. With the incident of fog conditions at the bridge site, we believe the high pressure sodium luminaire units should be used.

The office of the Metropolitan Engineer will keep the State of Washington advised on the design criteria for lighting on the structure in order that it may be integrated with the approach lighting.

Very truly yours,

R. L. Porter
State Highway Engineer
By

Ivan D. Merchant
Bridge Engineer

NOTED
TOM EDWARDS

WJH:dh
cc Herbert A. Schell, Jr.
Tom Edwards
A. E. Johnson
R. L. Schroeder

RECEIVED
NOV 3 1970
OFFICE OF
STATE HIGHWAY ENGINEER

8705

Consult

NOV 5 1970

FORM E-30 (REV. 10-69)

8

OREGON STATE HIGHWAY DIVISION

INTER-DEPARTMENT CORRESPONDENCE

Salem, Oregon
November 2, 1970

SUBJECT: Proposed crossing of
Columbia River on I-205
Bridge No. 9555

To:

Memorandum to the Files

On Tuesday, October 27, 1970, at 9 a.m., a meeting was held in the office of Robert Schroeder, Metropolitan Engineer, to discuss the initial progress on the preliminary design for the Columbia River Bridge on I-205. Those in attendance and their affiliation is given on the last page of this memorandum.

There are a number of points on which the consultant, Sverdrup & Parcel, wished an expression of opinion from the Highway Division. At the offset of the meeting Mr. Johnson emphasized to the consultant that the Highway Division wanted a totally independent engineering study based on their own judgment and not a mirroring of the Division's thinking. The Division wished to be kept advised of the progress on the preliminary design and is interested in discussion on problem areas but the Division does not wish to tell the consultant what to do.

The first principal item under discussion was the question of design channel depth and scour protection. The present authorized channel in this reach of the river is 27 feet. A 40-foot channel to Bonneville has been proposed. It was agreed by the Highway Division and the Federal Highway Administration that the 40-foot channel depth should be used for design purposes. There was a question on whether this 40-foot channel depth should also apply to the first span south of the main channel span. This will be determined in the preliminary design study.

The consultant discussed the several basic systems for scour protection. Preference was for rock riprap in excavated scour holes. Close to the structure site there is a source of quarry rock suitable for the purpose. The use of techniques set forth in the University of Iowa bulletin number 4 for predicting scour and scour protection was discussed. It was agreed that the Iowa bulletin presented the best currently available reference for scour prediction. Mr. Johnson indicated that the Highway Division is concerned about scour and the elevation of the bottom of the piers, and will be looking to the consultant for a recommendation on this point.

NOTED
A. E. JOHNSON

SP*58475-734

Mr. Merchant made the point that during construction protection against scour was the responsibility of the contractor.

The consultant inquired as to the availability of a copy of the Bauer report. This is a report on the hydraulic aspects of the airport expansion program. A copy of this report will be furnished the consultant.

The next item for discussion was foundation design. The consultant discussed the three types of preliminary pier designs under study: 1. Conventional cofferedam construction. 2. Precast bell type piers similar to that used on the Interstate Bridge, and 3. Pile caisson piers with 8'± diameter pile caissons sunk to 60' to 70' below stream bottom.

There was some concern expressed over the lateral stability of the caisson-supported piers. The consultant indicated that they were using elevation +10 for their seal design.

The question of allowable uplift on the foundation piling was discussed. It was suggested by Mr. Tokerud that a pile pull-out test to establish a design criteria should be considered. The allowable uplift value on the pile foundation will be based on the foundation investigation and good engineering judgment.

The preliminary superstructure design was the next item covered. Due to the unusual width of the structure, the consultant will probably recommend a reduced live load over that specified in the AASHO design specifications. Local structural elements will be designed for the full AASHO loading. Seismic loadings and dead loads due to silver thaw conditions were also discussed.

The consultant presented preliminary sketches illustrating various geometric structural arrangements being studied. Single, two, and three cell units are being studied. On the prestressed alternate the principal work to date has been done on the single cell unit.

Mr. Merchant indicated that navigational requirements should not rule out poured-in-place construction. An AC wearing surface will also be required in order to obtain a smooth riding surface with the precast units. The consultant will probably recommend a waterproof membrane with any prestressed alternate.

Preliminary architectural sketches were presented illustrating radial and staggered pier arrangements. It was agreed that the radial pier arrangement was the superior of the two. A revision to a radial pier arrangement would present some problems. The navigational permit was approved based on a staggered pier arrangement. To change this would open the project to another public hearing which is not desired. In addition, the radial pier arrangement may create a barrier across the south channel.

The consultant requested that the Highway Division furnish the design criteria for roadway illumination on the structure.

The last item discussed was a report on the activities of the architectural consultant on the structure. The architectural consultant recommends that the concrete parapet rail height be increased to 2' 8", the same as the median rail height and that the metal parapet rail be eliminated from the outside rails. There was no objection to this proposal.

The architectural consultant is contacting various interested parties in the area, AIA members, planning groups, et cetera, to obtain their thoughts on the proposed structure. It was suggested that the architectural consultant keep these contacts on an informal basis.

There being no further business, the meeting was adjourned.

ORIGINAL SIGNED
WALTER J. HART
Walter J. Hart
Bridge Administration Engineer

WJH:dh

cc R. D. Bane, Svedrup & Parcel, Bellevue
R. Jack Allen, Sverdrup & Parcel, Bellevue
Harold Clinton, Sverdrup & Parcel, St. Louis
Fred P. Blanchard, Sverdrup & Parcel, St. Louis
R. L. Schroeder, OSHD
Ivan D. Merchant, OSHD
A. E. Johnson, OSHD✓
Ed Hardt, OSHD
K. D. Limbocker, OSHD
Hal Versteeg, OSHD
Walter J. Hart, OSHD
Herb Schell, FHA
Roy Tokerud, FHA

RECEIVED
NOV 5 1970
OFFICE OF
STATE HIGHWAY ENGINEER

8905

RECEIVED OCT 19 1970

9

Consult

Form FHWA-121 (12-67)
UNITED STATES GOVERNMENT

Memorandum

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

Box 300
Salem OR 97308

DATE: October 15, 1970

In reply refer to: 08-35-EC

TO : Mr. R. L. Porter, State Highway Engineer
Salem, Oregon

FROM : for R. E. Simpson, Division Engineer
Salem, Oregon

Johnson.
cy-Edw.
10-16-70

SUBJECT: Oregon Project I-205-7(2)303
Columbia River Bridge
Consultant Agreement with Sverdrup & Parcel and Associates, Inc.

The consultant agreement with the engineering firm Sverdrup & Parcel and Associates, Inc., of Bellevue, Washington, for the preliminary studies and design of the subject structure is approved as transmitted with Mr. Merchant's October 7 letter effective October 1.

10-19-70
Copy to Merchant

RECEIVED
OCT 16 1970
OFFICE OF
STATE HIGHWAY ENGINEER

BUY U.S. SAVINGS BONDS REGULARLY ON THE PAYROLL SAVINGS PLAN

8905
Consult.

RECEIVED
OCT 12 1970
FOR FILING

105

8

October 8, 1970

Mr. R. E. Simpson, Division Engineer
Federal Highway Administration
Post Office Box 300
Salem, Oregon 97308

Dear Sir:

Re: Consultant Agreement
Columbia River Bridge
I-205-7(2)303
Your Ref. 08-35-HC

I have your September 25 memorandum concerning retained percentage on payments to our consultant.

The language on Page 18 of the agreement is essentially common to that used in construction contracts under 1964 Specifications, modified to suit the type of work under the engineering agreement.

This is a contingent specification and it is doubtful that it will ever be applied in this case as we expect to make full payment for the preliminary work as soon as possible after the consultant fulfills the preliminary requirements of the agreement, which should be in a matter of some 30 to 45 days.

In applying the specification to construction in the past the Division has its option to release a part of the contractor's retained percentage when the final payment could not be made due to conditions beyond the contractor's control Such a condition might possibly occur in connection with the work under the agreement and the specification was included in case such conditions should occur. If it is applied to payment made under the agreement it would reduce the five percent retained amount approximately one half.

You will note that the retained percentage specification for preliminary work on Page 18 of the agreement and the retained specification for final design work on Page 19 are different. The consultant had suggested a specification that would release all retained percentage on the final design on completion and delivery to the State of final construction plans. We could not accept this suggestion as we feel we should have some hold on the consultant until such time as the construction is complete. The "200 percent" specification softens the 97 percent requirement and is more applicable to the conditions covering the final design work and is, of course, acceptable to the consultant.

Very truly yours,

R. L. Porter
State Highway Engineer

By

A. E. Johnson
Assistant State Highway Engineer

cc R. L. Porter
Tom Edwards
I. D. Merchant

CAG:ag ws

Form FHWA-121 (12-67)
UNITED STATES GOVERNMENT

Memorandum

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
Box 300
Salem OR 97308

TO : Mr. R. L. Porter, State Highway Engineer
Salem, Oregon

DATE: September 25, 1970

In reply refer to: 08-35-EC

FROM : R. E. Simpson, Division Engineer
Salem, Oregon

SUBJECT: Oregon Project I-205-7(2)303
Columbia River Bridge
Consultant Agreement with Sverdrup and Parcel and Associates

Our Washington Division in their review of the proposed consultant agreement with the above firm have inquired of the method of payment on Page 18 how it might ever be possible for the total of all partial payments to reach 97 percent of the contract price if the retent is to be 10 percent of the value of work completed to a maximum of 5 percent of the contract price.

While we realize that this is a standard statment which has been used on your consultant agreements for some time we cannot quite explain how it is intended to operate. Could you please advise exactly what is involved here.

RECEIVED
SEP 29 1970
OFFICE OF
STATE HIGHWAY ENGINEER

Al Johnson
pls reply

RECEIVED
SEP 30 1970
BRIDGE DIVISION

BUY U.S. SAVINGS BONDS REGULARLY ON THE PAYROLL SAVINGS PLAN

8905

RECEIVED
OCT 8 - 1970
Consult
FOR FILING

October 7, 1970

Mr. R. E. Simpson
Federal Highway Administration
477 Cottage St. N. E.
Salem, Oregon 973[illegible]

Dear Mr. Simpson:

Columbia River Bridge
Oregon Project I-205-7(2) 303

On September 10, 1970 I forwarded you four copies of our proposed agreement with Sverdrup And Parcel to perform preliminary studies and final design for the above structure. This agreement was approved by the Commission at their meeting on September 30th and the Consultant was advised on that date to proceed with the work.

Attached are four conformed copies of the signed agreement.

The liaison officer between the Consultant and the Division will be Ivan D. Merchant, Bridge Engineer.

The Consulting Committee in their consideration of all of the factors involved in accomplishing the preparation of contract plans and specifications for the structure deemed it advisable to employ a Consultant to do the work. This decision was based primarily on the manpower situation in the Division's own Bridge Section and the time in which the work should be accomplished.

Very truly yours,

R. L. Porter
State Highway Engineer
By

Ivan D. Merchant
Bridge Engineer

NOTED
A. E. JOHNSON

CAG/ag
Attachments

cc: Accounting Section (1 attachment)
R. Schroeder (1 attachment)
W. M. Foster
Asst. Director for Highway Development
State of Washington (1 attachment)
A. E. Johnson

RECEIVED
OCT 7 1970
OFFICE OF
STATE HIGHWAY ENGINEER

8905

RECEIVED
NOV 24 1970
FOR FILING

4 i i

9-30-70

MISC. CONTRACTS and
AGREEMENTS No. 3835

October 6, 1970

Sverdrup and Parcel and Assoc., Inc.
P. O. Box 369
Bellevue, Washington 98004

Attention: R. D. Bane
Assistant Vice President

Gentlemen:

Attached for your records is a fully executed copy of an agreement for preparing the plans and specifications for the bridge over the Columbia River on I-205 between Oregon and Washington.

We have retained a fully executed copy of this agreement for the Commission's files.

Very truly yours,

Floyd Query, Secretary
OREGON STATE HIGHWAY COMMISSION

fkm
Att.

cc Ivan Merchant
(conf. agreement att.)

RECEIVED
SEP 24 1970
FOR FILING

September 23, 1970

Oregon State Highway Commission

Gentlemen:

Through an agreement (Misc. Contracts and Agreements No. 3835, dated October 23, 1969) Oregon is charged with the responsibility of designing and contracting the construction of an interstate bridge over the Columbia River on Interstate 205 between Oregon and Washington.

Due to the present work load in our Bridge Section and to the urgency of expediting plans for Interstate 205, it has become necessary to secure the services of a consulting engineer to prepare plans and specifications for the structure.

The Consulting Committee, after considering all factors and engineering services available, has selected the firm of Sverdrup and Parcel and Associates, Inc., to do the work.

An agreement has been negotiated with this firm for a fee of not to exceed $1,857,000. This is to include preliminary designs and estimates, foundation exploration, preparation of contract plans, specifications and estimates and the checking of steel details. This is an interstate project, financed on the same basis as interstate construction.

The agreement has the approval of the State of Washington and the Federal Highway Administration.

I recommend your approval and request authority for the Secretary to sign the agreement for and on your behalf.

This matter will be on the agenda for your consideration at the September 30 meeting.

Very truly yours,

R. L. Porter
State Highway Engineer

cc: Floyd Query
Tom Edwards
A. E. Johnson
V. D. Wolfe
F. D.Morgan
Ivan Merchant
V. E. Skoog
L. E. Young
L. W. Rulien
R. L. Schroeder

CAG:ag sr

STATE OF WASHINGTON
DANIEL J. EVANS, GOVERNOR

COMMISSIONERS
GEORGE D. ZAHN, CHAIRMAN
METHOW
ROBERT L. MIKALSON
CENTRALIA
HAROLD WALSH
EVERETT
BAKER FERGUSON
WALLA WALLA
JOHN N. RUPP
SEATTLE

LORENZ GOETZ, SECRETARY
OLYMPIA

1889

WASHINGTON
STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
G. H. ANDREWS, DIRECTOR
HIGHWAY ADMINISTRATION BUILDING
OLYMPIA

DISTRICT OFFICES
NO. 1 SEATTLE 98108
6431 SO. CORSON AVE.
NO. 2 WENATCHEE 98801
P. O. BOX 98
NO. 3 OLYMPIA 98501
P. O. BOX 327
NO. 4 VANCOUVER 98663
4200 MAIN STREET
NO. 5 YAKIMA 98901
P. O. BOX 52
NO. 6 SPOKANE 99205
N. 2714 MAYFAIR ST.
NO. 7 BELLEVUE 98004
10506 N.E. 4TH ST.

September 18, 1970

Mr. Ivan D. Merchant
Bridge Engineer
Oregon State Highway Division
Highway Building
Salem, Oregon 97310

CS 0607R SR 205
Columbia River Bridge to
Jct. SR 500
L-2096

Dear Mr. Merchant:

The revisions furnished with your letter of September 10, 1970, to the proposed agreement with Sverdrup & Parcel and Associates, Inc., for preliminary plans and final design of the subject structure, have been reviewed and are considered satisfactory.

It is noted that the additions and corrections furnished in our letter of August 17, 1970, have been incorporated into the plan except for the on and off ramp tapers for the SR 14 Interchange. However, your letter states that the plan furnished by Mr. Carroll of the Vancouver District office has been furnished to the consultant and he is fully aware of our requirements.

Very truly yours,

G. H. ANDREWS
Director of Highways

By: W. M. FOSTER
Assistant Director for
Highway Development

RECEIVED
SEP 22 1970
BRIDGE DIVISION

WMF/cb

cc: R. L. Carroll
Wm. P. Albohn

SVERDRUP & PARCEL AND ASSOCIATES, Inc.
Consulting Engineers
505 - 106TH AVENUE N. E.
P. O. BOX 369
BELLEVUE, WASHINGTON 98004

September 15, 1970

Oregon State Highway Division
Highway Building
Salem, Oregon 97310

Attention: Mr. Ivan D. Merchant
Bridge Engineer

Gentlemen:

Re: Engineering Agreement
Proposed I-205 Columbia River Bridge

The revised sheets dated 9-1-70 have been inserted in the six copies of the subject Agreement which we received with your transmittal letter of August 6, 1970. We have executed and are enclosing herewith, three copies of the revised Agreement. Please return one completed copy to us after it has been executed by the State.

Also enclosed are two copies of the writers authority to represent Sverdrup & Parcel and Associates, Inc. on contractual matters.

Our agent, C. T. Corporation System listed under paragraph III 17. Jurisdiction on page 12 of the Agreement, is located at 800 Pacific Building, Portland, Oregon. Sverdrup & Parcel and Associates, Inc.; a Missouri corporation, has been continuously registered and qualified to do business in the State of Oregon since October 19, 1959. A certificate of good standing will be furnished if desired.

Reference is made to the Agreement, paragraph IV 3. Partial Payments Final, page 19 revised 9-1-70, and particularly to the last sentence. There is the possibility that work could be suspended during the construction phase for an indefinite period of a year or more due to circumstances beyond the control of the Consultant. Should this occur we trust that full payment to date, including release of the amount retained, would be made for our services.

We are looking forward with pleasure to serving you on this interesting project.

Very truly yours,

SVERDRUP & PARCEL AND ASSOCIATES, Inc.

R. D. Bane

R. D. Bane, P.E.
Assistant Vice President

NOTED
IVAN D. MERCHANT

RECEIVED
SEP 17 1970
BRIDGE DIVISION

Enclosures

SVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
800 N. 12TH BOULEVARD
ST. LOUIS, MISSOURI 63101

TO WHOM IT MAY CONCERN:

I, EUGENE S. DAVIS, the duly elected and acting Secretary of Sverdrup & Parcel and Associates, Inc. (hereinafter called "company"), hereby certify that the Board of Directors of the company, acting by and through its duly authorized Executive Committee at a meeting of said Committee, duly convened and held on July 22, 1965, adopted the following resolutions which are in effect:

> RESOLVED, that Raymond D. Bane, presently residing in the State of Washington, be and he hereby is authorized and empowered to make, execute and accept for and on behalf of the company proposals, contracts and awards of contracts for the performance by the company of professional engineering services, and it was
>
> FURTHER RESOLVED, that Raymond D. Bane be and he hereby is authorized and empowered to administer for and on behalf of the company contracts for the performance by the company of professional engineering services, which authority shall include, without limiting the generality of the foregoing, the receipt of payments made to the company for such services.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the corporate seal at St. Louis, Missouri, this 15th day of July, 1970.

Secretary

(SEAL)

8905
Consult

RECEIVED
SEP 15 1970
FOR FILING

OREGON STATE
HIGHWAY DIVISION

HIGHWAY BUILDING • SALEM, OREGON • 97310

September 10, 1970

Sverdrup & Parcel and Associates, Inc.
P.O. Box 369
Bellevue, Washington 98004

NOTED
A. E. JOHNSON

Attention: Mr. R. D. Bane, P. E.
Assistant Vice President

Re: Engineering Agreement
I-205 Columbia River Bridge

Dear Mr. Bane:

I have your letter of August 18, 1970, requesting minor corrections and additions to the agreement which we furnished you on August 6, 1970. I am enclosing six copies each of the following: Contents sheets A and B (revised 9-1-70); Pages 1, 4, 5, 7, 9, 13, 18 and 19 (all revised 9-1-70); and revised Exhibits A, B (1 of 6) and D. These revised sheets contain all of the revisions requested in your letter of August 18 with the exception of No. 5. We have considered the proposed revisions for retained percentages which you forwarded with your letter and cannot accept them in all respects. The Division feels that the retained percentages requirements stated in the original agreement must stand with the exception that we have inserted a paragraph that gives the State the right to adjust the retained percentages near the final completion of the work. I trust you will find this revision in order.

The revised sheets also contain some additions and corrections requested by the State of Washington.

If the revisions meet with your approval, please insert them in the agreements forwarded you with our letter of August 6. I believe it would be in order for you now to execute two copies of the agreement and return one copy directly to me.

This is not to be considered as your authority to proceed with the work as yet. I will advise you when I have final approval of the agreement from the State of Washington and the Federal Highway Administration.

Very truly yours,

RECEIVED
SEP 11 1970
OFFICE OF
STATE HIGHWAY ENGINEER

Ivan D. Merchant
Bridge Engineer

CAG:ew
Enc. (6)

cc: A. E. Johnson ✓

OREGON STATE
HIGHWAY DIVISION

HIGHWAY BUILDING • SALEM, OREGON • 97310

September 10, 1970

Mr. R. E. Simpson
Division Engineer
Federal Highway Administration
477 Cottage St. N.E.
Salem, Oregon 97308

Re: Columbia River Bridge
Oregon Project
I-205-7(2) 303

Dear Mr. Simpson:

On August 5, 1970, I forwarded you four copies of our proposed agreement with Sverdrup & Parcel to perform preliminary studies and final design for the above structure. Since that time the State of Washington and the consultant have requested minor corrections and additions to the proposed agreement.

I am forwarding you four copies each of the following: Contents sheets A and B (revised 9-1-70); Pages 1, 4, 5, 7, 9, 13, 18 and 19 (all revised 9-1-70); and revised Exhibits A, B (1 of 6) and D. These revised sheets should be inserted in the agreements forwarded you August 5.

We have your memorandum of August 26 (08-35-EC) approving the preliminary phase of the agreement and Mr. Cornelius Burghardt's telephonic approval of August 17, 1970, for the entire agreement as written.

We are this date forwarding copies of the revised material to Sverdrup & Parcel and advising them that the agreement with the revised material incorporated can be executed by them and returned to us. As soon as the matter is before the Highway Commission for the necessary signatures, we will forward you completely executed copies for your final approval.

Very truly yours,

NOTED
A. E. JOHNSON

Ivan D. Merchant
Bridge Engineer

GAG:ew
Enc. (4)

cc: A. E. Johnson ✓

OREGON STATE
HIGHWAY DIVISION

HIGHWAY BUILDING • SALEM, OREGON • 97310

September 10, 1970

Mr. W. M. Foster
Assistant Director for Highway Development
Washington State Highway Commission
Highways-Licenses Building
Olympia, Washington 98501

Re: Columbia River Bridge on
Interstate Highway I-205
Vicinity Portland International
Airport

Dear Mr. Foster:

I have your letter of August 17, 1970, requesting several minor additions and corrections to our proposed agreement with Sverdrup & Parcel and Associates, Inc., for preliminary plans and final design for the above structure. I am enclosing three copies each of the following: Contents sheets A and B (revised 9-1-70); Pages 1, 4, 5, 7, 9, 13, 18 and 19 (all revised 9-1-70); and revised Exhibits A, B (1 of 6) and D. These revised sheets include all of the suggestions made in your letter of August 17 with the exception of item No. 6. The sketch furnished by Mr. Carroll of your Vancouver office to Mr. Hardt of our Metropolitan office calling for off ramp tapers has been furnished the consultant and he is fully aware of your requirements.

The revised sheets enclosed herewith also include some minor corrections and additions requested by Sverdrup & Parcel. Will you please review the revisions and if they are satisfactory to you, insert them in their proper places in the agreements furnished you with our letter of August 6.

If the agreement as revised is satisfactory to you, I would appreciate your indicating so on one copy of the agreement and returning it directly to me.

Very truly yours,

Ivan D. Merchant
Bridge Engineer

NOTED
A. E. JOHNSON

CAG:ew
Enc. (3)

cc: A. E. Johnson

89n5
Consult

Form FHWA-121 (12-67)
UNITED STATES GOVERNMENT

Memorandum

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
Box 300
Salem OR 97308

TO : Mr. R. L. Porter, State Highway Engineer
Salem, Oregon

DATE: August 26, 1970

In reply refer to: 08-35-EC

FROM : R. E. Simpson, Division Engineer
Salem, Oregon

SUBJECT: Oregon Project I-205-7(2)303
Columbia River Bridge
Consultant Agreement

In confirmation of our verbal advice of August 17 the draft copies and supporting material for a proposed consultant agreement with Sverdrup & Parcel & Associates, Inc. furnished with Mr. Edwards' August 5 letter have been reviewed both here and in our Regional office and are satisfactory. Formal approval will be given upon receipt of the executed copies of the agreement.

You are reminded that our September 28, 1965, authorization to proceed with the preliminary engineering for this section is limited to preliminary studies only. Our review and approval of the preliminary plan is required before authorization can be given to proceed with the final design work and the preparation of PS&E documents.

cc:
Washington Division
Region (08-00.33)

NOTED
TOM EDWARDS

NOTED
A. E. JOHNSON

Al Johnson

RECEIVED
AUG 27 1970
OFFICE OF
STATE HIGHWAY ENGINEER

copy to
Merchant
9-2

BUY U.S. SAVINGS BONDS REGULARLY ON THE PAYROLL SAVINGS PLAN

8905
Consult.

RECEIVED
AUG 6 - 1970
FOR FILING

August 6, 1970

Sverdrup & Parcel & Associates, Inc.
P. O. Box 369
Bellevue, Washington

Gentlemen:

I am enclosing six copies of the completed agreement for preliminary studies and final design for the I-205 Columbia River Bridge. Please review the agreement in its final form and let me have any comments you may have.

The agreement is essentially the same as that submitted to you previously, although I should call your attention to Article 13 on page 6 which has been added.

The Highway Division will need two copies of the agreement signed in all spaces provided for you. I would suggest you withhold signing the agreement until I can advise you that the Bureau of Public Roads and the State of Washington have approved it in its present form.

Very truly yours,

R. L. Porter
State Highway Engineer

By

Tom Edwards
Deputy State Highway Engineer

Enc. (6)

bc R. L. Porter
A. E. Johnson
Victor D. Wolfe
Ivan Merchant

CAG:ag ja

8905
Consult

RECEIVED
AUG 6 - 1970

FOR FILING

August 6, 1970

Mr. George Stevens
Bridge Engineer
Washington Department of Highways
Highways-Licenses Building
Olympia, Washington 98501

Dear Mr. Stevens:

Since forwarding you copies of a proposed agreement covering preliminary studies for the I-205 Columbia River Bridge with Sverdrup & Parcel & Associates, Inc., we have deemed it advisable to make it a full package deal (i.e., both preliminary and final design with the same firm) and we have revised the agreement accordingly.

I am forwarding three copies of the revised agreement for your review and comment. If you need any additional details concerning the agreement or our negotiations with Sverdrup & Parcel & Associates, Inc., please call me.

I would appreciate your early consideration of the agreement and a reply, as the entire matter should go to the Highway Commission of Oregon for consideration at its meeting scheduled for August 18, 1970.

Very truly yours,

R. L. Porter
State Highway Engineer

By

Tom Edwards
Deputy State Highway Engineer

Enc. (3)

bc R. L. Porter
A. E. Johnson
Victor D. Wolfe
Ivan Merchant

CAG:ag ja

8905

Pg

RECEIVED
AUG 11 1970
FOR FILING
Consult

August 5, 1970

Mr. R. E. Simpson
Division Engineer
477 Cottage St. N. E.
Salem, Oregon 97310

Dear Mr. Simpson:

Columbia River Bridge
Oregon Project I-205-7(2) 303

The Consulting Committee, following procedures outlined in our letter of July 18, 1966, has selected the firm of Sverdrup & Parcel & Associates, Inc. to do preliminary studies and final design for the above project. Through negotiation, a form of agreement and a fee schedule satisfactory to both the State and the consulting firm has been established. Four copies of the form of agreement accompany this letter. In support of the agreement the following listed data is submitted:

1. Sverdrup & Parcel proposal of June 25, 1970 for preliminary studies and supporting data consisting of:
   - Fee Schedule (Preliminary Only)
   - Statement of Estimated Man-Hours & Base Salaries
   - Statement of Amount for Preliminary Report Complete
   - Statement of Salary Related Expense & General Expenses
   - Statement of Proposed Fringe Benefits
   - Statement of General Expense
   - Personnel Details
     - Eli Lemcoe
     - R. Jack Allen
     - Gerhard Joehnk
     - Alberto D. Ng
     - Thomas A. Gaffney Jr.
     - Donald L. Miles
     - A. E. Schmidt
2. Statement of Santa-Fe Pomeroy, Inc. dated July 22, 1970

3. Sverdrup & Parcel proposal of July 23, 1970 for final design and supporting data consisting of:

    Suggested Appendix A to preliminary agreement to cover final design. This was revised somewhat and incorporated into the agreement.

    Statement of Man-Hour Requirements

    Detail of Fee Proposal for Steel Design

    Detail of Fee Proposal for Steel, Concrete or Combined Design

    Statement of Salary Related Expense and General Expense

    Statement of Overhead-Salary Related Expense

    Statement of General Expense

    Statement of Sverdrup & Parcel Qualifications for Concrete Design

4. Sverdrup & Parcel revised proposal of July 24, 1970 for final design and supporting data consisting of:

    Revised Fee Proposal. This completed and incorporated in agreement.

    Statement of wage rates for personnel used on checking shop details. This is incorporated in the agreement.

5. Sverdrup & Parcel proposal of July 28, 1970 with supporting data consisting of complete fee schedule.

6. Department's estimate of man-hours and cost to perform work outlined in agreement.

7. Memo of final conference July 23, 1970 between Department and Sverdrup & Parcel.

On July 13, 1970 we forwarded you copies of an agreement between Oregon and Washington which authorized Oregon to select a consultant for the work. Washington has reviewed and approved the original agreement which

R. E. Simpson
Bureau of Public Roads
Page 3

provided for preliminary studies. Copies of the revised agreement and supporting data are being forwarded to Washington this date for their consideration and approval. We will keep you advised of Washington's action on the revised agreement.

I would appreciate your early consideration of the agreement as the entire matter should be before the Commission at their meeting scheduled for August 18, 1970.

Very truly yours,

R. L. Porter
State Highway Engineer
By

Tom Edwards
Deputy State Highway Engineer

CAG/ag

Attachments

cc: V. E. Skoog
L. H. Young

bc R. S. Porter
A. B. Johnson
Victor D. Wolfe
Ivan Merchant

7.

SVERDRUP & PARCEL AND ASSOCIATES, Inc.
Consulting Engineers
505 - 106TH AVENUE N. E.
P. O. BOX 369
BELLEVUE, WASHINGTON 98004

July 28, 1970

Oregon State Highway Division
Highway Building
Salem, Oregon 97310

Attention: Mr. Ivan D. Merchant
Bridge Engineer

Gentlemen:

Subject: Engineering Proposal
I-205, Columbia River Bridge

This letter will confirm the costs telephoned you today for Item 7, Supplemental Foundation Investigations, which we propose to be included in the agreement for engineering services on the subject project. Attached is a schedule of the items 7 (a) through (i) for the supplemental foundation investigation work.

The total amount proposed for these contingent items is $43,410.00.

Very truly yours,

SVERDRUP & PARCEL AND ASSOCIATES, Inc.

R D Bane

R. D. Bane, P. E.
Assistant Vice President

Attachment

RECEIVED
JUL 29 1970
BRIDGE DIVISION

No.	Item	Unit & Quantity	Unit Price	Amount
6(a)	Check shop and constn. drawings for combined steel & conc. struct.	9000 hrs.	See Exh. X	161,600.00
(b)	Direct costs in connection with checking shop & constn. drawings for combined steel & conc. struct. (Computer Services, Long Dist. Telephone, Bulk Mailing)	All	At actual Cost	44,400.00
	Total Combined Steel & Concrete Structures			$ 1,479,000.00
7	Supplemental Found'n Investig.			
(a)	Mobilization & Demobilization for Land Drilling	All	L. S.	4,000.00
(b)	Mobilization & Demobilization for Water Drilling	All	L. S.	6,000.00
(c)	Land Drilling	500 L. Ft.	19.30 per L. Ft.	9,650.00
(d)	Water Drilling	700 L. Ft.	24.00 per L. Ft.	16,800.00
(e)	Split Tube Sampling	100 Only	6.00 per Each	600.00
(f)	Analysis of split tube sampling for water content, gradation & Atterburg Limits	25 Only	60.00 per Each	1,500.00
(g)	Undisturbed Samples	5 Only	12.00 per Each	60.00
(h)	Analysis of Undisturbed Samples	All	L. S.	2,800.00
(i)	Foundation Report	All	L. S.	2,000.00
	Total Supplemental Foundation Investig.			$ 43,410.00

RECEIVED
JUL [illegible] 1970
BRIDGE DIVISION

Totals

Preliminary (A-1(a) through (i) & A-2) + Steel Design (B-1 & B-2(a) & (b))	$ 1,588,970.00
Preliminary (A-1(a) through (i) & A-2) + Conc. Design (B-3 & B-4(a) & (b))	1,753,970.00
Preliminary (A-1(a) through (i) & A-2) + Combined Design (B-5 & B-6(a) & (b))	1,753,970.00
Supplemental Foundation Investigation (7(a) through ($\overset{i}{h}$))	43,410.00

i Items A-1(a), 1(b), 1(c), 1(i), 2 and B-1, 3, 5, 7(a), 7(b), 7(h), and 7(h) are fixed quantity items paid for on a lump sum basis.

Items A-1(d), 1(e), 1(f), 1(g), 1(h) and B-2(a), 2(b), 4(a), 4(b), 6(a), 6(b), 7(c), 7(d), 7(e), 7(f), and 7(g) are variable. Quantity of work paid for will be the actual quantity of work performed, properly documented by signed field measurements, payrolls or other authenticated records.

Payment for Items B-2(a) & 2(b) will not exceed $131,000 without authorization for a change in the contract amount.

Payment for Items B-4(a) & 4(b) will not exceed $206,000 without authorization for a change in the contract amount.

Payment for Items B-6(a) & 6(b) will not exceed $206,000 without authorization for a change in the contract amount.

The limiting amount paid under this agreement shall not exceed $______________ without renegotiation.

RECEIVED
JUL [illegible]

No.	Item	Unit & Quantity	Unit Price	Amount
6(a)	Check shop and constn. drawings for combined steel & conc. struct.	9000 hrs.	See Exh. X	161,600.00
(b)	Direct costs in connection with checking shop & constn. drawings for combined steel & conc. struct. (Computer Services, Long Dist. Telephone, Bulk Mailing)	All	At actual Cost	44,400.00
	Total Combined Steel & Concrete Structures			$ 1,479,000.00
7	Supplemental Found'n Investig.			
(a)	Mobilization & Demobilization for Land Drilling	All	L. S.	4,000.00
(b)	Mobilization & Demobilization for Water Drilling	All	L. S.	6,000.00
(c)	Land Drilling	500 L. Ft.	19.30 per L. Ft.	9,650.00
(d)	Water Drilling	700 L. Ft.	24.00 per L. Ft.	16,800.00
(e)	Split Tube Sampling	100 Only	6.00 per Each	600.00
(f)	Analysis of split tube sampling for water content, gradation & Atterburg Limits	25 Only	60.00 per Each	1,500.00
(g)	Undisturbed Samples	5 Only	12.00 per Each	60.00
(h)	Analysis of Undisturbed Samples	All	L. S.	2,800.00
(i)	Foundation Report	All	L. S.	2,000.00
	Total Supplemental Foundation Investig.			$ 43,410.00

RECEIVED
JUL 21 1970
BRIDGE DIVISION

Totals

Preliminary (A-1(a) through (i) & A-2) + Steel Design (B-1 & B-2(a) & (b))	$ 1,588,970.00
Preliminary (A-1(a) through (i) & A-2) + Conc. Design (B-3 & B-4(a) & (b))	1,753,970.00
Preliminary (A-1(a) through (i) & A-2) + Combined Design (B-5 & B-6(a) & (b))	1,753,970.00
Supplemental Foundation Investigation (7(a) through (i))	43,410.00

Items A-1(a), 1(b), 1(c), 1(i), 2 and B-1, 3, 5, 7(a), 7(b), 7(h) and 7(i) are fixed quantity items paid for on a lump sum basis.

Items A-1(d), 1(e), 1(f), 1(g), 1(h) and B-2(a), 2(b), 4(a), 4(b), 6(a), 6(b), 7(c), 7(d), 7(e), 7(f), and 7(g) are variable. Quantity of work paid for will be the actual quantity of work performed, properly documented by signed field measurements, payrolls or other authenticated records.

Payment for Items B-2(a) & 2(b) will not exceed $131,000 without authorization for a change in the contract amount.

Payment for Items B-4(a) & 4(b) will not exceed $206,000 without authorization for a change in the contract amount.

Payment for Items B-6(a) & 6(b) will not exceed $206,000 without authorization for a change in the contract amount.

The limiting amount paid under this agreement shall not exceed $______________ without renegotiation.

RECEIVED
JUL 2[illegible] 197[illegible]
BRIDGE DIVISION

2)

SVERDRUP & PARCEL AND ASSOCIATES, Inc.
Consulting Engineers
505 - 106TH AVENUE N. E.
P. O. BOX 369
BELLEVUE, WASHINGTON 98004

July 24, 1970

Oregon State Highway Division
Highway Building
Salem, Oregon 97310

Attention: Mr. Ivan D. Merchant
Bridge Engineer

Gentlemen:

Subject: Engineering Proposal
I-205, Columbia River Bridge

Reference is made to the negotiations held in your office yesterday on the engineering services for final design of the subject project. We have revised the fee schedule under Article IV, Payment, to provide for another method of paying for checking shop and construction drawings. Attached are two copies of the fee schedule which we suggest you incorporate in the agreement, together with Exhibit X showing our fee schedule for the various classifications of employees and including hourly rates.

We have requested our proposed subcontractor, Cornell, Howland, Hayes and Merryfield, to furnish the amounts requested for contract payment, Item 7, Supplemental Foundations Investigations. We will forward this information to you as soon as it is received, and we expect to have this information in your hands no later than July 29.

RECEIVED
JUL 27 1970
BRIDGE DIVISION

Oregon State Highway Division
Salem, Oregon 97310
Attention: Mr. Ivan D. Merchant
Page 2.

July 24, 1970

It is assumed that you will revise other minor items in the agreement as discussed yesterday before sending the finished contract document to us.

Very truly yours,

SVERDRUP & PARCEL AND ASSOCIATES, Inc.

R. D. Bane

R. D. Bane, P. E.
Assistant Vice President

Attachments

RECEIVED
JUL 27 1970
BRIDGE DIVISION

IV. PAYMENT

Fee Schedule

A. Preliminary

No.	Item	Unit & Quantity	Unit Price	Amount
1	Foundation Investigation			
(a)	Administration Fee	All	L. S.	$ 12,500.00
(b)	Foundation Report	All	L. S.	7,500.00
(c)	Mobilization & Demobilization	All	L. S.	11,500.00
(d)	Land Drilling	1010 L. Ft.	16.50 per L. Ft.	16,665.00
(e)	Water Drilling	1490 L. Ft.	20.50 per L. Ft.	30,545.00
(f)	Split Tube Sampling	220 Only	5.00 per Each	1,100.00
(g)	Analysis of Split Tube Sampling for Water Content, Gradation & Atterburg Limits	50 Only	55.00 per Each	2,750.00
(h)	Undisturbed Samples	10 Only	11.00 per Each	110.00
(i)	Analysis of Undisturbed Samples	All	L. S.	6,000.00
2	Preliminary Report Complete	All	L. S.	186,300.00
	Total Preliminary			$ 274,970.00

RECEIVED
JUL 27 1970
BRIDGE DIVISION

B. FINAL DESIGN

No.	Item	Unit & Quantity	Unit Price	Amount
1	Design calc., contract constn. plans, contract constn. specif. quantity estimates and cost estimates for steel struct.	All	L. S.	$ 1,183,000.00
2(a)	Check shop and constn. drawings for steel struct.	9000 hrs.	See Exh. X	127,800.00
(b)	Direct costs in connection with checking shop & constn. drawings for steel struct. (Computer Services, Long Dist. Telephone, Bulk Mailing)	All	At actual Cost	3,200.00
	Total for Steel Struct.			$ 1,314,000.00
3	Design calc., contract constn. plans, contract constn. specif. quantity estimates and cost estimates conc. struct.	All	L. S.	1,273,000.00
4(a)	Check shop and constn. drawings for conc. struct.	9000 hrs.	See Exh. X	161,600.00
(b)	Direct costs in connection with checking shop & constn. drawings for conc. struct. (Computer Services, Long Dist. Telephone, Bulk Mailing)	All	At actual Cost	44,400.00
	Total for Conc. Struct.			$ 1,479,000.00
5	Design calc., contract constn. plans, contract constn. specif. quantity estimates and cost estimate for combined steel and concrete struct.	All	L. S.	1,273,000.00

RECEIVED
JUL 27 1970
BRIDGE DIVISION

No.	Item	Unit & Quantity	Unit Price	Amount
6(a)	Check shop and constn. drawings for combined steel & conc. struct.	9000 hrs.	See Exh. X	161,600.00
(b)	Direct costs in connection with checking shop & constn. drawings for combined steel & conc. struct. (Computer Services, Long Dist. Telephone, Bulk Mailing)	All	At actual Cost	44,400.00
	Total Combined Steel & Concrete Structures			$ 1,479,000.00
7	Supplemental Found'n Investig.			
(a)	Mobilization & Demobilization for Land Drilling	All	L. S.	
(b)	Mobilization & Demobilization for Water Drilling	All	L. S.	
(c)	Land Drilling	500 L. Ft.	____ per L. Ft.	
(d)	Water Drilling	700 L. Ft.	____ per L. Ft.	
(e)	Split Tube Sampling	100 Only	____ per Each	
(f)	Analysis of split tube sampling for water content, gradation & Atterburg Limits	25 Only	____ per Each	
(g)	Undisturbed Samples	5 Only	____ per Each	
(h)	Analysis of Undisturbed Samples	All	L. S.	
	Total Supplemental Foundation Investig.			

RECEIVED
JUL 27 1970
BRIDGE DIVISION

Totals

Preliminary (A-1(a) through (i) & A-2) + Steel Design (B-1 & B-2(a) & (b))	$ 1,588,970.00
Preliminary (A-1(a) through (i) & A-2) + Conc. Design (B-3 & B-4(a) & (b))	1,753,970.00
Preliminary (A-1(a) through (i) & A-2) + Combined Design (B-5 & B-6(a) & (b))	1,753,970.00
Supplemental Foundation Investigation (7(a) through (h))	

Items A-1(a), 1(b), 1(c), 1(i), 2 and B-1, 3, 5, 7(a), 7(b) and 7(h) are fixed quantity items paid for on a lump sum basis.

Items A-1(d), 1(e), 1(f), 1(g), 1(h) and B-2(a), 2(b), 4(a), 4(b), 6(a), 6(b), 7(c), 7(d), 7(e), 7(f), and 7(g) are variable. Quantity of work paid for will be the actual quantity of work performed, properly documented by signed field measurements, payrolls or other authenticated records.

Payment for Items B-2(a) & 2(b) will not exceed $131,000 without authorization for a change in the contract amount.

Payment for Items B-4(a) & 4(b) will not exceed $206,000 without authorization for a change in the contract amount.

Payment for Items B-6(a) & 6(b) will not exceed $206,000 without authorization for a change in the contract amount.

The limiting amount paid under this agreement shall not exceed $______________ without renegotiation.

RECEIVED
JUL 27 1970
BRIDGE DIVISION

EXHIBIT X

Payment for Items B-2(a), 4(a) or 6(a) in the Fee Schedule shall be on the basis of the following agreed hourly rates, which cover all costs related to the salaries of employees for time directly chargeable to the project including supporting clerical and accounting services, the Consultant's salary related expenses, overhead and indirect costs, and profit.

out

Grade	Classification	Agreed Hourly Rate
T-1	Draftsman I, Technician I	$ 4.50
T-2	Draftsman II, Technician II	6.40
T-3	Draftsman III, Technician III	8.60
P-1	Engineer I, Designer I	10.75
P-2	Engineer II, Designer II	12.70
P-3	Engineer III, Designer III	14.60
P-4	Engineer IV, Designer IV	16.65
P-5	Engineer V, Designer V	18.80
P-6	Engineer VI, Designer VI	21.00
P-7	Engineer VII, Designer VII	23.40

RECEIVED
JUL 2[illegible] 1970
BRIDGE DIVISION

SVERDRUP & PARCEL AND ASSOCIATES, Inc.
Consulting Engineers
505 - 106TH AVENUE N. E.
P. O. BOX 369
BELLEVUE, WASHINGTON 98004

July 23, 1970

Oregon State Highway Division
Highway Building
Salem, Oregon 97310

Attention: Mr. Ivan D. Merchant
Bridge Engineer

Gentlemen:

Subject: Engineering Proposal
I-205, Columbia River Bridge

In accordance with the discussions held in your office on June 25, 1970, we are pleased to submit our proposal for engineering services for final design for subject project. The scope of work is defined on the attached sheet, "Things to be done by Consultant".

The preliminary design contract requires that investigation be made for superstructure of steel, concrete or combination thereof. It was therefore mutually agreed that the proposal for final design stipulate fees that would be based on either structure type selected as the result of the preliminary study. Accordingly, this proposal sets forth two fees as described below.

For a bridge incorporating an all steel superstructure, we propose to provide those services required for preparation of final design, plans and supplemental specifications for a lump sum fee of $1,183,000. In addition, we propose to provide services in connection with reviewing contractor's working drawings and shop fabrication details on a cost plus fixed fee basis. It is estimated that the total cost to provide these services will be $131,000, including the fixed fee of $21,000.

For a bridge incorporating an all concrete superstructure, we propose to provide those services required for preparation of final design, plans and supplemental specifications for a lump sum fee of $1,273,000. In addition, we propose to provide those services in connection with reviewing contractor's working drawings and shop fabrication details on a cost plus fixed fee basis. It is estimated that the total cost to provide these services will be $206,000, including the fixed fee of $26,000.

RECEIVED
JUL 23 1970
BRIDGE DIVISION

In the event the main channel spans were selected to be of steel construction with concrete approach spans, it is proposed that our fee be considered the same as for the all concrete superstructure given above.

Should it be deemed advisable to make additional foundation explorations to supplement explorations made in the preliminary phase of work, we propose to be reimbursed for the work on the basis of the actual subcontracted cost of the explorations plus an Administrator Fee of 15% thereof.

Sheets of fee determination are attached showing estimated manhours, salary rates, direct costs, overhead, profit and, in the case of a concrete superstructure, the cost of a consultant to be employed by our firm. Please note that the salary related expenses and overhead percentages shown on the attached fee determination sheets have been increased from 19.5% to 21.5% and from 53% to 55% respectively as compared to the fee data percentages submitted for the preliminary phase of work. These percentages, as well as the estimated average hourly rate, have necessarily been adjusted upward from present levels to provide for the affect of inflation on cost of services to be performed during the years 1971, 1972 and 1973.

We thank you for the opportunity of submitting this proposal.

Very truly yours,

SVERDRUP & PARCEL AND ASSOCIATES, Inc.

R. D. Bane

R. D. Bane
Assistant Vice-President

Attachs.

APPENDIX A

PHASE II - FINAL DESIGN

THINGS TO BE DONE BY CONSULTANT

1. The services of the Consultant shall consist of the preparation of the final design and plans for a structure type (steel or concrete superstructure or combination thereof) and span arrangement as presented in the preliminary report and as approved by the State. The Consultant shall prepare construction specifications as necessary to supplement the State's Standard Specifications. The services shall also include the review of contractor's working drawings and shop fabrication details.

2. Should the structure type selected incorporate concrete superstructure construction, the Consultant may employ the services of engineers experienced in this type of design and construction. Firm to be employed shall be approved by the State.

3. If deemed necessary by the Consultant and the State to establish foundation design criteria, the Consultant shall make foundation explorations to supplement explorations made in the preliminary phase of work. Firm to be employed shall be approved by the State.

4. Final plans shall be prepared in pencil on polyester type drafting film .004 inches in thickness with a matte surface on both sides from which legible blue prints and satisfactory reproductions can be obtained. A suitable copy on reproducible film shall be supplied for the second set (State of Washington).

5. Two sets of prints of final design computations shall be furnished to the State together with quantity estimates of the various phases of work.

6. The Consultant shall submit the completed final design computations, final plans, supplemental specifications and quantity estimates to the State for its review within a period of 21 months from the date of notice to proceed with Phase II. Should it be desired to let several construction contracts for the various portions of the work, the Consultant shall prepare the work to suit the sequence selected by the State and the length of time for completion of each portion of the work to be mutually agreed to at a later date; however, the total time for completion of the work shall be limited to 21 months.

FINAL DESIGN, PLANS AND SUPPLEMENTARY SPECIFICATIONS

ESTIMATED MANHOURS AND BASE SALARIES
STEEL OR CONCRETE CONSTRUCTION

WORK ITEM	MANHOURS	AVERAGE HOURLY RATE	BASE SALARIES
Project Admin., Coord. & Supervision	7,500	$9.80	$ 73,500
Design & Chk. Design	20,700	8.00	165,600
Geom., Dwg. & Chk. Dwg.	34,800	6.70	233,200
Architectural Treatment	500	8.00	4,000
Electrical Work	900	7.50	6,700
Quantities, Bar Lists, Cost Est. & Specifications	4,500	7.50	33,800
	68,900	$7.50	$516,800

STEEL BRIDGE CONSTRUCTION

I LUMP SUM FEE FOR FINAL DESIGN, PLANS AND SUPPLEMENTAL SPECIFICATIONS

Salaries & Overhead

Base Salaries 68,900 MH @ 7.50	$ 516,800
Salary Related Exp. 21.5% of 516,800	111,100
Productive Salary Cost	$ 627,900
Overhead 55% of 627,900	345,300
Total Salaries and Overhead	$ 973,200

Direct Costs

Computer Time	$ 35,000
Printing, Reproductions	13,000
Telephone	2,000
Travel & Subsistance	5,000
Total Direct Costs	$ 55,000

Profit	$ 154,800
TOTAL LUMP SUM FEE I	$1,183,000

II COST PLUS FIXED FEE FOR REVIEWING CONTRACTOR'S WORKING DRAWINGS AND SHOP FABRICATION DETAILS

Base Salaries 9000 MH @ 6.30		$ 56,700
Salary Related Exp. 21.5% of 56,700		12,200
Productive Salary Cost		$ 68,900
Overhead 55% of 68,900		37,900
Direct Costs: Computer, Telephone, Mailing		3,200
Estimated Total Cost		$ 110,000
Fixed Fee		21,000
	TOTAL II	$ 131,000
GRAND TOTAL I & II		$1,314,000

CONCRETE BRIDGE CONSTRUCTION

I LUMP SUM FEE FOR FINAL DESIGN, PLANS AND SUPPLEMENTAL SPECIFICATIONS

Salaries & Overhead

Base Salaries 68,900 MH @ 7.50	$ 516,800
Salary Related Exp. 21.5% of 516,800	111,100
Productive Salary Cost	$ 627,900
Overhead 55% of 627,900	345,300
Total Salaries and Overhead	$ 973,200

Direct Costs

Computer Time	$ 75,000
Printing, Reproductions	14,000
Telephone	3,000
Travel & Subsistance	7,000
Total Direct Costs	$ 99,000

Profit	$ 160,800
Total Above	$1,233,000

Subcontract

Concrete Design & Construction Consultation	$ 40,000
TOTAL LUMP SUM FEE I	$1,273,000

II COST PLUS FIXED FEE FOR REVIEWING CONTRACTOR'S WORKING DRAWINGS AND SHOP FABRICATION DETAILS

Base Salaries 9000 MH @ 8.00	$ 72,000
Salary Related Exp. 21.5% of 72,000	15,500
Productive Salary Cost	$ 87,500
Overhead 55% of 87,500	48,100
Direct Costs: Computer, Telephone, Mailing	44,400
Estimated Total Cost	$ 180,000
Fixed Fee	26,000
TOTAL II	$ 206,000
GRAND TOTAL I + II	$1,479,000

July 22, 1970

MEMORANDUM FOR THE RECORD

SUBJECT: Salary Related Expense and General Expense

A request has been received to furnish the Salary Related Expense and General Expense rates to be used in connection with work to be performed during the next several years. Based on our past experience and giving effect to known and estimated increases in cost due to changes in the Social Security Benefits, cost of annual leave and other Fringe Benefits based on length of service with the Company and possible increased cost of future up-dating of our Pension Plan, it is suggested that the following rates be used:

Salary Related Expense	21.50%
General Expense	55.00%

In arriving at these suggested rates, effect has been given to possible elimination as required by A.S.P.R.

If you have any questions with the foregoing, please do not hesitate to call me.

W. F. Knapp

W. F. Knapp
Comptroller

SVERDRUP & PARCEL

OVERHEAD - Salary Related Expense

ESTIMATED RATE FOR WORK TO BE PERFORMED DURING THE NEXT SEVERAL YEARS

Annual Leave	5.90%
Sick Leave and Temporary Disability	2.00
Holiday	3.10
Standard Christmas Bonus	1.50
Pension Plan Cost	4.25
Workmen's Compensation and General Liability Insurance	.35
Payroll Taxes	4.40
FOR PROPOSALS	21.50

Rate derived by dividing Total Payroll Overhead by Productive Salaries.

July 22, 1970

STATEMENT OF GENERAL EXPENSE

NET OF ASPR UNALLOWABLES

ESTIMATED RATE FOR WORK TO BE PERFORMED

SVERDRUP & PARCEL AND ASSOCIATES, INC.

General Office	
Annual Leave	13.25%
Sick Leave	1.20
Holiday	.50
Jury Duty	.60
Executive	.06
Administrative	10.00
Accounting	3.50
	3.50
Sub-total	32.61%
Non-Productive Services	
Advertising	.90%
Alterations and Moving	.53
Amortization - Leasehold	.05
Auto - Net	.06
Blue Prints, Maps, Photos	.45
Books, Magazines, Subscriptions	.92
Contributions - Pension Plan	.13
Depreciation	1.55
Dues - Professional Societies	.50
Equipment Rental	.10
Equipment Maintenance	.60
Insurance	.10
Legal & Accounting	1.25
Miscellaneous	.35
Postage & Express	1.25
Rent	.25
Scholarship & Educational	5.95
Supplies	.14
Taxes	1.60
Telephone & Telegraph	2.40
Travel - Employees	1.21
Travel - Executives	1.00
Relocation Expense - Employees	.86
Employment Interviews	.38
	.03

July 22, 1970

STATEMENT OF GENERAL EXPENSE

NET OF ASPR UNALLOWABLES

ESTIMATED RATE FOR WORK TO BE PERFORMED

SVERDRUP & PARCEL AND ASSOCIATES, INC.

General Office	13.25%
Annual Leave	1.20
Sick Leave	.50
Holiday	.60
Jury Duty	.06
Executive	10.00
Administrative	3.50
Accounting	3.50
Sub-total	32.61%
Non-Productive Services	.90%
Advertising	.53
Alterations and Moving	.05
Amortization - Leasehold	.06
Auto - Net	.45
Blue Prints, Maps, Photos	.92
Books, Magazines, Subscriptions	.13
Contributions - Pension Plan	1.55
Depreciation	.50
Dues - Professional Societies	.10
Equipment Rental	.60
Equipment Maintenance	.10
Insurance	1.25
Legal & Accounting	.35
Miscellaneous	1.25
Postage & Express	.25
Rent	5.95
Scholarship & Educational	.14
Supplies	1.60
Taxes	2.40
Telephone & Telegraph	1.21
Travel - Employees	1.00
Travel - Executives	.86
Relocation Expense - Employees	.38
Employment Interviews	.03

July 22, 1970

STATEMENT OF GENERAL EXPENSE

NET OF ASPR UNALLOWABLES

ESTIMATED RATE FOR WORK TO BE PERFORMED

SVERDRUP & PARCEL AND ASSOCIATES, INC.

(continued from preceding page)

Printing - Converted, Net	(.99)
Computer Operation, Net	.38
Specifications	.44
TOTAL	55.00%

Rate derived by dividing total General Expense by Productive Salary Cost (Productive Salaries plus Salary Related Expense).

July 22, 1970

SVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
800 N. 12TH BOULEVARD
ST. LOUIS, MISSOURI 63101

MEMORANDUM FOR RECORD

July 21, 1970

SUBJECT: Design of Long Span Concrete Bridges

This memorandum deals with the continuing effort of Sverdrup & Parcel to maintain capability in design of conventional concrete structures and to provide capability for design of long span prestressed bridges.

Sverdrup & Parcel, in the course of years of involvement in bridge design work, has been innovative in construction technology where warranted. Prestressed concrete construction has been incorporated in a number of projects. Notable among these are the following:

1. 12.2 miles of over the ocean prestressed concrete trestle spans of Chesapeake Bay Bridge and Tunnel Crossing, Virginia.
2. 9,400 feet prestressed concrete approach structures for Commodore Point Expressway, Jacksonville, Florida.
3. 1,500 feet prestressed concrete approach to Bridge over Mississippi River, Muscatine, Iowa.
4. 2,200 feet of prestressed concrete structure over Cross Florida Barge Canal at Ocala, Florida.
5. 3,500 feet of prestressed concrete approach spans to Mississippi River Bridge at Caruthersville, Missouri.

In addition to the bridge projects, S&P has also utilized the prestressed post-tensioned, concrete construction technique in other types of structures. Outstanding examples of these are the Busch Memorial Stadium and its adjacent parking garages in St. Louis, Missouri; the new St. Louis County Government Center; and Merchandise Pier "C" at Newport News, Virginia.

S&P is also maintaining informal discussions with the California Division of Highways regarding their concrete bridge design for the Pine Valley Creek Bridge which has a main concrete span of 450 feet.

For a number of years, S&P has maintained affiliations with European engineers, primarily through a partially owned subsidiary consulting engineering firm, Prosjektering A/S of Oslo, Norway.

In 1968, by arrangement with Orrje & Co. of Cothenburg, Sweden, Mr. Ingvar Karemyr, the chief of that firm's Bridge Division, spent a year working with S&P in the United States. Upon his return to Europe, Mr. Karemyr was in turn employed by Prosjektering A/S to supervise the design of a long span concrete structure known as the Gisund Bridge. This structure has a total length of 3,760 feet and the major unit consists of four spans of 230, 460, 460, and 246 feet. The design was prepared for the Norwegian Bureau of Roads and the structure is currently under construction. The plans were arranged so that the contractor could furnish either the cast-in-place or precast type of post-tensioned construction. Design review was furnished by S&P's St. Louis office when the plans were in the preliminary stage.

It is proposed that Mr. Karemyr spend approximately 30 days in the S&P Bridge Design Office to assist in developing the preliminary design for the concrete alternate for the Columbia River Bridge at Portland, Oregon.

Additional opportunity was afforded for S&P to become familiar with this type of structure in connection with the design of an Ohio River bridge at Brent, Kentucky. It is required that this structure have two 700-feet navigation spans flanked by shorter spans. The preliminary design as originally prepared was for three steel bridge alternates. Later, the firm of Dyckerhoff & Widmann proposed a long span concrete design for this crossing and prepared preliminary calculations to examine the cost and feasibility. These calculations were reviewed by S&P and the State of Kentucky decided that the concrete bridge alternate would not be a satisfactory replacement for the earlier proposal.

In July, 1970, Mr. Eli Lemcoe, a Senior Engineer of our Bridge Design staff who will be Project Manager for the Portland Bridge project, had the opportunity for a study tour in Europe, concentrating on long span concrete structures. His sponsor for this tour was the firm of Ostenfeld & Jønson of Copenhagen, a firm with which S&P is also affiliated in certain other projects. Accompanied by Mr. Klaus Ostenfeld of that firm, Mr. Lemcoe visited a number of bridge sites in Germany, including the Bendorf Bridge over the Rhine River. His visit included discussions with the officials responsible for design and construction of that structure, which has a main span of 682 feet. He also visited various design offices, including the Ostenfeld & Jønson design office in Paris, in which a number of designs of the type in question have been prepared. Mr. Klaus Ostenfeld is being assigned to the S&P St. Louis office for a two-year working period beginning in August, 1970. It is planned that he be assigned to the design work on the Portland, Oregon Bridge.

S&P has obtained the services of Mr. Ben Gerwick, Jr., now of the Santa Fe-Pomeroy firm, for consulting assistance on the Portland project. His consulting services will cover primarily methods of form construction, erection, tensioning procedures and other techniques available in the American market. It is also expected that he will be able to make an important contribution in estimating the cost of a concrete structure as compared to a steel alternate.

RCWest
R. C. West
Executive Vice President

(2)

	RDB			CET	
	PAJ			AKO	
	RJA			RGL	
	RAA			FGJ	
	CTV			JDC	
	ALP			GMA	
JOB					

SANTA FE - POMEROY, INC.
ENGINEERING AND CONSTRUCTION SUBSIDIARY OF SANTA FE INTERNATIONAL CORPORATION

July 22, 1970

Sverdrup & Parcel
P. O. Box 369
Bellview, Washington 98004

Attention: Mr. R. D. Bane

Gentlemen:

In connection with our proposal to provide you with consulting services during the design phase of the prestressed concrete segmental box girder bridge, we are submitting a brief summary of our background and experience.

Ben C. Gerwick Co., now a division of Santa Fe-Pomeroy, Inc., has operated a concrete manufacturing plant for the past 25 years. All types of precast, prestressed products, including large post tensioned and pre-tensioned bridger girders and bridge pier components, have been designed, manufactured and erected by this organization.

The Santa Fe-Pomeroy Engineering Division has designed a number of prestressed concrete bridges for various agencies over the past 13 years. It also provides engineering support for the Construction Division, including the design of erection equipment and falsework.

In 1953 the Gerwick organization designed and patented a method of constructing bell type bridge piers using large precast concrete segments. This system was used on the Richmond-San Rafael Bridge and the San Mateo Bridge for the State of California. The Pomeroy-Gerwick organisation participated in the construction of the LaGuardia Airport runway involving a great number of post tensioned segments for the airport runway. In 1957 Ben C. Gerwick, Inc. designed a post tensioned continuous span bridge over the Feather River at Marysville, California. At the time of construction this was the longest post tensioned continuous type structure in the United States. The writer was Chief Engineer for this project and S. C. Doughty was Engineer in Charge of Construction for the Contractor, Pacific Bridge Company. In 1965 Pomeroy-Gerwick

RECEIVED
JUL 27 1970
BRIDGE DIVISION

RECEIVED
JUL 24 197
SVERDRUP & PARCEL

participated in the conceptual design for the main span structure of the Napa River Bridge. This company also manufactured and erected the prestressed concrete girders under a contract with the State of California. The main span girders were manufactured in segments and connected by post tensioning on barges before being erected. Santa Fe-Pomeroy has developed a post tensioned prestressed concrete underwater oil storage tank that is now being offerred to oil companies for underwater storage in the oceans.

Mr. Ben C. Gerwick, Jr., now Executive Vice President of Santa Fe-Pomeroy, Inc., is presently Deputy General Vice President of the International Federation of Prestressing (FIP) and is in contact with the designers and constructors of major bridges throughout the world.

I hope that this information will be helpful to you and if you have any questions about some of these projects, please give me a call.

Very truly yours,

W. J. Talbot, Jr.,
Vice President-Chief Engineer

lmb

cc: Mr. R. D. Bane
Remada Hotel
310 S.W. Lincoln
Portland, Oregon

RECEIVED
JUL 2[illegible] 1970
BRIDGE DIVISION

SVERDRUP & PARCEL AND ASSOCIATES, Inc.
Consulting Engineers
505 - 106TH AVENUE N. E.
P. O. BOX 369
BELLEVUE, WASHINGTON 98004

June 25, 1970

Oregon State Highway Division
Highway Building
Salem, Oregon 97310

Attention: Mr. Ivan D. Merchant
Bridge Engineer

Gentlemen:

Subject: Engineering Proposal
I-205, Columbia River Bridge

We are pleased to submit our proposal for engineering services for subject project as outlined in the "Form of Agreement for Preliminary Studies", received under cover of letter dated June 16, 1970.

We propose to provide those services required under Item 1, Preliminary Report Complete, of the attached Suggested Schedule for Payment, for a lump sum fee of $186,300 and to provide those services required under Item 2(a), Administrator Fee for Foundation Investigation and Report, for a lump sum fee of $12,500. Items 2(b) through 2(i) of the attached schedule, all in connection with the Foundation Investigation and Report, are unit prices and lump sum amounts as received directly from the firm which would be employed by us to perform this portion of the work. The total amount shown on the attached schedule for Items 2(b) through 2(i) is $76,170 based on a total of 2500 lineal feet of drilling.

Two sheets of fee determination for Item 1 are attached showing estimated manhours, salary rates, direct costs, overhead, profit and cost of consultants to be employed by our firm. Substantiation of the overhead figure is also attached.

We propose to employ the services of the following consultants in connection with our work:

1. Foundation Investigation and Report: the firm of Cornell, Howland, Hayes & Merryfield, Corvallis, Oregon.

2. Architectural Consultation: the firm of Broome, Selig & Oringdulph, Portland, Oregon.

3. Concrete Design and Construction Consultation: the firm of Sante Fe-Pomeroy, Inc., San Francisco, California. (Mr. Ben C. Gerwick, Jr. is a member of this firm.)

We thank you for the opportunity to submit this proposal.

Very truly yours,

SVERDRUP & PARCEL AND ASSOCIATES, Inc.

R D Bane

R. D. Bane
Assistant Vice-President

Attachs.

IV. PAYME

1. SUGGESTED SCHEDULE

Item	Unit & Quantity	Unit Price	Amount	Amount
1. Preliminary Report Complete	L. S.	--	--	$186,300
2. Foundation Investigation and Report				
(a) Administrator fee	L. S.	--	12,500	--
(b) Foundation Report	L. S.	--	7,500	--
(c) Mobilization and Demobilization	L. S.	--	11,500	--
(d) Land Drilling	1010 ~~1350~~ L.Ft.	16.50	16,665	--
(e) Water Drilling	1490 ~~1800~~ L.Ft.	20.50	30,545	--
(f) Split Tube Sampling	220 only	5.00	1,100	--
(g) Analysis of Split Tube Samples for Water Content, Gradation, and Atterburg Limits	50 only	55.00	2,750	--
(h) Undisturbed Samples	10 only	11.00	110	--
(i) Analysis of Undisturbed Samples	L. S.	--	6,000	
Sub Total Foundation Investigation:				88,670
Total:				$274,970

Items 1, 2 (a), 2 (b), 2 (c) and 2 (i) are fixed quantity items, paid for on a lump sum basis.

Items 2 (d), 2 (e), 2 (f), 2 (g) and 2 (h) are variable. Actual quantity paid for will be actual quantity of work performed.

The limiting amount paid under this agreement shall not exceed $__________ without renegotiation.

2. Partial Payments

Partial payments shall be made not oftener than once per month and shall be based on the percentage of completion certified by Consultant and

Classification	Function	MONTHS 1	2	3	4	5	6	Total Man-Months	Ave. Monthly Rate	Base Salary Cost
P-6	Project Manager	1	1	1	1	1	1	6	$1,615	$ 9,690
P-5	Project Eng. & Design Group Leaders	3	3	3	3	3	2	17	1,450	24,650
P-4	Architects & Designers	2	2	3	3	3	2	15	1,275	19,125
P-3	Designers & Estimators		1	2	3	3	3	12	1,125	13,500
P-1	Draftsmen		1	1		1	2	5	825	4,125
	Total	6	8	10	10	11	10	55		$71,090

Total Manhours Required: 55 x 173 1/3 = 9,530

Total Base Salary Cost: $71,090

Average Hourly Rate: $7.46

ESTIMATED MANHOURS AND BASE SALARIES

ITEM 1

PRELIMINARY REPORT COMPLETE

ITEM 1 - PRELIMINARY REPORT COMPLETE

SALARIES & OVERHEAD	
Base Salary Cost 9530 MH x $7.46/Hr.	$ 71,090
Salary Related Expenses 19.5% of 71,090	13,860
Productive Salary Cost	$ 84,950
Overhead 53% of 84,950	45,020
Total Salaries and Overhead	$129,970
DIRECT COSTS	
Computer Time	8,000
Travel and Subsistence	5,900
Renderings, Report Printing, Telephone	3,000
	$ 16,900
PROFIT	22,030
Total Above	$168,900
SUBCONTRACTS	
Architectural Consultation	3,650
Concrete Design & Construction Consultation	13,750
TOTAL LUMP SUM - ITEM 1	$186,300

June 15, 1970

MEMORANDUM FOR THE RECORD

SUBJECT: Salary Related Expenses and General Expense

Request has been received to furnish Salary Related Expense and General Expense details to determine rates to be used in connection with proposed work. Based on our past experience and the fact that the proposed work will be completed during the early part of 1970, it is suggested that the following rates be used:

Salary Related Expense	19.50 %
General Expense	53.00 %

The suggested rates are net of eliminations as required by A.S.P.R.

Auditors from the Department of Defense Audit Agency have reviewed the suggested rates and concur thereon.

Schedules setting forth in detail the expenses and rates are attached.

As mentioned previously, unallowable items under A.S.P.R. have been eliminated.

W. F. Knapp

W. F. Knapp,
Comptroller

SVERDRUP & PARCEL

OVERHEAD - PAYROLL (FRINGE BENEFITS)

ACTUAL FOR THE YEAR 1969 AND ESTIMATE FOR 1970 PROPOSAL

	1969 Per Cent
Annual Leave	5.57%
Sick Leave and Temporary Disability	1.73
Holiday	2.84
Standard Christmas Bonus	1.38
Pension Plan Cost	3.81
Workmen's Compensation and General Liability Insurance	.30
Payroll Taxes	3.89
TOTAL	19.52%
FOR PROPOSALS	19.50%

Rate derived by dividing Total Payroll Overhead by Productive Salaries.

STATEMENT OF GENERAL EXPENSE

NET OF ASPR UNALLOWABLES

FOR THE YEAR 1969

SVERDRUP & PARCEL AND ASSOCIATES, INC.

General Office	13.14%
Annual Leave	1.09
Sick Leave	.35
Temporary Disability	.01
Holiday	.54
Jury Duty	.06
Executive	9.96
Administrative	3.34
Accounting	3.38
Excused Time - Funeral	.02
Sub-total	31.89%
Non-Productive Services	.90%
Advertising	.53
Alterations and Moving	.05
Amortization - Leasehold	.06
Auto - Net	.45
Blue Prints, Maps, Photos	.92
Bond Gifts	.01
Books, Magazines, Subscriptions	.13
Contributions - EBP	1.04
Depreciation	.48
Dues	.12
EBP Expense	.05
Equipment Rental	.61
Equipment Maintenance	.09
Insurance	1.18
Legal & Accounting	.29
Miscellaneous	1.11
Postage & Express	.25
Rent	2.37
Scholarship & Educational	.14
Supplies	1.61
Taxes	2.01
Telephone & Telegraph	1.21
Travel - Employees	1.01
Travel - Executives	.86
Relocation Expense - Employees	.38
Employment Interviews	.03

STATEMENT OF GENERAL EXPENSE

NET OF ASPR UNALLOWABLES

FOR THE YEAR 1969

SVERDRUP & PARCEL AND ASSOCIATES, INC.

(continued from preceding page)

Printing - Converted, Net	(.99)
Computer Operation, Net	.38
Specifications	.44
Building Opr. and Deprec.	3.46
TOTAL	53.07%
FOR PROPOSALS	53.00%

Rate derived by dividing total General Expense by Productive Salary Cost (Productive Salaries plus Payroll Overhead).

ELI LEMCOE

Bachelor of Science in Civil Engineering - Washington University, 1948
Registered Professional Engineer - Illinois, Missouri
Member - American Society of Civil Engineers

Record of Employment

6-1948 to Present	SVERDRUP & PARCEL Head Engineer
6-1947 to 6-1948 (Part Time)	AZBE CORPORATION, St. Louis, Mo. Draftsman
9-1944 to 7-1946	U. S. NAVY Electronics Technician

Detail of Experience

Over twenty years of engineering experience at Sverdrup & Parcel. Engineer of bridge plans - bridge division, with responsibility for coordinating and developing plans and specifications for job assignment and personnel. Previous experience as engineer in charge of preparing designs and design plans for several large bridge projects, including the bridge over the Panama Canal, Balboa Heights, Canal Zone; Platte Purchase Highway Bridge over the Missouri River at Kansas City, Kansas; Interstate Route 70 Highway Bridge over the Missouri River near Bonneville, Missouri, and a railroad vertical-lift bridge over the Gulf Intracoastal Waterway near Victoria, Texas. Project Engineer for the Daniel Boone Expressway double-deck viaduct structure in downtown St. Louis.

Experience in all phases of work connected with the design and preparation of designs plans, and construction specifications for all types of bridges including urban projects, long river bridges, railway bridges, and movable bridges. Also prepared design and construction specifications for various types of heavy industrial buildings.

R. JACK ALLEN

B. Sc. C.E. - University of Illinois, 1955
M. Sc. C.E. - University of Illinois, 1956
Registered Professional Engineer - Illinois, Oregon (Structural),
Washington (Civil and Structural)

Member - American Society of Civil Engineers

Record of Employment

6-1956 to Present	SVERDRUP & PARCEL
2-1955 to 6-1956	UNIVERSITY OF ILLINOIS Research Assistant - Prestressed Concrete

Detail of Experience

More than fifteen years of engineering experience, including over fourteen years with Sverdrup & Parcel. Project Engineer for reports, designs, plans, specifications, and cost estimates for highway and railroad bridges; for inspecting and rating railroad bridges; and for design and access reports, right-of-way plans, construction plans, specifications, and estimates for 2.5 miles of limited-access freeway, including three interchanges.

Recent projects include SR 518 (from 8th Avenue to FA 15) and the Riverton Heights Interchange, in King County, Washington; the Daniel Boone Expressway, St. Louis, Missouri (from 21st Street to Broadway); a Bridge Railing Study in Washington, D. C.; Mississippi River bridges for I-270 in St. Louis and Trunk Highway 12 in Minneapolis, Minn.; the Ghotour Valley railroad bridge, in Iran; the Thatcher Ferry Bridge across the Panama Canal; and the Chesapeake Bay Bridge - Tunnel Crossing.

GERHARD JOEHNK

Master of Science in Civil & Structural Engineering - Technical University
of Denmark at Copenhagen, 1953
Registered Professional Engineer - Missouri
Member - American Society of Civil Engineers

Record of Employment

8-1957 to Present	SVERDRUP & PARCEL Senior Engineer & Bridge Section Computer Specialist
10-1955 to 8-1957	CHRISTIANI & NIELSEN (THAI LTD.) Bangkok, Thailand
7-1954 to 10-1955	CHRISTIANI & NIELSEN Copenhagen
2-1953 to 7-1954	KAMPMANN, KIERULFF & SAXILD A/S Copenhagen

Detail of Experience

Fifteen years of engineering experience, including nearly eleven years at Sverdrup & Parcel. Senior Engineer and Bridge Section computer specialist developing new programs for structural design and geometric layouts. Developed designs for steel, concrete, and prestressed concrete highway and railroad bridges. Prepared substructure preliminary designs for the award-winning suspension bridge design for the Danish Storebelt Crossing, using prestressed concrete elements sunk in deep water which will be united into monoliths by inserting reinforced wire cages into pre-planned holes, and filling the holes with concrete. Designed the stiffening trusses for the Angostura Bridge across the Orinoco River near Ciudad Bolivar, Venezuela. Designed rocket motor static test stands for the Mississippi Test Facility, including dynamic loads and vibration analyses. Other projects include the Ghotour Valley railroad bridge in Iran; the Clay County Bridges in Missouri; the Commodore Point Expressway at Jacksonville, Florida; the Illinois Approach to the Poplar Street Bridge, St. Louis, Missouri; the Chesapeake Bay Bridge-Tunnel Crossing; the Thatcher Ferry Bridge for the Panama Canal Company; bridges on Illinois Interstate Route FAI-270; and the Innerbelt Expressway project, St. Louis.

Field experience includes a bridge over the St. Lawrence River at Three Rivers, Canada, and welding inspection on structural steel, boiler, and ducting at the Meramec Power Plant, St. Louis, Missouri.

Other design work includes design and detail of 2,000-ton clinker transportation and storage facility, and office buildings; detail and design for a rock-and-trench tunnel at Gothenburg, Sweden; preliminary design for the Fraser River Tunnel at Vancouver, Canada; building design; and harbor facilities design.

ALBERTO D. NG

Bachelor of Science in Civil Engineering - Iowa State College, 1954
Master of Science in Civil Engineering - University of Missouri, 1957
Registered Professional Engineer - Illinois
Associate Member - American Society of Civil Engineers

Record of Employment

6-1957 to Present	SVERDRUP & PARCEL Senior Engineer, Structural
9-1956 to 6-1957 2-1956 to 6-1956	UNIVERSITY OF MISSOURI, Columbia, Mo. Department of Civil Engineering Research and Teaching Assistant
6-1956 to 9-1956 1-1955 to 1-1956	HOWARD, NEEDLES, TAMMEN & BERGENDOFF Consulting Engineers Kansas City, Missouri Bridge Detailer

Detail of Experience

Thirteen years of engineering experience, including eleven years at Sverdrup & Parcel. Experience includes analysis, design, check design, detail, and check details in the following types of structures: vertical-lift bridge, continuous tied-arch truss spans, stiffening truss and tower in suspension bridge, simple or continous steel-beam and plate-girder spans, composite and non-composite construction, steel rigid frames, reinforced concrete rigid frames, box girder or sonovoid slabs, abutments, piers, retaining walls, and waterfront structures such as breakwater and bulkheads. Has worked on the following projects: Mark Twain Expressway, Daniel Boone Expressway, Inner Belt Expressway, Interstate Route 1-55, all at St. Louis, Missouri; Washington Channel Crossing, Washington, D.C.; U. S. Route 36 at St. Joseph, Mo.; Washington Ave. over Mississippi, Minneapolis-St. Paul, Minn.; Kansas City Terminal Railroad, Kansas City, Mo.; Interstate Route 64 over Big Sandy River, W. Va.; Kansas Turnpike, Kansas; Southern Railway System in Kentucky; and a Nickel Plate R.R. vertical-lift bridge over Calumet River in Chicago, Illinos. I-695 in Boston; Port of Indiana in Indiana; and Orinoco Suspension Bridge in Venezuela.

While in graduate school, studied application of relaxation method in engineering, also taught an undergraduate course in statics. As undergraduate, had 2½ years part-time work in the Soil Research Laboratory of Engineering Experiment Station of Iowa State University. Most of the work was in various types of soil testing: grain size, unconfined compressive strength, shear strength, Atterberg limits, etc.

THOMAS A. GAFFNEY, JR.

Bachelor of Civil Engineering - Clarkson College of Technology, 1955
Registered Professional Engineer - New York

Record of Employment

4-1967 to Present	SVERDRUP & PARCEL Senior Engineer
10-1962 to 3-1967	AMERICAN BRIDGE DIVISION Project Engineer
9-1959 to 9-1962	U.S. COAST GUARD (Military Service)
6-1955 to 8-1959	ANACONDA-JURDEN ASSOC. Field Engineer

Detail of Experience

Responsibilities have included design, check design, supervision of the preparation of and check detail engineering drawings of substructure and superstructure for various bridge projects, including railroad vertical lift bridges, railroad and highway truss, girder, box girder and prestress spans. Developing erecting schemes, erecting equipment design and project planning and supervision for various steel structures, including the John Hancock Building, the Narrows Bridge and the Tagus River Bridge.

While in military service assigned to the Civil Engineering Section with duties involving design, preparation of contract specifications, contract administration and field supervision of Contractor's work for various Naval, Marine and shore structures.

With Anaconda-Jurden as a field inspector of all construction activities related to the construction of a $300,000,000 Taconite Processing Plant.

Recent projects have included bridges on SR 518 (SR 509 to FAI5) for Washington State Department of Highways and bridges for the Norfolk and Western Railroad.

DONALD L. MILES

B.S.C.E. - Washington State University, 1960
M.S.C.E. - Washington State University, 1963
Registered Professional Engineer - Washington (Civil and Structural)
Member - American Society of Civil Engineers

Record of Employment

1-1967 to Present	SVERDRUP & PARCEL
4-1966 to 1-1967	ANDERSON BRIDGE CO., Kirkland, Washington Chief Engineer
	GUY F. ATKINSON COMPANY
6-1964 to 4-1966	Engineer, Seattle, Washington
6-1963 to 6-1964	Engineer, San Francisco, California

Detail of Experience

Nearly seven years of civil and structural engineering experience, with more than three years with designs and details for prestressed-concrete and concrete box-girder highway bridges. Previously, supervised the engineering, construction, and cost management for bridges, and was field project engineer for constructing two freeway projects. Estimated heavy construction costs (dams, highways, and powerhouses), and used the CPM method of construction scheduling.

Recent projects include three river bridges, and grade-separation and interchange bridges for Washington State's Puyallup Highway; and the grade-separation bridges for a 3-mile section of Washington State Highway SR 509.

A. E. SCHMIDT

Bachelor of Science in Civil Engineering - University of Texas, 1944
Master of Science in Civil Engineering - Southern Methodist University, 1957

Registered Professional Engineer - Texas
Member - American Railway Engineering Association

Record of Employment

11-1958 to Present	SVERDRUP & PARCEL Senior Engineer
2-1947 to 11-1958	TEXAS HIGHWAY DEPARTMENT, Dallas, Texas Senior Design Engineer
6-1946 to 2-1947	J. J. FRITCH, GENERAL CONTRACTOR, Dallas, Texas Field Engineer
7-1943 to 8-1946	U. S. NAVY, Civil Engineer Corps Lieutenant (jg)

Detail of Experience

Twenty-three years of engineering experience, including nine years with Sverdrup & Parcel. Prepared designs and specifications for Kansas City Terminal Railroad bridge emergency lift system, and was Project Engineer during construction phase of work. In charge of design, plans, and specifications for orthotropic plate girder bridge over the Mississippi River at St. Louis.

Project Engineer for: the Vicksburg Harbor Project; preliminary reports on various railroad relocations; design of four vertical lift railroad bridges on the Arkansas River Navigation Project; and preliminary report and final design of I-90 bridge over the Francis Case Reservoir in South Dakota.

Four years in direct charge of design office for expressway structures for the Texas Highway Department, Dallas, Texas.

Design experience in steel, concrete and prestressed concrete structures, including bridges, grade separation structures, and buildings.

ESTIMATE OF ENGINEERING DESIGN COSTS
FOR COLUMBIA RIVER BRIDGE, I-205

COMMENTARY - Estimate of Engineering Design Costs for Columbia River Bridge, I-205

The first step in arriving at an estimated engineering design fee for the Columbia River Bridge on I-205 was the determination of the approximate total project cost for the various alternate types of construction. Preliminary reconnaissance estimates were made for each of the two basic types of construction proposed for study under the engineering design agreement. Approximate quantities were computed for each type of construction for the main span super- and sub-structure and for a typical segment of approach span. Unit prices were affixed to the above quantities to arrive at a square-foot price for the two types of construction. The total project cost was determined by the extension of the applicable estimated square footage costs to the total square footage of the structure. Calculations for the estimated total projects costs are given Appendix A.

Preliminary Engineering Design Study

To arrive at a preliminary engineering design fee, an estimate was made of the man-hours required to accomplish the work as set forth under "Things To Be Done By Consultant" in the proposed engineering agreement. A total man-hour requirement was determined by assuming the work to be done by the department's own staff. Past experience in doing similar work with in-house personnel indicated a value of 0.25 to 0.30 man-hours per $1,000 of project costs as a reasonable figure for preliminary engineering requirements. Hourly rates applied were those applicable to the various grades in state service. Assumptions on the items of overhead and profit were based on past experience and generally recognized allowances for those items.

The estimate of cost to accomplish the minimum foundation investigation, as set forth in the agreement, was based on doing the required work with the State's own forces.

The preliminary design and foundation estimates are given on sheets 1, 2, and 2A.

Final Design

The estimate of the engineering design fee for final design is given on sheets 3, 4, and 5 of the following: From the design-time curve, attached sheet 7, a value of approximately 3.2 man-hours per $1,000 of project cost is required for large dollar volume projects. This time requirement was reduced to an assumed value of 2.8 man-hours per $1,000 on this structure due to the over-all project size. Final design was assumed as 90 percent of the total engineering design charge. The percent of final design charged to actual design and preparation of plans and that charged to checking of shop drawings are as given on sheets 3, 4, and 5. The allowance for overhead is from the consulting engineers' summary for this item received during discussions on the preliminary design phase. The profit allowance is that which is considered fair and equitable.

Oregon State Highway Department
BRIDGE DESIGN SHEET

Sheet Summary

Bridge Columbia River Bridge (I-205) Mult.

Calculations by WJQ Date July 21, 1970 9555

DESIGN COST ESTIMATE

		Concrete	Steel	Combined
Preliminary Design sheets 1 and 2 231,070 + 90,750		$ 321,820	$ 321,820	$ 321,820
Final Des. (Sht. 3-5)	Design, Plans, Spec's., Estimates	$ 1,213,618	$ 1,309,847	$ 1,216,820
	Check Shop & Const. Drwgs.	$ 134,015	$ 109,839	$ 101,992
Total Design Cost		$ 1,669,453	$ 1,741,506	$ 1,640,632
Supplemental Foundation Invest. Sheet 6		$ 41,140	$ 41,140	$ 41,140

Form [illegible]

Oregon State Highway Department
BRIDGE DESIGN SECT

Sheet 1

Bridge Columbia River Bridge (I-205) County Mult.
Calculations by WJQ Date June 1, 1970 No. 9555

Preliminary Design Cost

1. Salaries and Related Expenses

(a) Architect		= $10,000	
(b) Chief Br. Engr.	400 hrs. @ 9.50 =	3,800	
(c) Br. Des. Engr.	1,800 hrs. @ 8.50 =	15,300	
(d) Senior Engr.	2,600 hrs. @ 7.50 =	19,500	
(e) Junior Engr.	2,800 hrs. @ 6.50 =	18,200	
(f) Draftsmen	3,000 hrs. @ 5.50 =	16,500	
(g) Typists	200 hrs. @ 3.00 =	600	
(h) Reports	200 hrs. @ 7.00 =	1,400	
(i) Conferences	300 hrs. @ 9.00 =	2,700	
(j) Field Investigation	360 hrs. @ 9.00 =	3,240	
			$ 91,24

2. Payroll Burden & Fringe Benefits

(a) 20% of Salaries, 91,240 × .2	=	18,248

3. Out of Pocket Expenses

(a) Computer	50 hrs. @ 100.00 =	5,000	
(b) Contingencies	=	5,000	
			10,000

4. Overhead

(a) 80% of Salaries, 91,240 × .8	=	72,992

Form E-126-20M

Oregon State Highway Department
BRIDGE DESIGN SECTION

Sheet 2

Bridge Columbia River Bridge (I-205) County Mult.

Calculations by WJQ Date June 1, 1970 No. 9555

5. Misc. Expenses

(a) Reproduction ---------------- = $750
(b) Communication ---------------- = 200
(c) Travel & Subsistence --------- = 2,500
(d) Perspective Rendering -------- = 5,000

$8,450

6. Profit

(a) 15% all costs = 30,140

Sub Total = $231,070

7. Foundation Investigation & Report

(a) Min. Explorations
    1. North side to river = $17,050
    2. Main Channel Spans = 16,800
    3. Main channel span to So. end = 16,000
    4. 50 samplings for water content = 1,250
(b) Mobilization = 1,000
(c) Drilling Overhead for above (20%) = 10,400
(d) Office charges (testing, analysis, report & consultation) = 12,500
(e) Administration & Management = 7,500
(f) Contingencies (10% of above) = 8,250

$90,750

2A
Mult
9555

Columbia River Bridge (I-205)
5-28-70

ESTIMATE COST OF FOUNDATION INVESTIGATION AND REPORT

A. North Side to River	
18 holes @ 75' = 1350' @ 12^{00} =	$16,200
40 split tube tests, 40 @ 10^{00} =	400
18 pile tests, 18 @ 25^{00} =	450
	$17,050
B. Main Channel Spans	
8 holes x 100' = 800' @ 20^{00}/ft =	16,000
80 split tube tests, 80' @ 10^{00} =	800
	16,800
C. Main Spans to South End	
10 holes x 100' = 1000' @ 15^{00}/ft =	15,000
100 split tube tests, 100 @ $$10^{00}$ =	1000
	16,000
D. 50 Samples for water content	
50 @ 25^{00} =	1250
E. Mobilition	1000
Subtotal A-E	52,100
Drilling Overhead, 20%	10,400
	62,500
Office charges (includes testing, analysis, report and consultation) 20% X 62,500 =	12,500
	75,000
Administration & Management of Foundation Investigation 10% X 75,000 =	7500
Sub total	82500
10% Contingencies	8250
Total	90,750

Form [illegible]

Oregon State Highway Department
BRIDGE DESIGN SECTION

Sheet 3

Bridge Columbia River Bridge (I-205) County Mult.

Calculations by WJQ Date July 21, 1970 File No. 9555

Final Design Cost - Concrete Design

A. Estimated Construction cost of bridge = $46,500,000

B. Estimated total design cost based on 2.8 man-hr. per $1,000 of const. cost and salaries of $6^{\underline{50}}$/hr.

C. Estimated break down of total design cost:

10% Preliminary design
81% Design, plans, spec's., estimates
9% Check shop and construction drawings

1. Design, Plans, Spec's., Estimates

(a) Salaries = (46,500 × 2.8 × 6.5) 0.81 = \$685,503
(b) Overhead = 53% salaries = 363,317
(c) Misc. Costs = 6,500
(d) Profit = 15% all costs = 158,298

\$1,213,61

2. Check Shop and Const. Drwgs.

(a) Salaries = (46,500 × 2.8 × 6.5) 0.09 = \$76,167
(46,500 × 2.8 × .09) = 11,718 man-hrs.
(b) Overhead = 53% salaries = 40,368
(c) Profit = 15% all costs = 17,480

134,015

Final Design Cost = \$1,347,63

Oregon State Highway Department
BRIDGE DESIGN SECTION

Sheet 4

Bridge Columbia River Bridge (I-205) Mult.
Calculations by WJQ Date July 21, 1970 9555

Final Design Cost - Steel Design

A. Estimated construction cost of bridge = $49,000,000

B. Estimated total design cost based on 2.8 man-hrs. per $1,000 of const. cost and salaries of $6.50/hr.

C. Estimated breakdown of total design cost:

- 10% Preliminary design
- 83% Design, plans, spec's., estimates
- 7% Check shop and construction drawings.

1. Design, Plans, Spec's., Estimates

(a) Salaries = (49,000 x 2.8 x 6.5)0.83 = $740,194
(b) Overhead = 53% salaries = 392,303
(c) Misc. Costs = 6,500
(d) Profit = 15% all costs = 170,850

$1,309,84

2. Check Shop and Const. Drwgs.

(a) Salaries = (49,000 x 2.8 x 6.5)0.07 = 62,426
(49,000 x 2.8 x .07) = 9,604 man-hrs.
(b) Overhead = 53% salaries = 33,086
(c) Profit = 15% all costs = 14,327

109,83

Final Design Cost = $1,419,68

Form E-13[illegible] 20M

Oregon State Highway Department
BRIDGE DESIGN SECTION

Sheet 5

Bridge Columbia River Bridge (I-205) County Mult.

Calculations by WJQ Date July 21, 1970 Bridge No. 9555

Final Design Cost - Combined Design

A. Estimated construction cost of bridge = $45,500,000

B. Estimated total design cost based on 2.8 man-hrs. per $1,000 of const. cost and salaries of $\$6^{\underline{50}}$/hr.

C. Estimated breakdown of total design cost:

10% Preliminary design
83% Design, plans, spec's., estimates
7% Check shop and construction drawings

1. Design, Plans, Spec's., Estimates

(a) Salaries = (45,500 × 2.8 × 6.5)0.83 = $687,323
(b) Overhead = 53% salaries = 364,281
(c) Misc. costs = 6,500
(d) Profit = 15% all costs = 158,716

$1,216,82

2. Check Shop and Const. Drwgs.

(a) Salaries = (45,500 × 2.8 × 6.5)0.07 = 57,967
(45,500 × 2.8 × .07) = 8,918 man-hrs.
(b) Overhead = 53% salaries = 30,722
(c) Profit = 15% all costs = 13,303

101,99

Final Design Cost = $1,318,81

6

Columbia River Bridge (I-205) Mult

WJO July 21, 9555

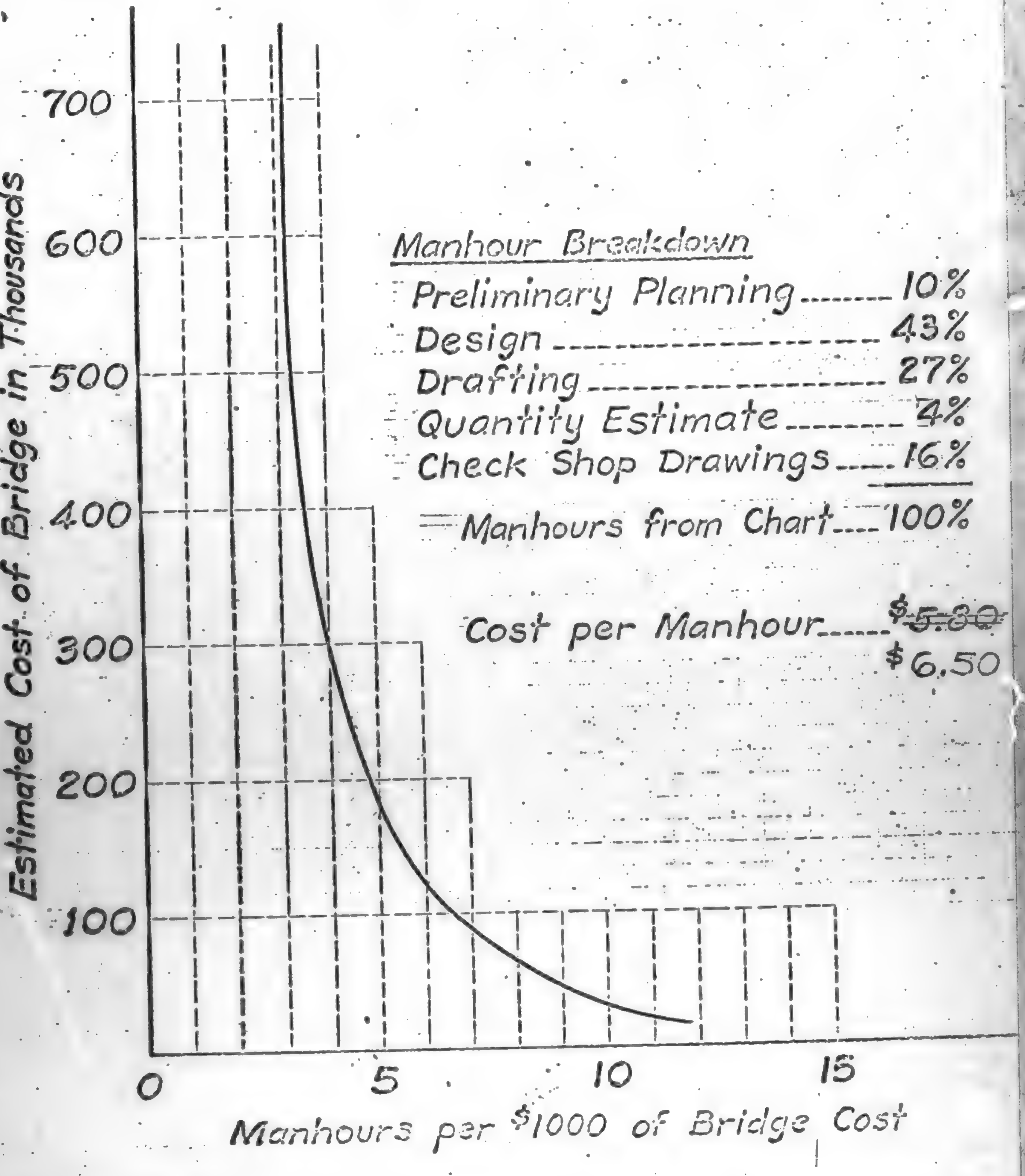
SUPPLEMENTAL FOUNDATION IVESTIGATION

ITEM	UNIT & QUANTITY	UNIT PRICE	AMOUNT
(a) Mobilization & Demobilization for Land Drilling	All	L.S.	$1000
(b) Mobilization & Demobilization for Water Drilling	All	L.S.	2500
(c) Land Drilling	500 L. Ft	*17.00 per L. Ft	8500
(d) Water Drilling	700 L. Ft	*28.00 per L. Ft	19600
(e) Split Tube Sampling	100 only	*14.00 per each	1400
(f) Analysis of split tube sampling for water content, gradation & Atterburg Limits	25 only	*35.00 per each	875
(g) Undisturbed Samples	5 only	25.00 per each	125
(h) Analysis of Undisturbed Samples (10% Items a-g.)	All	L.S.	3400
(i) Report (10% Items a-h)	All	L.S.	3740
Total Supplemental Foundation Investigation			$41,140

* Use unit prices from estimate of foundation cost of 5-28-70 Sheet 2A for Drilling Overhead, 10% for Administrative Costs and 10% for Contingencies.

Oregon State Highway Department
BRIDGE DESIGN SECTION

Sheet 7
Bridge Time Required for Bridge Design
County
Calculations by Wood
Date Aug. 23, 1967
Section No.



Manhour Breakdown

Preliminary Planning 10%
Design 43%
Drafting 27%
Quantity Estimate 4%
Check Shop Drawings 16%
Manhours from Chart 100%

Cost per Manhour .... ~~$5.80~~ $6.50

APPENDIX A

OREGON STATE HIGHWAY DEPARTMEI
BRIDGE DIVISION

ESTIMATE SHEET

Bridge Name Columbia River Br. County Mult. Bridge No. 9555
Section and Station ______ Highway I-205
Estimate Made By WJO Date 5-27-70 Checked By ______ Date ______
Description

Estimate From (Strike out the ones which do not apply) { No plans / Sketch / Completed plans; Drawing No. } Post-tensioned RCBG

Calculation Book No. ______ Loading ______

ITEMS	UNIT	QUANTITIES Substruct.	Superstruc.	Total	COST Rate	Amount
Shoring, Cribbing Etc.	All	-	-	-	-	
Structural Excavation	Cu. Yd.		-			
Excavation Below Elevation Shown	Cu. Yd.		-			
Untreated Timber Piling	Lin. Ft.		-			
Treated Timber Piling	Lin. Ft.		-			
Steel Piling	Lin. Ft.		-			
Prestr. Conc. Piling	Lin. Ft.		-			
Drive Timber Piling	Each		-			
Drive Steel Piling	Each		-			
Splice Steel Piles	Each		-			
Drive Prestressed Concrete Piling	Each		-			
Class "A" Concrete	Cu. Yd.					
Concrete	Cu. Yd.		-			
Metal Reinforcement	Lbs.					
Lumber	F.B.M.					
Structural Steel	Lbs.					
Structural Steel	Lbs.					
Prestr. Conc. Slabs	Each	-				
Prestr. Conc. Slabs	Each	-				
Prestr. Conc. Slabs	Each	-				
Prestr. Conc. Slabs	Each	-				
Type Prestr. Conc. Beams	Each	-				
Type Prestr. Conc. Beams	Each	-				
Type Prestr. Conc. Beams	Each	-				
Type Prestr. Conc. Beams	Each	-				
Type Prestr. Conc. Beams	Each	-				
Metal Parapet Rail #	Lin. Ft.	-				
Metal Parapet Rail #	Lin. Ft.	-				
Approach Spans 136 x 6,079 = 826,744 □'					38^{10}	31,4
Main Spans 136 x 1,500 = 204,000 □'					73^{53}	14,9
Removal of old Bridge	All	-	-	-	-	
Maintenance of Traffic	All	-	-	-	-	

Subtotal ______ 45,[illegible]
Plus ______ Per Cent For Engineering & Contingencies
TOTAL COST $ ______

OREGON STATE HIGHWAY DEPARTMENT
BRIDGE DIVISION

ESTIMATE SHEET

Bridge Name Columbia River Br. County Mult. Bridge No. 9555
Section and Station ______ Highway I-205
Estimate Made By WJO Date 5-27-70 Checked By ______ Date ______
Description

Main Spans - Steel Box Girders
Approach Spans - Steel Girders

Estimate From (Strike out the ones which do not apply) { No plans / Sketch / Completed plans; Drawing No.

Loading ______

Calculation Book No. ______

ITEMS	UNIT	QUANTITIES Substruct.	Superstruc.	Total	COST Rate	Amount
Shoring, Cribbing Etc.	All	-	-	-	-	
Structural Excavation	Cu.Yd.		-			
Excavation Below Elevation Shown	Cu.Yd.		-			
Untreated Timber Piling	Lin.Ft.		-			
Treated Timber Piling	Lin.Ft.		-			
Steel Piling	Lin.Ft.		-			
Prestr. Conc. Piling	Lin.Ft.		-			
Drive Timber Piling	Each		-			
Drive Steel Piling	Each		-			
Splice Steel Piles	Each		-			
Drive Prestressed Concrete Piling	Each		-			
Class "A" Concrete	Cu.Yd.					
Concrete	Cu.Yd.		-			
Metal Reinforcement	lbs.					
Lumber	F.B.M.					
Structural Steel	lbs.					
Structural Steel	lbs.					
Prestr. Conc. Slabs	Each	-				
Prestr. Conc. Slabs	Each	-				
Prestr. Conc. Slabs	Each	-				
Prestr. Conc. Slabs	Each	-				
Type Prestr. Conc. Beams	Each	-				
Type Prestr. Conc. Beams	Each	-				
Type Prestr. Conc. Beams	Each	-				
Type Prestr. Conc. Beams	Each	-				
Type Prestr. Conc. Beams	Each	-				
Metal Parapet Rail #	Lin.Ft.	-				
Metal Parapet Rail #	Lin.Ft.	-				
Approach Spans	136 x 6,079 = 826,744#				42^{50}	34,888,5
Main Spans	136 x 1,500 = 204,000#				68^{70}	14,014,
Removal of old Bridge	All	-	-	-	-	
Maintenance of Traffic	All	-	-	-	-	
Subtotal						48,903,3
Plus ______ Per Cent For Engineering & Contingencies						
TOTAL COST $						

OREGON STATE HIGHWAY DEPARTME
BRIDGE DIVISION

ESTIMATE SHEET

Bridge Name Columbia River Br. County Mult. Bridge No. 9555
Section and Station ____ Highway I-205
Estimate Made By WJO Date 5-27-70 Checked By ____ Date ____
Description

Main Spans - Steel Box Girders
Approach Spans - Post-tensioned RCBG

Estimate From (Strike out the ones which do not apply)
No plans
Sketch
Completed plans; Drawing No.

Calculation Book No. ____ Loading ____

ITEMS	UNIT	QUANTITIES			COST	
		Substruct.	Superstruc.	Total	Rate	Amount
Shoring, Cribbing Etc.	All	-	-	-	-	
Structural Excavation	Cu.Yd.		-			
Excavation Below Elevation Shown	Cu.Yd.		-			
Untreated Timber Piling	Lin.Ft.		-			
Treated Timber Piling	Lin.Ft.		-			
Steel Piling	Lin.Ft.		-			
Prestr. Conc. Piling	Lin.Ft.		-			
Drive Timber Piling	Each		-			
Drive Steel Piling	Each		-			
Splice Steel Piles	Each		-			
Drive Prestressed Concrete Piling	Each		-			
Class "A" Concrete	Cu.Yd.					
____ Concrete	Cu.Yd.		-			
Metal Reinforcement	Lbs.					
____ Lumber	F.B.M.					
Structural ____ Steel	Lbs.					
Structural ____ Steel	Lbs.					
Prestr. Conc. Slabs	Each	-				
Prestr. Conc. Slabs	Each	-				
Prestr. Conc. Slabs	Each	-				
Prestr. Conc. Slabs	Each	-				
Type ____ Prestr. Conc. Beams	Each	-				
Type ____ Prestr. Conc. Beams	Each	-				
Type ____ Prestr. Conc. Beams	Each	-				
Type ____ Prestr. Conc. Beams	Each	-				
Type ____ Prestr. Conc. Beams	Each	-				
Metal Parapet Rail #	Lin.Ft.	-				
Metal Parapet Rail #	Lin.Ft.	-				
Approach Spans	136 × 6,079 =	826,744 □'			38^{10}	31,493,
Main Spans	136 × 1,500 =	204,000 □'			68^{70}	14,014,
Removal of old Bridge	All	-	-	-	-	
Maintenance of Traffic	All	-	-	-	-	

Subtotal ____ 45,51

Plus ____ Per Cent For Engineering & Contingencies

TOTAL COST $ ____

1

I205 Columbia R

W. J. Q. 5-20-70

Prefix 626-1909-906

Main Span. per 68' Rdwy 450'-600'-450'

AT HAUNCH

T.F. 3½ X 102" 1212

BF 3½ X 102" 1212

2 Web (2) ½" X 372" 1264

3688 #/ft.

Misc. 18% 660

4348 #/ft (2 Boxes) = 8696 #

Stringers 24 W=68
68 (5) = 340 #

Floor Bm. 300 #/ft / 25' span (54') = 680

Misc 18% 122

1142 1142 #

AT MIDSPAN

T.F. 2¾ X 102 260
694

BF. 2¾ X 102 954

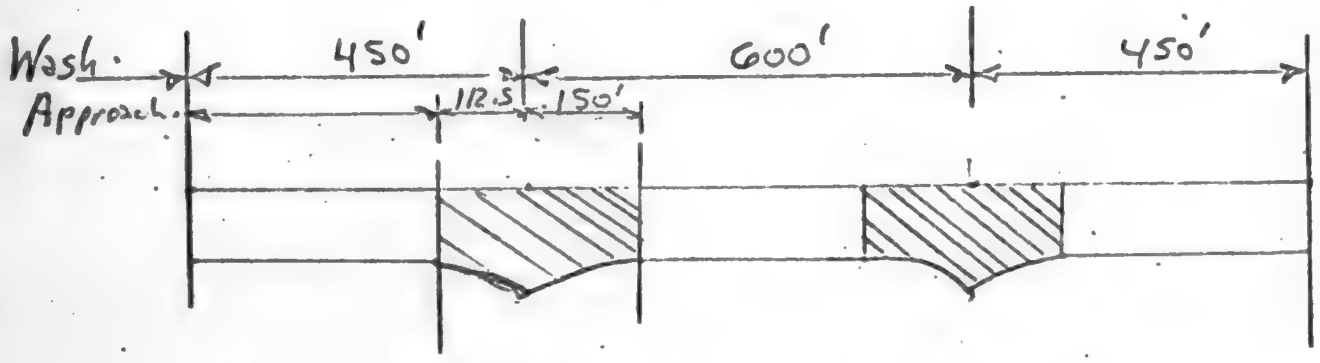
2 Web (2) ½" X 240" 808

2716 #/ft

Misc 18% 490

3206 #/ft (2 Boxes) = 6412 #

Per 68' Rdwy


Wash.
Approach.
450'
112.5'
150'
600'
450'

Ave. Wt steel Haunch Section

8696
6412
15108 ÷2 = 7550#
plus. 1142
8692#/ft (1125+150) = 2281600
2,281,600

Ave wt. steel Normal Section

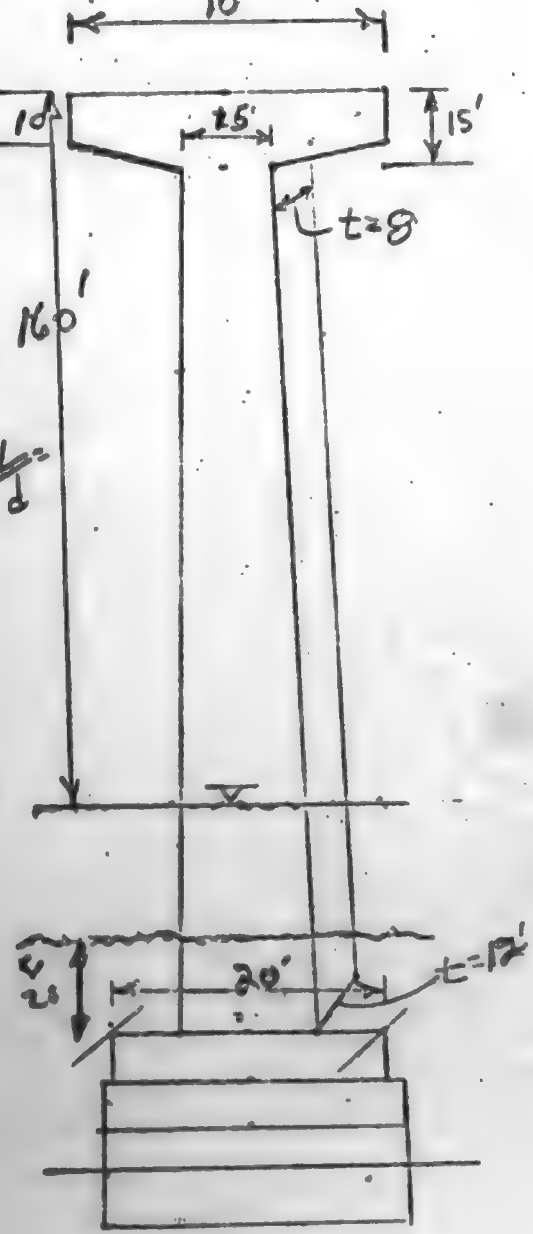
6412#/ft.
plus. 1142
7554#/ft. (675+300) 975 = 7,365,150
11,928,350#

Conc. deck (.666)(71.5)(1500) = 71,500 cf.

Rail 2.83 cf/ft (1500)(2) = 8,450

Fillet (8)(2)(.16)(1500) = 3840
83,790 cf = 3100 cy

Rebars. 3,100 (250) = 772,000#



Total. wt. 11,928,350#

83,770cf(150#)= 12,565,000#

23,493,350# ÷ 1500' = 15.7 k/Lin' ft.

R_1 = 15.7(450)(.4) = 2820 k

R_2 = 15.7(450)(.6) = 4240 k

15.7(600)(.5) = 4720 k

8960 k

R_2 LL =

.(640)(1.1)(270+300 $\overset{570}{}$) = 402 k

26 k

428 k/Lane

3Lanes (428) = 1280 k

Subtotal 10,240 kips

wt. "X" Bm.

8(70)(12.5)(.150) = 105 k

Col.

15(8) = 120

20(12) = 240

360 ÷ 2 = 180 ft²(195)(.150) = 5250 k

R_T = 15490

No piles = $\frac{15490}{190}$ = 82

Say 100 piles

10 rows of 10

Footing 40 x 40 x 10 x (.22) = ~~904~~ 1400 k

Seal 42 x 42 x $\frac{37}{2}$ (.22) = 2860

4260

R = 15490

4260

~~19,754~~ k

19750

No piles = $\frac{\overset{19750}{\cancel{19,754}}}{190}$ = 104 piles

Bent Quantities

X Bm 70'(12.5)(8) = 7000 ft^3

Pier 180(195) = 35000 ft^3

Footing 40 x 40 x 10 16000 ft^3

58,000 ft^3 2150 yd^3

Rebars 2150(150) = 322,000 #

Seal, 42 x 42 x 19.0) = 33,500 ft^3 1240 yd^3

Excavation 44(44)(50) = 196,600 ft^3 3580 yd^3

3 pier per main span.

Conc, 2150(3) = 6450 yd^3

Rebars 322000 (3) = 966,000 #

Seal Conc. 1240 (3) = 3720 yd^3

Excavation 3580 (3) = 10,750 yd^3

Piles 100 (50) = 5000' (3) = 15000 ft

No 100 (3) = 300

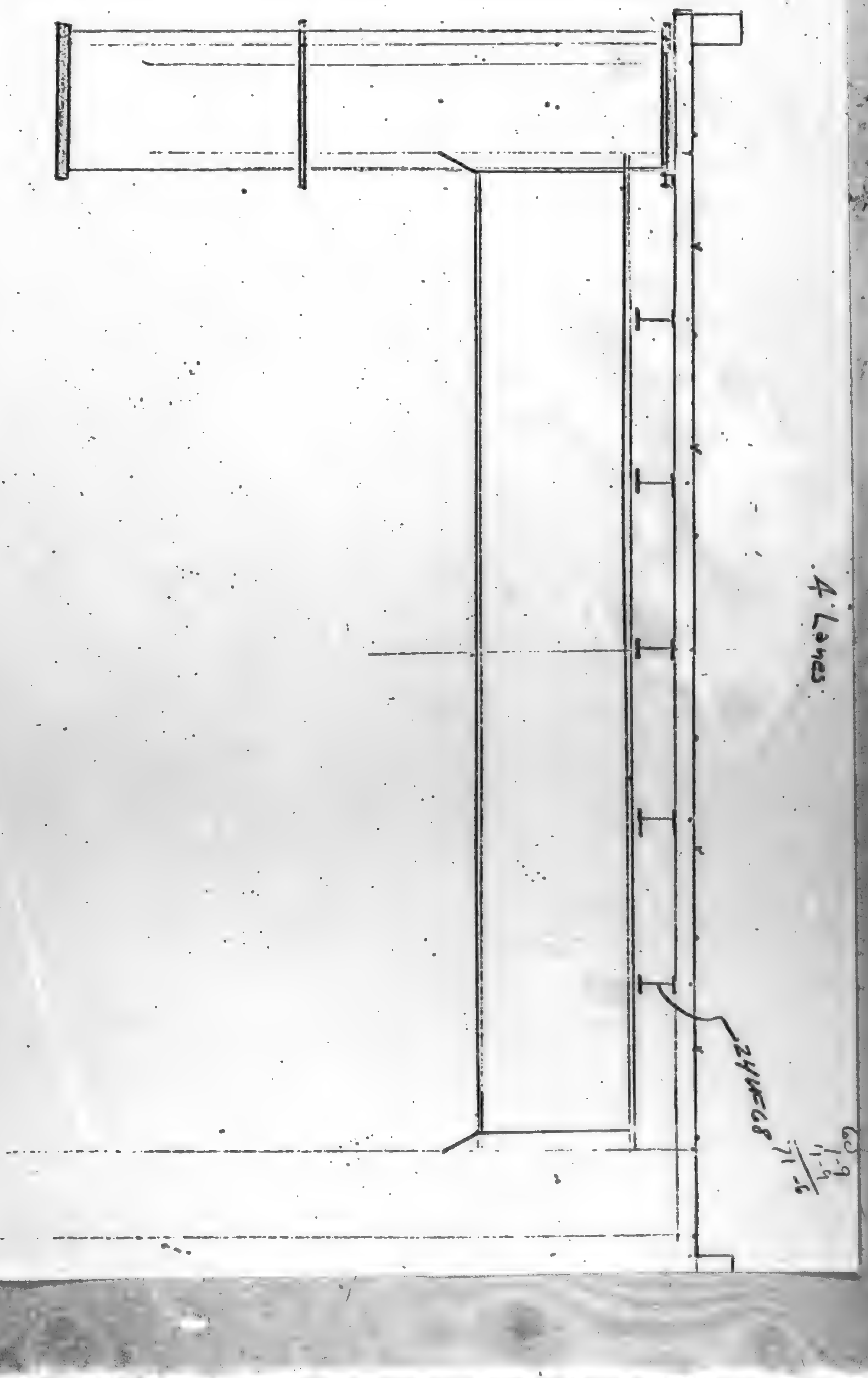
Form No.

Oregon State Highway Department
BRIDGE DESIGN SECTION

Sheet 55

Bridge .... County ....

Calculations by .... Date .... Bridge No. ....


4 Lanes
24WF68
1-9
1-9
71-6
Scale 1/8" = 1'-0"

Main Span. All Steel Box Girder

		Ore. 82.1	Wash 17.9
Str. Excav.	CY	8,825	1925
Steel Pile	Lin ft.	12,315	2685
Drive St. Pile	ea.	246	54
Class A Conc.	CY	7840	1710
Seal Conc.	CY	3054	666
Metal Reinforc	#	1,426,900	311,100
Metal Rail	Lin ft.	2460	540
Crib. & Shoring	All	82.1%	17.9%
Str. Steel.		9,793,100	2,135,200

OREGON STATE HIGHWAY DEPARTMENT
BRIDGE DIVISION
PRELIMINARY
ESTIMATE SHEET

Bridge Name I205 Over Columbia R County______ Bridge No.______
Section and Station______ Highway______
Estimate Made By W TO Date______ Checked By______ Date______
Description MAIN SPAN

Estimate From (Strike out the ones which do not apply) { No plans / Sketch / Completed plans; Drawing No.

Calculation Book No.______ Loading______

ITEMS	UNIT	QUANTITIES			COST	
		Substruct.	Superstruc.	Total	Rate	Amount
Shoring, Cribbing Etc.	All	-	-	-	-	10,000
✓ Structural Excavation	Cu.Yd.	10750	-	10,750	7.50	80,600
Excavation Below Elevation Shown	Cu.Yd.		-			
Untreated Timber Piling	Lin.Ft.		-			
Treated Timber Piling	Lin.Ft.		-			
✓ Steel Piling 14BP73	Lin.Ft.	15,000	-	15,000	6.00	90,000
Prestr. Conc. Piling	Lin.Ft.		-			
Drive Timber Piling	Each		-			
✓ Drive Steel Piling 14BP73	Each	300	-	300	200	60000
Splice Steel Piles	Each		-			
Drive Prestressed Concrete Piling	Each		-			
✓ Class "A" Concrete	Cu.Yd.	6450	3100	9550	100	955000
Seal Concrete	Cu.Yd.	3720	-	3720	40	148,800
✓ Metal Reinforcement	lbs.	966,000	772,000	1,738,000	.15	260,70[illegible]
Lumber	F.B.M.					
✓ Structural A5[illegible] Steel	lbs.	—	11,920,350	11,920,350	.45	5,367,75
Structural Steel	lbs.					
Prestr. Conc. Slabs	Each	-				
Prestr. Conc. Slabs	Each	-				
Prestr. Conc. Slabs	Each	-				
Prestr. Conc. Slabs	Each	-				
Type Prestr. Conc. Beams	Each	-				
Type Prestr. Conc. Beams	Each	-				
Type Prestr. Conc. Beams	Each	-				
Type Prestr. Conc. Beams	Each	-				
Type Prestr. Conc. Beams	Each	-				
✓ Metal Parapet Rail #	Lin.Ft.	-	3000'	3000'	8.0	24000
Metal Parapet Rail #	Lin.Ft.	-				
Cost per ft^2 = $\frac{6{,}996{,}850}{1500(68)}$ = \$68.70/ft^2						
Removal of old Bridge	All	-	-	-	-	
Maintenance of Traffic	All	-	-	-	-	6,00[illegible]

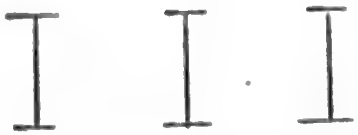
Subtotal______
Plus______ Per Cent For Engineering & Contingencies
TOTAL COST $______

Approach Spans

3 @ 250

Steel Girder

depth. 10'



Assume TF 2 X 24 163

BF 2 X 24 163

Web. 3/8 X 120 153

479 #/ft. + $\overset{18\%}{86}$ = 565 #/ft

wt. deck (.66)(10.66)(.150) = 1.065 k/ft

1.065

1,630 k/ft

DL. Neg. Mom.

$1.63(250)^2(.1) = 10{,}200^{k'}$ ←

L.L. Neg. Mom

S/5.5 1.96 $w = .320(1.96)(1.13) = .708^{k}/ft.$

I ~ 1.13 $P = 9(1.96)(1.13) \sim 19.9$

L.L. Neg. Mom.

$.708(250)^2(.1) = 4450^{k'}$

$19.9^{k}(250)(.18) = 895^{k'}$

$5345^{k'}$ ←

Neg. Mom Total 15545

$I_{web} = 54{,}000\ in^4$

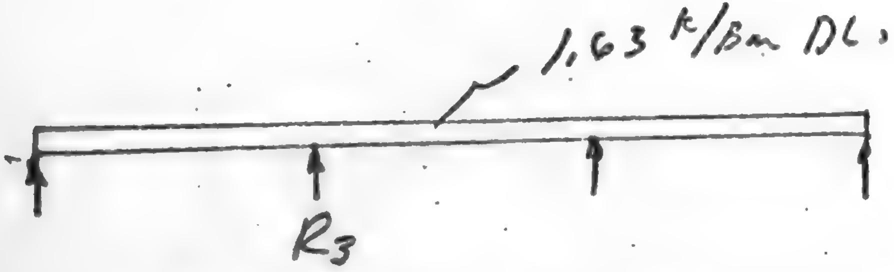
$Ad^2 = (2)48(60)^2 = 345{,}000$

54,000

399,000

$$f = \frac{Mc}{I} = \frac{15545(12)(61)}{345} = 27\ ksi$$ OK

2



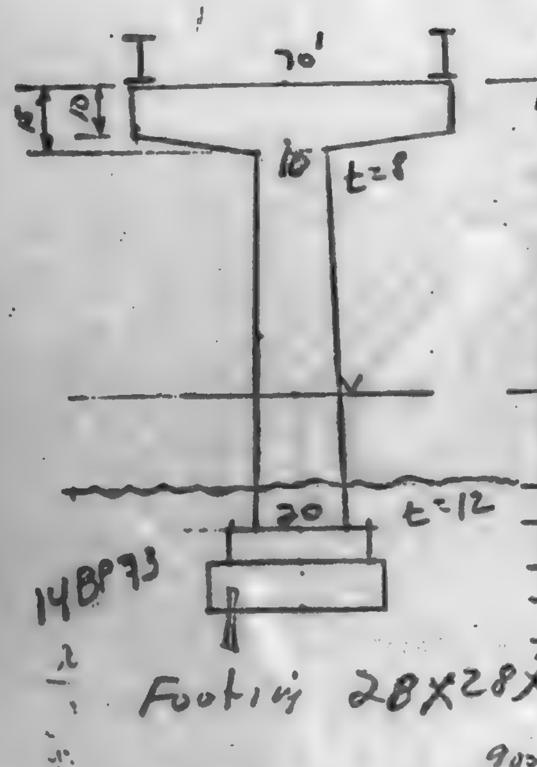
1.63 k/Bm DL.
R3

$R_{3_{DL}} = 1.63(250)(1.1) = 450^{k}(7\,Bm) = 3140^{k}$

$LL = (.640)(1.1)(3)(250) = 528.0$

$26(3) = 78$

606^{k}



70'
8
8
10
t=8
70'
20'
20
t=12
10'
10
10
14BP73

"X" Bm. $70(12.5)(8) = 7000\,ft^3(.15) = 105^{k}$

Pier
$10(8) = 80$
$20(12) = \underline{240}$
$320 \div 2 = 160\,ft^3/ft$
$160(100) = 16{,}000\,cf\,(.150) = 2400^{k}$

No piles $= \dfrac{\overset{6251}{3140 + 606 + 105 + 2400}}{180}$ 35 piles

Say 49

Footing $28 \times 28 \times \overset{7820cf}{10} \times .088 = 690$

Seal $30 \times 30 \times \overset{9000cf}{10} \times .088 = \underline{790}$

1480

No piles $= \dfrac{6251 + \overset{7731}{1480}}{180} \approx 43$

Superstructure

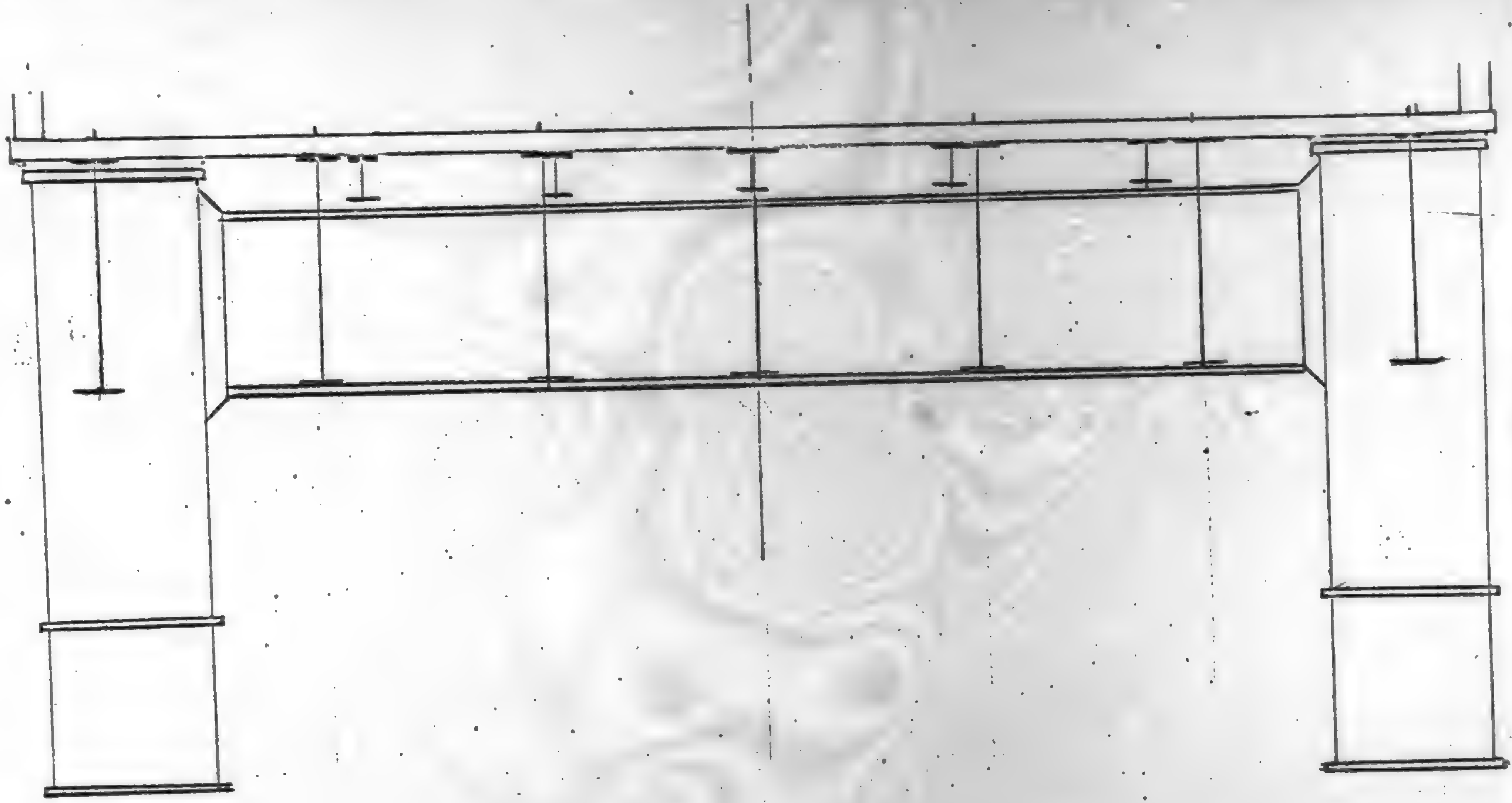
Conc. (.66)(71.5)(750) = 35800 ft^3
Rail 2.38(1500) = 3580 ft.
39 380 ft^3 = 1470 cy

Re bar 1470 (250) = 368,000#

steel 565#/'(7 bms)(750') = 2,950,000#

Substructure.

"X" Bm.	Conc. 7000				
Pier	10010				
Foot.	7820				
	30820 cf	1140 cy	(3)	=	3420
Re-bars	1140 (150) =	171000#	(3)	=	514,000
Seal	334 cy		(3)	=	1000 cy
Excavation	$30 \times 30 \times \frac{30}{27}$ =	1000 cy	(3)	=	3000 cy
No Pile	49		(3)	=	147 ea.
Length	49(50) =	2450'	(3)	=	7350 Lin ft



OREGON STATE HIGHWAY DEPARTMENT
BRIDGE DIVISION

ESTIMATE SHEET

Bridge Name______ County______ Bridge No.______
Section and Station______ Highway______
Estimate Made By______ Date______ Checked By______ Date______
Description Welled Plate Girder 30 250'

Estimate From
(Strike out the ones which do not apply)
No plans
Sketch
Completed plans; Drawing No.

Calculation Book No.______ Loading______

ITEMS	UNIT	QUANTITIES			COST	
		Substruct.	Superstruc.	Total	Rate	Amount
Shoring, Cribbing Etc.	All	-	-	-	-	5000
Structural Excavation	Cu.Yd.		-			
✓ Excavation Below Elevation Shown	Cu.Yd.	3000	-	3000	7.50	22,500
Untreated Timber Piling	Lin.Ft.		-			
Treated Timber Piling	Lin.Ft.		-			
✓ Steel Piling	Lin.Ft.	7350	-	7350	6.00	44,000
Prestr. Conc. Piling	Lin.Ft.		-			
Drive Timber Piling	Each		-			
✓ Drive Steel Piling	Each	147	-	147	200	29,400
Splice Steel Piles	Each		-			
Drive Prestressed Concrete Piling	Each		-			
✓ Class "A" Concrete	Cu.Yd.	3420	1470	4890	100	489,000
✓ Seal Concrete	Cu.Yd.	1000	-	100.0	40	40,000
✓ Metal Reinforcement	lbs.	514,000	368,000	882,000	.15	134,00
Lumber	F.B.M.					
✓ Structural A588 Steel	lbs.		2,950,000	2,950,000	.45	1,325,00
Structural Steel	lbs.					
Prestr. Conc. Slabs	Each	-				
Prestr. Conc. Slabs	Each	-				
Prestr. Conc. Slabs	Each	-				
Prestr. Conc. Slabs	Each	-				
Type Prestr. Conc. Beams	Each	-				
Type Prestr. Conc. Beams	Each	-				
Type Prestr. Conc. Beams	Each	-				
Type Prestr. Conc. Beams	Each	-				
Type Prestr. Conc. Beams	Each	-				
✓ Metal Parapet Rail #	Lin.Ft.	-	1500	1500	8.0	12,000
Metal Parapet Rail #	Lin.Ft.	-				
Cost per ft. 2,145,800 / 750(68) = $42.20/ft						
Removal of old Bridge	All	-	-	-	-	
Maintenance of Traffic	All	-	-	-	-	

Subtotal______ 21
Plus______ Per Cent For Engineering & Contingencies
TOTAL COST $______

I205 Columbia R.

Main Span
Post-tensioned Box Girders

Assume Depth = $\frac{L}{30} = \frac{600}{30} = 20'$

Quantities Superstructure

Deck. (.666)(71.5)(1) = 47.6

Stem 7(2)(18.75)(1) = 262.0

Bot Slab (.666)(66)(1) = 41.4

Fillets (1)$\frac{(.5)(.5)}{2}$ 24 3.0

Rail 5.0

Diaphragm (1)(18.75)(60)(58)

359.0 ft³/ft.(975)

= 350,000 cf
6520 cf.
356,520 cf

Conc. 23600 cy

Rebars 23600 (220#) = 5,192,000 #

Sub structure

"X" Bm. 68(30.0')(.8) = 16300 cf (.150) =

Pier

15 (8) = 120
20 (12) = 240
360 ÷ 2 = 180 ft² (195) = 35,000 ft³

Footing 60 X 40 X 15 = 36,000 ft³

Seal 62 X 42 X 20 = 52000 ft³

~~No Piles~~ Excav. $62 \times 42 \times \frac{52}{27}$ = 5000 cy

At Haunch Section

Ave d = 25'

Deck	.666(71.5)(1)	47.6
Stem.	7(2.5)(23.75)(1)	415.0
Bot. Slab	(1.0)(.66)(1)	66.0
Fillets =		3.0
Rail =		5.0
		536.6 cf/ft.

536.6$(\overset{525}{262.5})$(2) = 282000 cf.

Total Conc. 282,000
356,520
638,520 cf 23,600 cy

wt. 420 (.150) = 63.0^k/ft

R = 63.0^k/ (.6$\overset{270}{(450)}$ + .5$\overset{300}{(600)}$) = 35800^k
570

diaph 18.75 (60) 20 (.150) = 340^k

D.L. 36140^k

LL 1280

"X" Bm. 105

Pier 5250

42775^k

Approx. No piles $\frac{42775}{190}$ = 225
40 Use 260 piles

13
20

Footing size

60' X 39' X 15' =

wt. Foot 36000 (.088) = 3180^k

Seal 52000 (.088) = 4600

7780^k

R_T = 42775
7780
50555

No = $\frac{5055.5}{190}$ = 265 ok

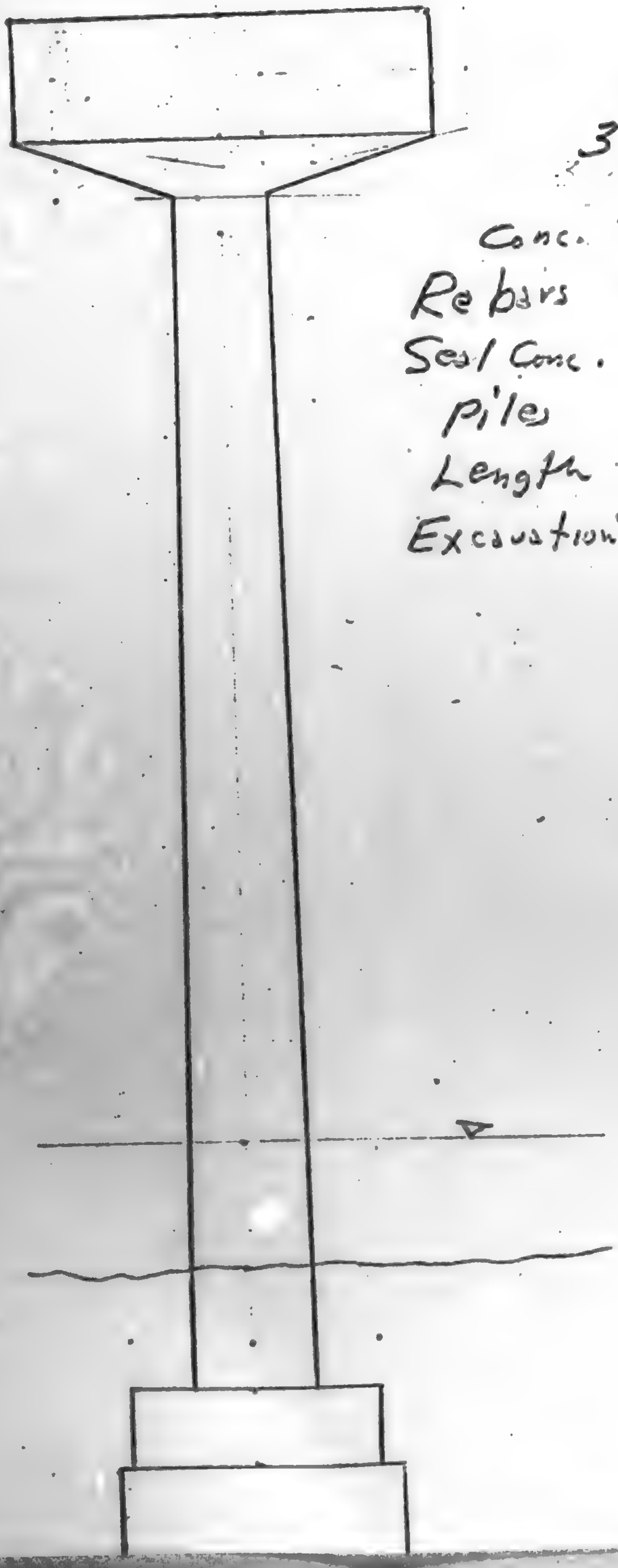
Length = 265 (50) = 15900

Conc. 87300 cf = 3240 cy

Rebars 3240 (150) = 485000#

Seal 52000 cf = 1930 cy

No piles = 265



Substructure.

3 spans = 3 piers

Conc. 3240(3) = 9720 cy.

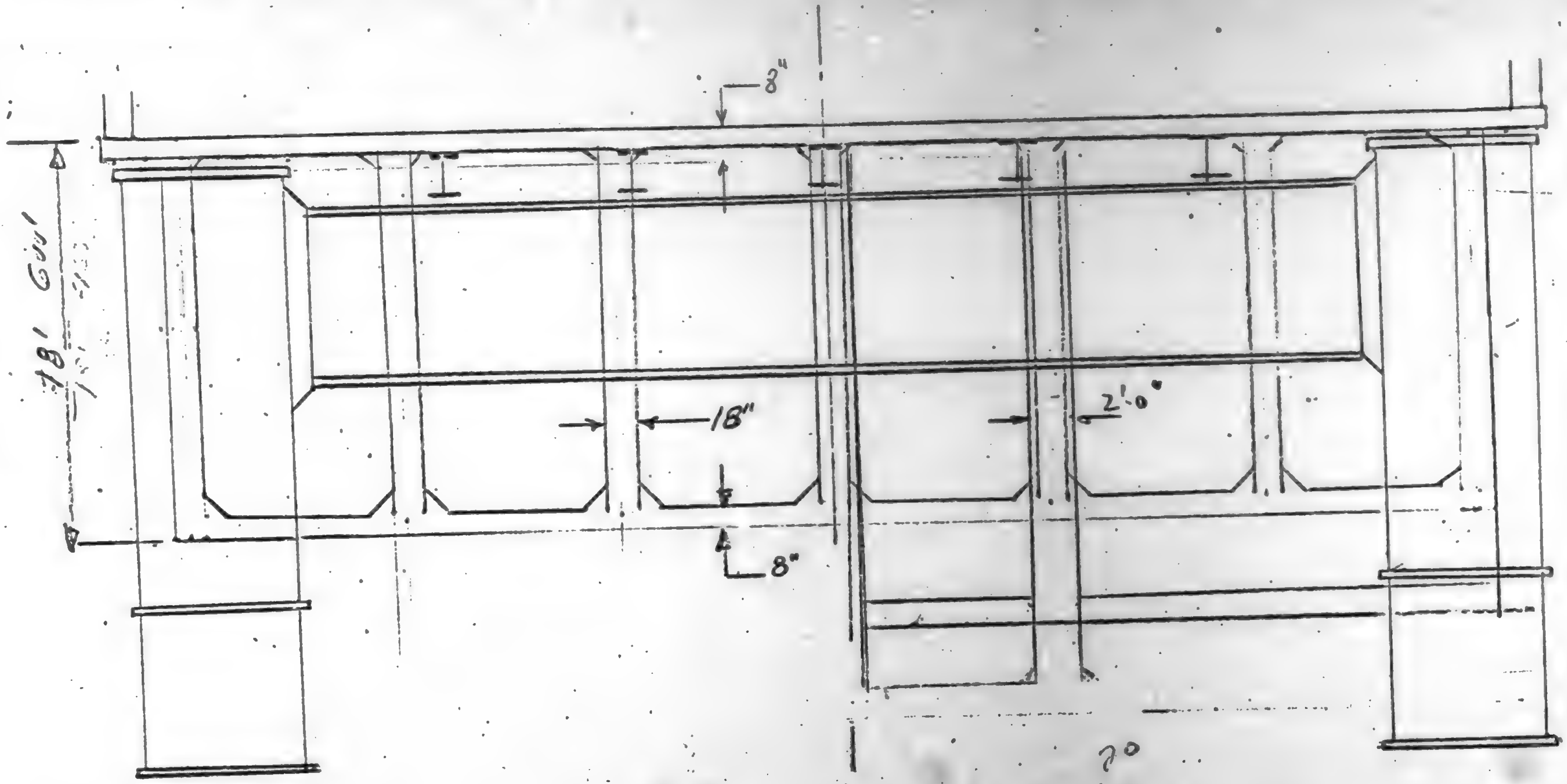
Rebars 485,000(3) - 1,455,000 #

Seal Conc. 1930(3) = 5790 cy

piles 265(3) ~ 795 ea.

Length 15900(3) - 47,700'

Excavation 5000(3) = 15,000 cy



8"
78' Girl
18"
2'0"
8"
20

OREGON STATE HIGHWAY DEPARTMENT
BRIDGE DIVISION

ESTIMATE SHEET

Bridge Name I205 over Columbia R. County_____ Bridge No._____
Section and Station_____ Highway_____
Estimate Made By_____ Date 5-25-70 Checked By_____ Date_____
Description Main Span Post-tension Box Girder

Estimate From (Strike out the ones which do not apply)
- No plans
- Sketch
- Completed plans; Drawing No.

Calculation Book No._____ Loading_____

ITEMS	UNIT	QUANTITIES			COST	
		Substruct.	Superstruc.	Total	Rate	Amount
✓ Shoring, Cribbing Etc.	All	-	-	-	-	500,000
✓ Structural Excavation	Cu.Yd.	12,150	-	12,150	7.50	91,000
Excavation Below Elevation Shown	Cu.Yd.		-			
Untreated Timber Piling	Lin.Ft.		-			
Treated Timber Piling	Lin.Ft.		-			
✓ Steel Piling	Lin.Ft.	22 500	-	22500	6.00	135,000
Prestr. Conc. Piling	Lin.Ft.		-			
Drive Timber Piling	Each		-			
✓ Drive Steel Piling	Each	450	-	450	200	90,000
Splice Steel Piles	Each		-			
Drive Prestressed Concrete Piling	Each		-			
✓ Class "A" Concrete	Cu.Yd.	9720	—	9720	100	972,00
✓ Class AA Concrete	Cu.Yd.		23600	23600	190	4,484,00
✓ Metal Reinforcement	Lbs.	1,455,000	5,192,000	6,647,000	.15	997,050
Lumber	F.B.M.					
Structural Steel	Lbs.					
Structural Steel	Lbs.					
Prestr. Conc. Slabs	Each	-				
Prestr. Conc. Slabs	Each	-				
Prestr. Conc. Slabs	Each	-				
Prestr. Conc. Slabs	Each	-				
Type Prestr. Conc. Beams	Each	-				
Type Prestr. Conc. Beams	Each	-				
Type Prestr. Conc. Beams	Each	-				
Type Prestr. Conc. Beams	Each	-				
Type Prestr. Conc. Beams	Each	-				
✓ Metal Parapet Rail #	Lin.Ft.	-	3000	3000	8.0	24,000
Metal Parapet Rail #	Lin.Ft.	-				
Seal Concrete.	Cu.Yd	5000	—	5000	40	200,000
Removal of old Bridge	All	-	-	-	-	
Maintenance of Traffic	All	-	-	-	-	

$\frac{7,493,500}{1500(.68)} = \$73.50/ft^2$

Subtotal_____ 7,493,50
Plus_____ Per Cent For Engineering & Contingencies
TOTAL COST $_____

I205 Columbia R.

5-22-70

Approach Spans
Post-tensioned Box Girders
3 spans @ 250'

Superstructure

Conc.

deck (.58)(71.5)(1) = 41.5
[9] (1.08)(10)(1) = 97.4
(.668)(65)(1) = 43.4

182.3 ft^3/ft (750) = 136500 cf

Fillets (1)(.33)(.33/2)(32) = 1.75 (750) 1310

Curb 2.38(2) = 4.76 (750) 3560

188 ft^3/ft

141370 cf

diaphragms (.75)(55)(9)(15) = 5570

146,940 cf

5440 cy

Re-bars 5440(220#/cy) = 1,200,000#

Substructure

Conc. XBm = 5100
Pier = 16800
Ftg 11500

33400 cf = 1240 cy (3) = 3720 cy

Rebars 1240(150) = 186000# (3) = 558,000#

Seal 12900 cf = 476 cy (3) = 1430 cy

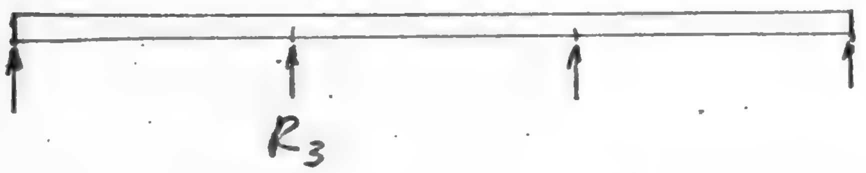
No. Length
Piles 72 X 50 = 3600' (3) = 10,800

Excavation
50 X 40 X 30/27 = 1600 cy. (3) = 4800

Substructure.

Dead Load.

188.3(.150) = 28.3 ^{k}/ft

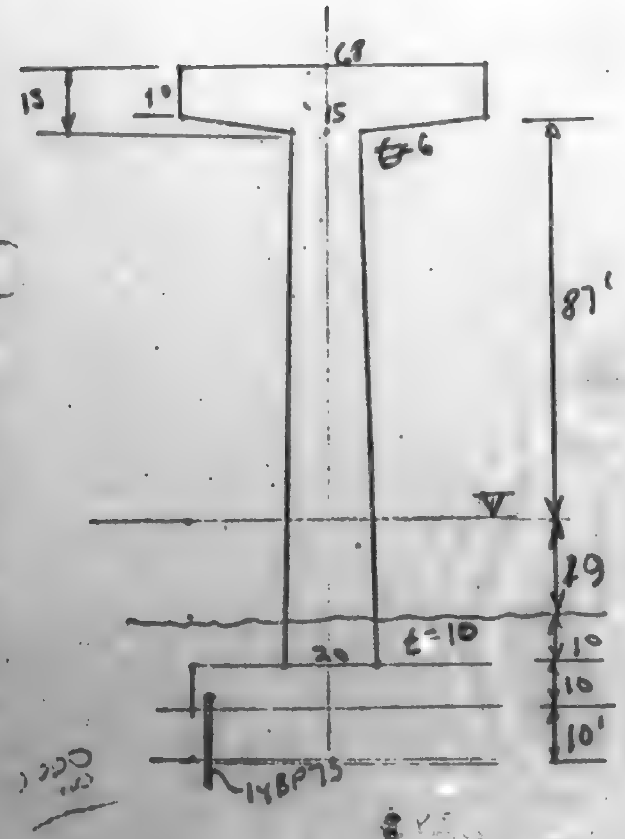


R_3 = 28.3(1.1)(250) = 7780^{K}.

R_{LL}. 528

78

8386^{K}.


68
13
1'0
15
t=6
87'
19
t=10
20
1'0
10
10'
14BP73

"X" Bm.

68(12.5)(6) = 5100 cf (.15) = 765^{k}

pier
6(15) = 90
10(20) = 200
290 ÷ 2 = 145 cf/ft.
1.45(116) = 16,800 cf (.15)
2520^{K}.

No Piles ≐ $\frac{8396 + 76 + 2520}{180}$

= $\frac{10,982}{180}$ = 61

Say 72

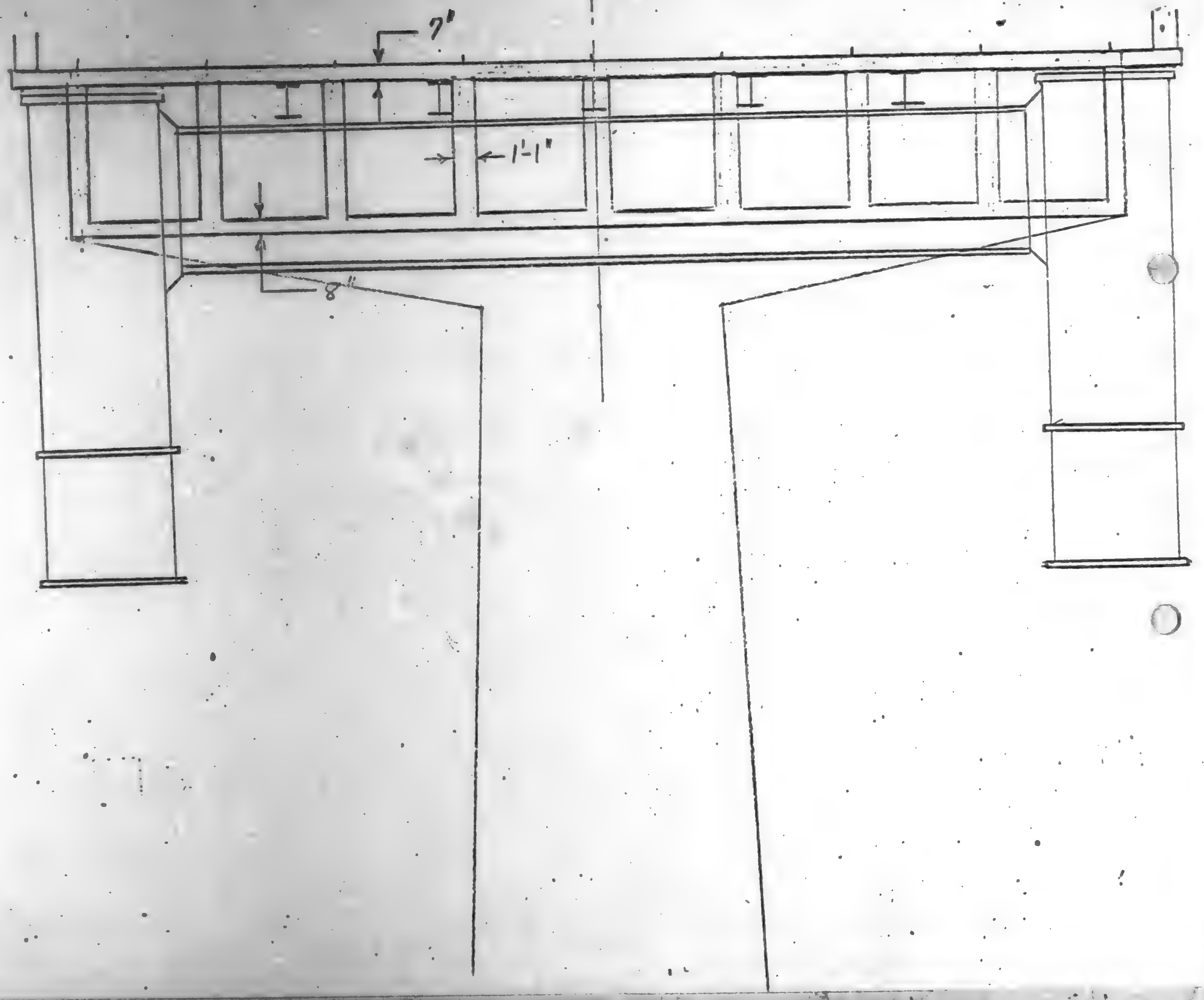
11500 cf
Footing 32 × 36 × 10 × .088 = 1010^{k}

12900
Seal. 34 × 38 × 10 × .088 = 1135^{k}.

13127
No piles = $\frac{10982 + 1010 + 1135}{180}$

≐ 73 OK

Re-bars = 230#/CY



OREGON STATE HIGHWAY DEPARTMENT
BRIDGE DIVISION

ESTIMATE SHEET

Bridge Name________ County________ Bridge No.________
Section and Station________ Highway________
Estimate Made By________ Date________ Checked By________ Date________
Description 3 @ 250' Post-tensioned Box Girders
Approach Spans.

Estimate From (Strike out the ones which do not apply) { No plans / Sketch / Completed plans; Drawing No.

Calculation Book No.________ Loading________

ITEMS	UNIT	QUANTITIES			COST	
		Substruct.	Superstruc.	Total	Rate	Amount
✓ Shoring, Cribbing Etc.	All	-	-	-	-	100,000
Structural Excavation	Cu.Yd.	4800	-	4800	7.50	36,000
✓ Excavation Below Elevation Shown	Cu.Yd.		-			
Untreated Timber Piling	Lin.Ft.		-			
Treated Timber Piling	Lin.Ft.		-			
✓ Steel Piling	Lin.Ft.	10800	-	10800	6.00	64,80
Prestr. Conc. Piling	Lin.Ft.		-			
Drive Timber Piling	Each		-			
✓ Drive Steel Piling	Each	216	-	216	200	129,50
Splice Steel Piles	Each		-			
Drive Prestressed Concrete Piling	Each		-			
✓ Class "A" Concrete	Cu.Yd.	3720	—	3720	100	372,00
Class AA Concrete	Cu.Yd.		5440	5440	170	925,00
✓ Metal Reinforcement	Lbs.	558,000	1,200,000	1,758,000	.15	262,00
Lumber	F.B.M.					
Structural Steel	Lbs.					
Structural Steel	Lbs.					
Prestr. Conc. Slabs	Each	-				
Prestr. Conc. Slabs	Each	-				
Prestr. Conc. Slabs	Each	-				
Prestr. Conc. Slabs	Each	-				
Type Prestr. Conc. Beams	Each	-				
Type Prestr. Conc. Beams	Each	-				
Type Prestr. Conc. Beams	Each	-				
Type Prestr. Conc. Beams	Each	-				
Type Prestr. Conc. Beams	Each	-				
✓ Metal Parapet Rail #	Lin.Ft.	-	1500	1500	8.0	12,000
Metal Parapet Rail #	Lin.Ft.	-				
Seal Conc	CY	476		476	40	19,04
Cost per ft.						
1,940,340 / 750 (ft) = $38.10/ft²						
Removal of old Bridge	All	-	-	-	-	
Maintenance of Traffic	All	-	-	-	-	

Subtotal________ 1,940,4
Plus________ Per Cent For Engineering & Contingencies
TOTAL COST $________

8905

- Consult.

RECEIVED
JUL 22 1970
FOR FILING

July 21, 1970

Mr. R. E. Simpson, Division Engineer
Bureau of Public Roads
Post Office Box 300
Salem, Oregon 97308

Dear Mr. Simpson:

Re: Columbia River Bridge
Oregon Project I-205-7(2)303
Your Ref. 08-15-HC

Reference is made to your July 8 memo concerning our proposed agreement for consulting work on the subject project. Confirming telephone conversations between Mr. Green and Mr. Gardner, the agreement forwarded to you June 16, 1970, is being revised to encompass both preliminary and final design. The agreement you have now covering preliminary work only is void, and a revised agreement will be forwarded in the near future.

Your July 8 comments will be incorporated into the preliminary phase of the revised agreement as follows:

1. A sentence has been added to the last paragraph of I.A.1, requiring the consultant to give special attention to studies for substructures for each type to the end that they are compatible aesthetically with the superstructure proposed.

Paragraph I. A. 1(e) has been corrected per your suggestion.

2. I do not think it necessary to require the consultant to employ an outside firm when he may have in-house associates or personnel with experience in this type of design and construction and capable of doing the work. Interviews with selected consultants indicate they do have or will employ such personnel, associates or firms. We will require the consultant to furnish sufficient data on personnel or associates that he proposes to use to enable both the State and the BPR to make an evaluation of the personnel or associates.

3. Paragraph I.A. 3 will be revised per your suggestion.

4. Paragraph I.A. 5 (d) will be corrected per your suggestion.

5. Paragraph I. A. 5 will be corrected per your suggestion.

6. I consider coordination of work with outside agencies such as the Port of Portland, the Corps of Engineers, Coast Guard, etc., a responsibility of the State and will keep the consultant advised.

7. If any revisions to the Coast Guard permit are required, the State will handle the matter.

8. Paragraph IV 2 will be corrected per your suggestion.

9. We will advise you as to where the work will be available for review.

10. We are aware of BPR regulations covering the matter of changes.

We are currently negotiating with Sverdrup & Parcel and Associates, Inc., for an offer on the work. We hope to have an agreement in final form soon after a conference scheduled for Thursday, July 23. If a satisfactory agreement is reached, we will furnish copies for your consideration as soon after the conference as is practical.

Very truly yours,

R. L. Porter
State Highway Engineer

By

A. E. Johnson
Assistant State Highway Engineer

cc R. L. Porter
Tom Edwards
I. D. Merchant

CAG:dh ms

Form FHWA-121 (12-67)
UNITED STATES GOVERNMENT

Memorandum

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
Bureau of Public Roads
Box 300
Salem OR 97308

TO : Mr. R. L. Porter, State Highway Engineer
Salem, Oregon
Attention: Mr. I. D. Merchant

DATE: July 8, 1970

In reply refer to: 08-35-EC

FROM : R. E. Simpson, Division Engineer
Salem, Oregon

RECEIVED
JUL 13 197
BRIDGE DIVISION

SUBJECT: Oregon Project I-205-7(2)303
Columbia River Bridge

Mr. Merchant's June 16 letter transmitted copies of the proposed consultant agreement for the preliminary studies and foundation investigation for our review. The following are our comments:

1. Although the agreement indicates the consultant is to study and recommend a type of structure, it appears that the consultant will be required under Paragraph I. A. 1. to study only certain types of bridge superstructures. We believe it would be desirable that this paragraph be expanded to include mention of the need for study of type of substructure as well since the type of superstructure recommended will affect the pier design, even though pier locations are limited. Furthermore, considerable attention is now being given to the aesthetics of bridge piers particularly when they are of the size and number as will be required on this project. In Paragraph I. A. 1. (a) we believe it is intended that the study include "concrete or orthotropic steel" decks.

2. We strongly feel that the consultant should be required to employ the services of an expert in prestressed concrete structures of the type defined in Paragraph I. A. 1. (b). Since we believe the consultant should have reasonable experience in the design of these structures in order to qualify for selection, we recommend that Paragraph I. A. 4. indicate that the consultant shall employ the services of engineers having extensive or considerable experience with structures of this type.

3. In Paragraph I. A. 3. we suggest that as Oregon is to engage a consultant mutually satisfactory to both States, the requirement that the architect be Oregon-based be deleted.

4. To provide uniformity with Paragraph IV, Payment, we recommend that Paragraph I. A. 5. (d) be revised to "Analysis of 50 split tube samples for water content, gradation, Atterburg limits." The undisturbed sampling and analysis of undisturbed sampling should be covered under Paragraph I. A. 5.

5. Paragraph I. A. 5. makes no mention of a separate foundation exploration report although a separate payment item has been set up in Paragraph IV. It is recommended that any requirements for such a report be covered in Paragraph I. A. 5.

NOTED
TOM EDWARDS

(more)

NOTED
A. L. JOHNSON

BUY U.S. SAVINGS BONDS REGULARLY ON THE PAYROLL SAVINGS PLAN

6. The agreement should include mention of coordination with the Port of Portland and Corps of Engineers to insure maintenance of proper clearance. However, in view of the type of work the consultant is to perform on this project it may be preferable that this be an obligation of the State as a part of Paragraph II. 2. The State should then keep the consultant advised. State

7. Based on our review of the Coast Guard permit at this site, it is our belief that any changes in the positioning of the piers listed in Exhibit B will require resubmission to the Coast Guard. Accordingly, the limitations discussed in Paragraph I. B. would require revision. We presume any resubmission to the Coast Guard would be the obligation of the State and should be so stated in Paragraph II. State resp.

8. Payment for items 2.d. through 2.h. in Paragraph 4 will be on the basis of actual quantity of work performed. Consequently, the partial payments provision based on percentage of work complete is not appropriate for these items. Provision should be made for partial payments for these items based on actual work accomplished. As these items are variable, we suggest that the quantities be shown as "estimated" rather than "only."

9. III-1 indicates that the consultant's work will be available for State or BPR review. The consultant should indicate the place where such work will be available. State

10. III-11 is concerned with changes in the work. You are reminded that Federal funds cannot participate in any additional work not covered by the original agreement or authorized by the BPR prior to the change.

Except for the above comments we find the proposed agreement to be satisfactory. Following the successful negotiation of the fees with the consultant of your choice please furnish the usual three copies of the completed agreement and supporting data for BPR review and approval.

RECEIVED
JUL 13 197
BRIDGE DIVISION

RECEIVED
JUL 9 1970
OFFICE OF
STATE HIGHWAY ENGINEER

RECEIVED
JUN 22 1970
FOR FILING

OREGON STATE
HIGHWAY DIVISION

HIGHWAY BUILDING • SALEM, OREGON • 97310 • Phone 364-2171

June 16, 1970

Mr. R. E. Simpson
Division Engineer
Bureau of Public Roads
477 Cottage Street N. E.
Salem, Oregon 97310

Dear Mr. Simpson:

I-205 Columbia River Bridge

The Consulting Engineering Committee of the Highway Division has had under consideration for some time a consultant for preliminary studies of the Columbia River crossing. The committee has finally decided on Sverdrup & Parcel & Associates of St. Louis, Missouri and Seattle, Washington. Preliminary negotiations are now in progress with Sverdrup & Parcel.

I am enclosing four copies of a form of agreement to cover the preliminary studies and foundation investigation only. A meeting has been held with Sverdrup & Parcel to discuss the project and the preliminary negotiations. It is anticipated that Sverdrup & Parcel will have a presentation to make to the Highway Division about the end of June covering the initial phase of this work. The four copies of the preliminary studies agreement enclosed are for your review, comment, and approval.

NOTED
TOM EDWARDS

You will be advised at the earliest possible time of the cost of the project as negotiated with Sverdrup & Parcel.

You were recently furnished copies of the navigation permit from the United States Coast Guard. I am enclosing two copies of five sheets of drawings from the Coast Guard indicating the navigation lights that will be required on the bridge structure.

Very truly yours,

Ivan D. Merchant
Bridge Engineer

RECEIVED
JUN 17 1970
OFFICE OF
STATE HIGHWAY ENGINEER

IDM:dh
Enclosure

cc Tom Edwards
L. H. Young
V. E. Skoog

8905

RECEIVED
JUL 7 1970
Consult
FOR FILING

FORM 2-30 (REV. 10-69)

OREGON STATE HIGHWAY DIVISION

INTER-DEPARTMENT CORRESPONDENCE

Salem, Oregon
July 3, 1970

SUBJECT: Preliminary Engineering Agreement
Columbia River Bridge
Interstate I-205
Multnomah County Oregon
Clark County Washington
Bridge No. 9555

To:

Memo to the Files

On Thursday, June 25, 1970, a meeting was held in the office of Mr. Tom Edwards, Assistant State Highway Engineer, between representatives of the Highway Department and representatives of the consulting engineering firm of Sverdrup & Parcel & Associates, Inc. In attendance representing the consulting firm were Mr. Bane and Mr. Allen of their Seattle office and the Mr. Lemcoe and Mr. West of their Kansas City office. Representing the Highway Department were Mr. Tom Edwards, Mr. Ivan Merchant, Bridge Engineer, and the writer.

The meeting was opened by Mr. Edwards who explained that the purpose of the meeting was to receive the proposal of Sverdrup & Parcel to do the preliminary engineering studies for the I-205 crossing of the Columbia River. The scope of the work being that as set forth in the "Form of Agreement for Preliminary Studies, I-205 Crossing of the Columbia River". The proposal of Sverdrup & Parcel to provide the services called for under the agreement was presented in a letter of transmittal delivered to the Highway Department by Mr. Bane. This proposal set forth the proposed fee schedule for the preliminary studies. A list of specialized consultants in the fields of foundation engineering, architecture, and prestressed concrete which Sverdrup & Parcel will employ was also set forth.

The proposed fee schedule was reviewed by Mr. Edwards and found acceptable to the Department.

Mr. Edwards next indicated that it was his desire that the agreement be revised or amended to a two-stage engineering design contract. The first stage covering the preliminary studies and the second, the final design. This is the procedure followed on the engineering design contract for the East and West Fremont Interchange projects. The representatives of Sverdrup & Parcel indicated that they were in general agreement with, and would prefer, the two-stage design contract. Incorporating the final design phase within the form of the present proposed agreement will require revision of Item A "Scope of Work" on page 2 of the agreement. Sverdrup & Parcel offered to provide the Department, within a week to ten days, their ideas on a suggested description of the "Scope of Work, Final Design".

NOTED
A. E. JOHNSON

A discussion was held on the structure of the fee schedule for the final design, contingent on alternate types of structures. Initial thinking is that a separate fee schedule will be proposed for the alternate types. It was proposed by Sverdrup & Parcel that a cost-plus fee schedule be applied to the shop drawing checking in order to arrive at an equitable system of payment.

Mr. Edwards stated that in the final design there were two design factors he wishes emphasized. These were: 1. Attention shall be given to limiting the live load deflection to well under that allowed under the design specification. 2. The footings for the water piers shall be founded well below the natural streambed and shall be well riprapped. Final design of the substructure shall be such that anticipated maintenance will be almost nil for a minimum of thirty to forty years.

Sverdrup & Parcel was advised that a possible revision in the interchange on the Washington side of the river may affect the span arrangement in that area. The State will advise Sverdrup & Parcel of such revision if and when it occurs.

The foundation investigation and report for the crossing will be prepared for Sverdrup & Parcel by the consulting firm Cornell, Howland, Hayes & Merryfield. The foundation investigation is a key item in the first phase of the preliminary design study. Sverdrup & Parcel indicated that an allowance for possible additional foundation investigation, as required, should be included in the final design phase of the engineering agreement. The State will establish a survey base line for the crossing as a control line for the foundation investigation.

There may exist a problem with access to the line on the Washington side. The State will keep Sverdrup & Parcel advised on developments on this matter.

Sverdrup & Parcel requested that upon approval of the preliminary design proposal by the Highway Commission and the Bureau of Public Roads, that they be advised by letter of the intent of the Department to sign an engineering agreement. Though this letter of intent will not be binding they will accept this as a notice that they can proceed with their advance planning on the work.

There being no further business the meeting was adjourned.

Walter J. Hart
Walter J. Hart
Administration Bridge Engineer

RECEIVED
JUL 6 1970
OFFICE OF
STATE HIGHWAY ENGINEER

WJH:dh
cc Mr. Tom Edwards
Mr. A. E. Johnson
Mr. R. L. Schroeder
Mr. Bane
Mr. West

8905

8r

RECEIVED
JUL 8 - 1970
Consult
FOR FILING

SVERDRUP & PARCEL AND ASSOCIATES, Inc.
Consulting Engineers
505 - 106TH AVENUE N. E.
P. O. BOX 369
BELLEVUE, WASHINGTON 98004

June 29, 1970

Oregon State Highway Division
Highway Building
Salem, Oregon 97310

Attention: Mr. Tom Edwards
Assistant State Highway Engineer

Gentlemen:

Subject: I-205 Columbia River Bridge

Pursuant to meeting with you last Thursday, we have prepared the attached draft to cover the final design for the subject bridge. This draft is submitted for your consideration in revising the Form of Agreement for Preliminary Studies to include Final Design services.

We anticipate being ready to present you with our proposal for Phase II - Final Design services on July 20. However, we will contact you at least one week prior to that date to establish a time for meeting which is mutually agreeable.

Very truly yours,

SVERDRUP & PARCEL AND ASSOCIATES, Inc.

R. D. Bane

R. D. Bane, P. E.
Assistant Vice President

Attachment

6/30/70

copy to → MERCHANT - If this does not meet the conditions, please give Bane the necessary guidance.
7-2-70

T.E.

RECEIVED
JUN 30 1970
OFFICE OF
STATE HIGHWAY ENGINEER

APPENDIX A

PHASE II - FINAL DESIGN

THINGS TO BE DONE BY CONSULTANT

1. The services of the Consultant shall consist of the preparation of the final design and plans for a structure type (steel or concrete superstructure or combination thereof) and span arrangement as presented in the preliminary report and as approved by the State. The Consultant shall prepare construction specifications as necessary to supplement the State's Standard Specifications. The services shall also include the review of contractor's working drawings and shop fabrication details.

2. Should the structure type selected incorporate concrete superstructure construction, the Consultant may employ the services of engineers experienced in this type of design and construction. Firm to be employed shall be approved by the State.

3. If deemed necessary by the Consultant and the State to establish foundation design criteria, the Consultant shall make foundation explorations to supplement explorations made in the preliminary phase of work. Firm to be employed shall be approved by the State.

4. Final plans shall be prepared in pencil on polyester type drafting film .004 inches in thickness with a matte surface on both sides from which legible blue prints and satisfactory reproductions can be obtained. A suitable copy on reproducible film shall be supplied for the second set (State of Washington).

5. Two sets of prints of final design computations shall be furnished to the State together with quantity estimates of the various phases of work.

6. The Consultant shall submit the completed final design computations, final plans, supplemental specifications and quantity estimates to the State for its review within a period of 21 months from the date of notice to proceed with Phase II. Should it be desired to let several construction contracts for the various portions of the work, the Consultant shall prepare the work to suit the sequence selected by the State and the length of time for completion of each portion of the work to be mutually agreed to at a later date; however, the total time for completion of the work shall be limited to 21 months.

8905

RECEIVED
JUN 23 1970

FOR FILING
Consult

NOTED
C.A. GARDNER

Salem, Oregon
June ~~17~~, 1970
18

I-205 Columbia River
Bridge Consultant's
Contract

Mr. Tom Edwards
Assistant State Highway Engineer

BUILDING

On June 16 Mr. Allen of Sverdrup & Parcel called me from Portland regarding a few items in the proposed preliminary design contract and at that time he indicated that they would have a fee proposal put together and would like to come in to the office on June 25 to discuss it with us.

Mr. Allen will confirm this date at a later time but as soon as the date is firm from their standpoint.

Ivan D. Merchant
Bridge Engineer

IDM:dh

6/18 Allen to IDM by phone
Will be in Thursday, 6/25/70 at
9:30 with fee proposal if satisfactory
to T.E. If not - call Allen
Alt. date would be Friday 6/26

NOTED
TOM EDWARDS

8905
Consult

RECEIVED
JUN 22 1970
FOR FILING

1859

OREGON STATE
HIGHWAY DIVISION

HIGHWAY BUILDING • SALEM, OREGON • 97310 • Phone 364-2171

June 16, 1970

Sverdrup & Parcel & Associates, Inc.
P. O. Box 369
Bellevue, Washington

Gentlemen:

I-205 Columbia River Bridge

Enclosed are six copies of the agreement for preliminary engineering studies of the I-205 Columbia River crossing. These agreements have been rewritten to incorporate the revisions discussed at our recent meeting in Salem. Also enclosed is one copy of five sheets of material from the United States Coast Guard indicating the requirements for navigation lighting throughout the structural length.

Under separate cover I am sending you a mylar of the 1" = 200' plan that is Exhibit C in the agreement. This plan has been amplified to indicate the pier locations and span length as shown on the navigation permit drawings.

Please do not hesitate to call if there is anything further we can do to aid the progress of the project.

Very truly yours,

Ivan D. Merchant
Bridge Engineer

IDM:dh
Enclosure

cc Tom Edwards

NOTED
TOM EDWARDS

RECEIVED
JUN 17 1970
OFFICE OF
STATE HIGHWAY ENGINEER

8205

RECEIVED
APR 23 1970
FOR FILING

Consult

SVERDRUP & PARCEL AND ASSOCIATES, Inc.
Consulting Engineers
505 - 106TH AVENUE N. E.
P. O. BOX 369
BELLEVUE, WASHINGTON 98004

April 20, 1970

library
Eng. firms

Mr. Tom Edwards,
Assistant State Highway Engineer
Oregon State Highway Commission
State Highway Building
Salem, Oregon 97310

Dear Mr. Edwards:

I am enclosing a copy of the April issue of our bimonthly magazine SPICE. The article on the Chesapeake Bay bridge repair should be of particular interest to you, and I am proud of the part S&P engineers played in getting this important structure back into operation. I have also marked in red several items pertaining to our Seattle office.

We are still very interested in the possibility of working with you on the proposed I-80 North study and the I-205 bridge across the Columbia River. Please let us know if you need additional information on our organization.

With best regards.

Very truly yours,

SVERDRUP & PARCEL AND ASSOCIATES, Inc.

R D Bane

R. D. Bane, P. E.
Assistant Vice President

NOTED
TOM EDWARDS

Enclosure

NOTED
TOM EDWARDS

RECEIVED
APR 22 1970
OFFICE OF
STATE HIGHWAY ENGINEER

1979 Columbia R. Br. (N. Channel 890
Superstruc.) I-205
Port of Portland E.I.S. #2

8905

9

h
a
HAWORTH & ANDERSON
WEST 420 SPRAGUE AVENUE
SPOKANE, WASHINGTON 99204 (509) 838-6438

December 10, 1973

Commissioners
Port of Portland
700 N.E. Multnomah
Portland, Oregon 97232

SOUTH RUNWAY EXTENSION - PORTLAND INTERNATIONAL AIRPORT

Transmitted herewith is the final Environmental Impact Report relating to proposed extension of the south runway at Portland International Airport. We sincerely hope that the manner in which we have dealt with these environmental issues will give you an additional basis from which to evaluate the various proposals before you.

We would like to thank the Port of Portland for this opportunity to be of service.

Anthony H. Anderson

ANTHONY H. ANDERSON,
PRINCIPAL

sp

Enclosure

ENVIRONMENTAL ANALYSIS · LAND USE PLANNING · ECONOMICS · HOUSING · URBAN & REGIONAL STUDIES

FINAL ENVIRONMENTAL IMPACT REPORT

SOUTH RUNWAY EXTENSION

PORTLAND
INTERNATIONAL
AIRPORT

SUBMITTED BY THE

PORT OF PORTLAND

RE [illegible]
DEC [illegible]

PORT PREFACE

The Port of Portland has included this preface to the Environmental Impact Report for the purpose of delineating the need for a runway extension, outlining the necessity and impact of the filling that has recently been accomplished, presenting a Port staff recommendation for a runway extension project. The Staff determined that addressing these topics in the body of this EIR could unduly prejudice the environmental impact analysis conducted by Haworth and Anderson, authors of this EIR. The final determination of which alternative will be selected remains to be made by the Port of Portland Commission.

The purpose of an extension of the south runway (10R/28L) is to provide the capability for Portland International Airport to accommodate aircraft presently entering service without reducing airport capacity. These aircraft, the so-called jumbo-jets, have the capability to carry greater loads in terms of passengers and cargo over longer distances. Under a maximum load situation the jumbo-jets are unable to accomplish this utilizing PIA's existing runways. This results in inadequate long range air service from Portland to international points and distant domestic points.

The economy of Greater Portland requires this extended capability in order to remain competitive with other West Coast areas. There are numerous corporate and regional headquarters located in the Portland area and these organizations require extensive air travel as an integral part of their operations.

In addition, the Portland region produces numerous high value commodities which require adequate air transportation as part of their distribution network. Some examples of these are electronic goods, pharmaceuticals, textiles, apparels and fabricated metal goods. Oregon and Southern Washington shippers are also expanding their exports of perishable agricultural goods such as nursery stock and livestock. International markets for these types of goods must be obtained and existing international route authorities presently unserved must be utilized so the Portland area may remain economically competitive. Failure to extend the south runway will seriously jeopardize Portland's ability to serve expanding Far East markets and to open trade with China and Russia. Failure of Portland International Airport to adequately meet the needs of the Portland area economy will result in existing area business and industry being placed at a competitive disadvantage. In addition, this will limit the ability of Portland to attract highly desirable industries.

Changing patterns of air service require longer runways. Some of these are continuations of historical trends, such as an increasing emphasis toward larger aircraft and the increasing length of the average flight. The average mileage per flight by U.S. carriers for all operations increased 133% between 1951 and 1971. Some of the factors are new and tend to reinforce the need for longer runways. Among these are environmental and energy restrictions which place an emphasis on consolidating flights. This leads to more heavily loaded aircraft requiring a longer runway length. The current trend toward limiting competition through airline "capacity agreements" also tends to consolidate traffic into fewer and more heavily loaded flights.

A longer runway at PIA will allow for long distance flights to be staged from Portland. These could include not only scheduled service to the Far East and Europe by U. S. carriers, and reciprocal authority by foreign carriers, but also increased cargo and charter capabilities. Pan Am currently holds Portland-London authority, and Northwest Orient holds authority to serve Tokyo. In the recently reopened Trans-Atlantic Authority case now before the Civil Aeronautics Board, American, Western, Northwest, Continental and many charter carriers have requested Portland-Europe authority. Pan Am has also requested increased Trans-Atlantic authority.

Air cargo, in recent years, has been shifting from all-cargo aircraft to containers carried in the belly of wide body aircraft. In 1970, American Airlines carried 74% of its air freight in all-cargo aircraft; by 1972 this percentage had dropped to 64%. While cargo represents additional revenue for airlines' passenger operations, the additional weight requires a longer take-off runway. Another trend is the increasing popularity of reduced-cost, long distance charter flights. This type of operation also results in heavily loaded aircraft, both from the large number of people and the full fuel load for the long flight.

The Port Commission recognized many of these factors as early as 1965 when the PIA Master Expansion Plan was requested. This plan, after development, created much controversy, ultimately preventing its implementation. This unsatisfied need has led to the present proposed project.

In order to complete extension of the south runway at the earliest possible date, work will have to begin in the spring of 1974.

In order to meet this time frame, preliminary filling and grading was required to provide the necessary settling time. This filling and grading resulted in a loss of agricultural area on the west end of the runway, approximately 2500 ft. long and 500 ft. wide. This area also was disrupted by the necessary grading for construction access roads, navigational aid relocation, etc. No significant ground water or surface water quality problems were experienced. This filling resulted in the removal of fill material that had been previously stockpiled thereby returning a portion of land to its natural elevation. The filling and grading on the east end of the south runway encompassed the area from the east end of the runway to 82nd Ave. This area was previously level airfield area with a grass cover. The fill material was obtained from a stockpile located to the east of 82nd Ave. Again, the fill stockpile area was reduced to an elevation closely approximating the natural terrain and no significant ground water or surface water quality problems occurred.

The east end borrow and fill areas have been seeded and other efforts taken to minimize erosion. The disruption and displacement of wildlife found in these areas is considered minimal and unavoidable.

PORT STAFF RECOMMENDATION

The Port staff recommends that the Commission proceed with Plan I, the 2200 feet extension to the West. This is based upon the considerations presented in the Boeing report which identify the optimum runway length for anticipated operations, the location of the extension for the most efficient aircraft ground movements and maintenance of existing PIA capacity. The westerly extension project is the least expensive and the environmental consultants have identified this alternative as having the least over-all environmental impact. The westerly extension will result in minimizing the noise impact on residential areas.

FINAL

PORTLAND INTERNATIONAL AIRPORT

ENVIRONMENTAL IMPACT REPORT

prepared for

PORT OF PORTLAND
PORTLAND, OREGON

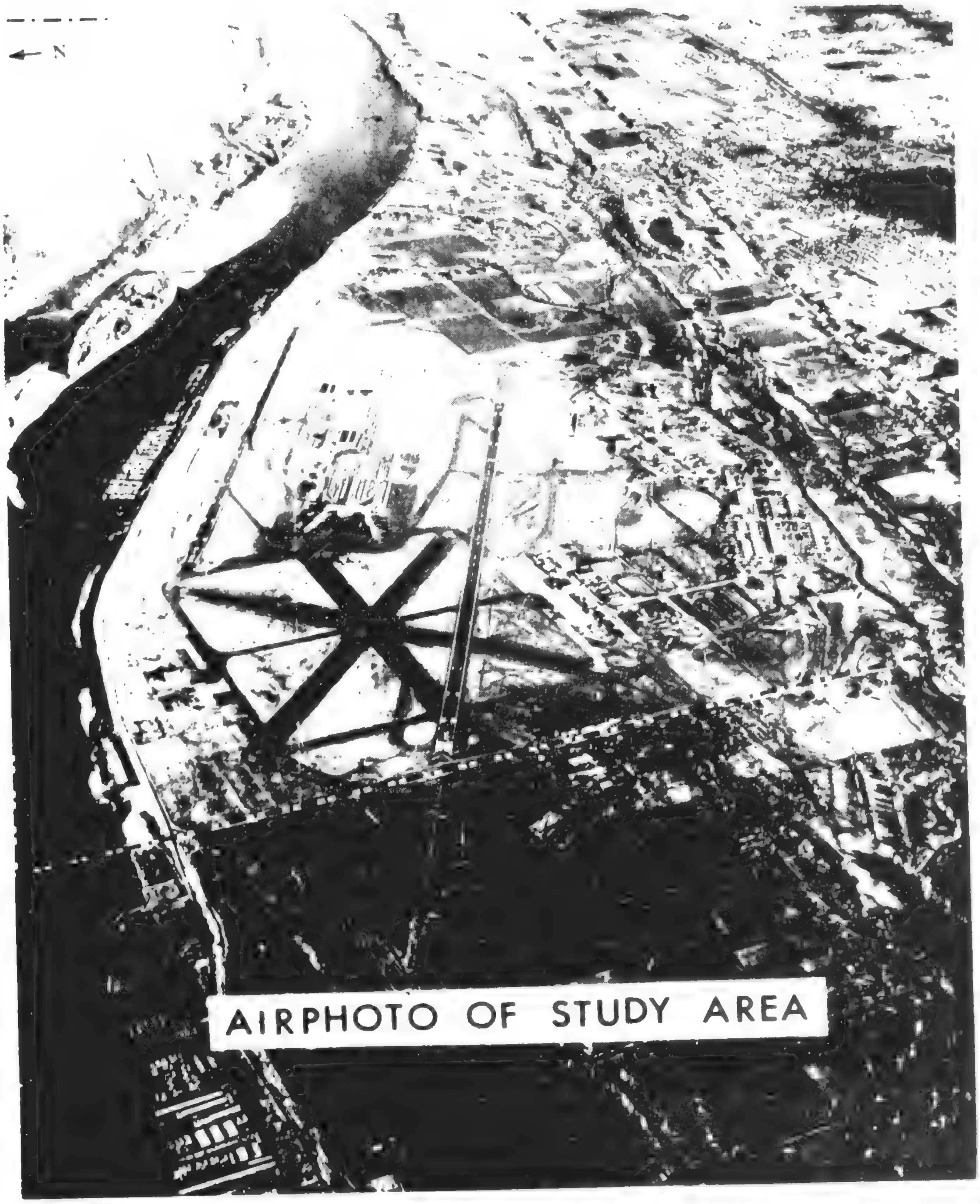
by

HAWORTH & ANDERSON, INC.

Spokane, Washington

ALL ILLUSTRATION
COPYRIGHT
HAWORTH & ANDERSON
1973

December, 1973



AIRPHOTO OF STUDY AREA

PREFACE

This Environmental Impact Report (EIR) has been prepared at the request of the Port of Portland under a contract dated Semptember 6, 1973. It is intended to provide a helpful and consistent overall approach to the question of what is the environmental impact of a runway extension as currently being considered by the Port Commission. As referenced in the Port staff's preface to this report, the Port staff has recommended the 2,200 foot extension to the west. To the extent that the Port Commission remains uncommitted as to the details of any extension, this report shall assist these decision-makers in their task of evaluating the project options of extending completely in a westerly direction, completely in an easterly direction or of lesser extensions in both an easterly and a westerly direction.

Two explanatory notes are necessary before the reader delves into this Environmental Impact Report (EIR). The first has been addressed in the Port's preface; that the filling and grading thus far completed is not a consideration of this report. The second concerns a basic premise which we, the environmental consultant, assumed. Specifically that the Port and their runway planning consultants have assumed no net increase in airplanes or passengers due to any proposed or possible south runway extension. The affect of any such extension is measureable only in terms of the potential for greater payloads and longer flights.

Credit for detailed and comprehensive original work must be given to the authors, researchers, and technicians responsible for Environmental Impacts Portland International Airport Expansion, July, 1972. Liberal use of the above document has occurred throughout the following Impact Report, which concerns itself only with an extension of the south runway. Included in the following report are some direct quotes, paraphrased text and numerous maps.

Further credit is extended to the following persons and companies for comprehensive professional analysis in their areas of special expertise:

Russell A. Dawson, Ph.D.	Economic Analysis
Elmer Robinson, Civil Engineer	Air Quality Analysis
Wyle Laboratories	Noise Analysis

This EIR has been drafted with the lay person in mind, in hopes that such persons may better understand the project consequences, or lack thereof, and make his or her comments known to the decision-makers.

HAWORTH AND ANDERSON

TABLE of CONTENTS

PAGE

Port of Portland's Preface

Aerial Photo of Site i

Preface ii

Table of Contents iii

I. Introduction I-2

- A. Description of Existing Facility I-2
- B. History of the Project I-10
  1. Initial Development of the Master Plan I-10
  2. Overall Airport Expansion Plan I-11
  3. South Runway Extension and EIS I-13
  4. Withdrawal of the Easterly Extension of the South Runway and Its EIS I-15
  5. Withdrawal of PIA Expansion Plans I-15
- C. Future and Ongoing Action I-19
  1. Present Passenger and Cargo Terminal Expansion Parking Lot Realignment I-19
  2. Relocation of 82nd Avenue I-20
  3. Filling at Both Ends of South Runway I-20

II. Proposed Project II-2

- A. Project Description II-2
  1. Direction of South Runway Extension II-2
  2. Location of Taxiways II-8
  3. Relocation of Navaids II-8
  4. Relocation of 82nd Avenue II-10
  5. Relationship to Section 4(f) Lands II-10
- B. Project Sequence II-12
  1. Plan I II-12
  2. Plan II II-13
  3. Plan III II-14
- C. Project Cost II-16
- D. List of Section 16 Affected Communities II-19

III. Environmental Impact III-1

- A. Natural Environment III-1
  1. Terrain and Topography III-1
  2. Vegetation III-10
  3. Wildlife and Waterfowl III-12
  4. Meteorology III-17

PAGE

B. Water Quality III-19
  1. Drainage Patterns III-19
  2. Ground Water. III-23
  3. Surface Waters. III-27
  4. Sewage Disposal III-37

C. Air Quality III-38
  1. Introduction and Standards. III-38
  2. Existing Ambient Air Quality - PIA Area III-39
  3. PIA Emissions by Source and Rate. III-41
  4. Temporary Construction Air Quality Impact III-48
  5. Summary of PIA Total Emissions. III-49
  6. PIA Dispersion Model. III-50
  7. Summary of Dispersion Estimates and Air Quality Standards III-65
  8. Land Use Perspectives III-66
  9. Methods of Minimizing Adverse Impacts III-67
  10. Conclusion. III-68

D. Noise III-70
  1. Introduction. III-71
  2. Basis for Computation of NEF Contours for Portland International Airport. III-71
  3. NEF Contours for Portland International Airport III-79
  4. Analysis of Individual Aircraft Noise Levels. III-80
  5. Methods to Minimize Adverse Noise Impacts III-88
  6. Recommended Criteria for Assessing Noise Impact on Various Types of Land Use III-90
  7. Aircraft Ground Runups - Test Operations. III-93
  8. Airport Noise Environment During Construction Phase . . III-93
  9. Existing Conditions III-96
  10. Change Due to Alternatives. III-101
  11. Change Due to Construction. III-105
  12. Methods of Minimizing Adverse Impact. III-105
  13. Conclusion. III-105

E. Pesticides and Herbicides III-107

F. Aesthetics. III-109
  1. Existing Conditions III-109
  2. Changes Associated with the Alternatives and Options. III-109
  3. Methods to Minimize Adverse Impacts III-111

G. Energy Use. III-112

H. Economics III-115
  1. Summary of Results. III-116
  2. Method of Analysis of Economic Impact III-118
  3. Present Impact of PIA Commercial Airline Operation on Local Economy---1972 . . . . III-120
  4. Summary of Present Direct Impact of PIA on Local Economy---1972 . . . . III-129
  5. Total Economic Impact of PIA and Functionally Related Activities III-130

PAGE

6. Projected Future Impact of Commercial Air Transportation at Portland International Airport. . . . III-131
7. Temporary Economic Impact of Runway Extension Project III-135
8. Air Cargo Losses to SEA-TAC III-137
9. Financial Feasibility Analysis. III-139

IV. Summary cf Impacts. IV-1

A. Terrain and Topography. IV-1

B. Vegetation. IV-1

C. Wildlife. IV-2

D. Meteorology IV-2

E. Drainage Patterns IV-2

F. Ground Water. IV-3

G. Surface Water IV-3

H. Sewage Disposal IV-4

I. Air Quality IV-4

J. Noise Analysis. IV-5

K. Pesticides and Herbicides IV-7

L. Aesthetics. IV-7

M. Energy. IV-8

N. Economics IV-8

V. Relationship Between Short-term Uses Verses Long-term Productivity V-1

A. Short-term Effects. V-1

B. Long-term Productivity. V-1

VI. Irreversible and Irretrievable Commitments of Resources VI-1

VII. Summary of Mitigating Measures. VII-1

A. Terrain and Topography. VII-1

B. Vegetation. VII-1

C. Wildlife. VII-1

PAGE

D. Meteorology VII-1
E. Drainage Patterns VII-2
F. Ground Water. VII-2
G. Surface Water VII-2
H. Sewage Disposal VII-2
I. Air Quality VII-2
J. Noise Analysis. VII-3
K. Pesticides and Herbicides VII-4
L. Aesthetics. VII-5
M. Energy. VII-5

VIII. Identification of Steps Taken to Determine Public Interest. . . . VIII-1

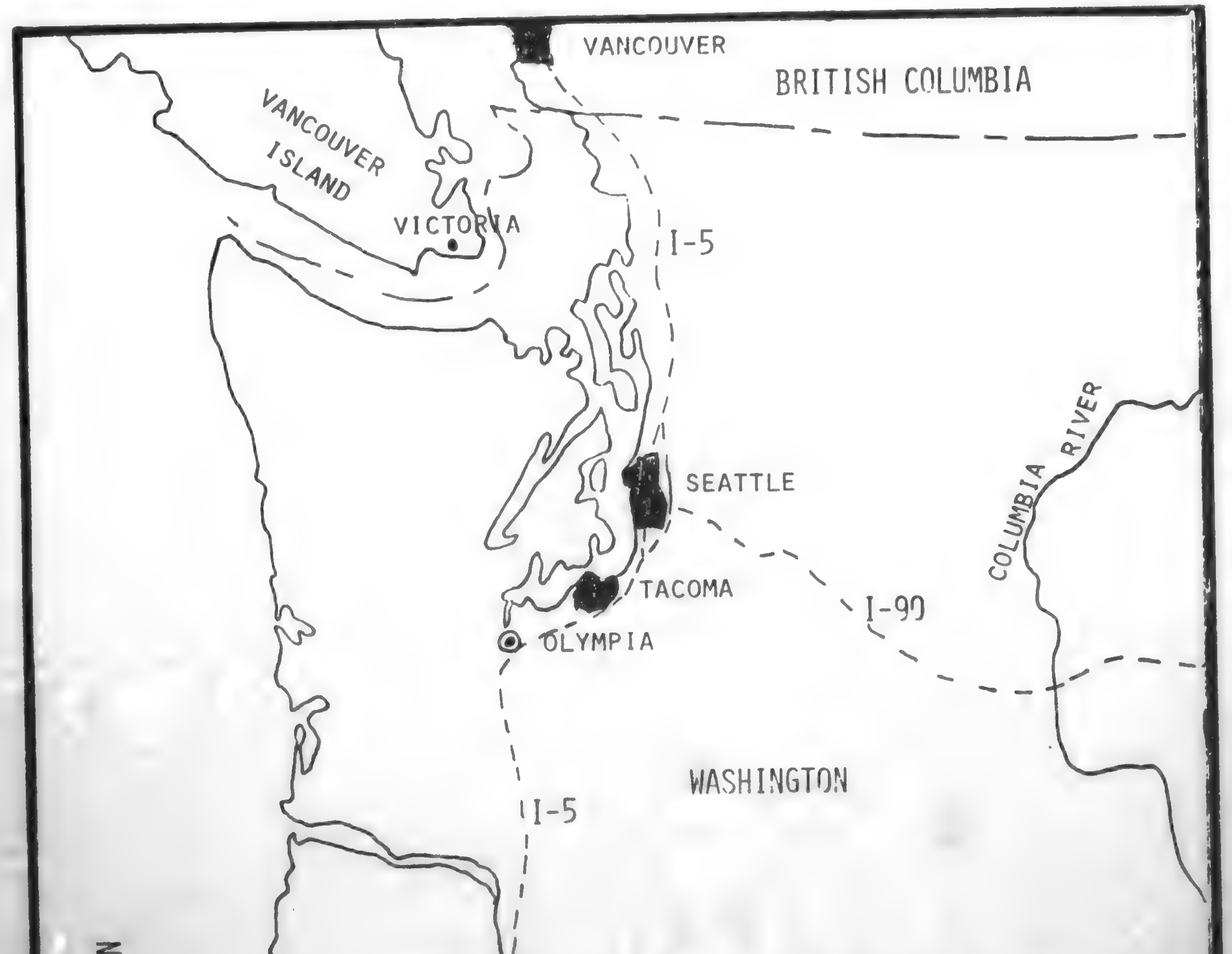
Appendices Attached to This Report

TITLE — APPENDIX

Demand Forecast and Runway Extension Analyses . . . . A
Ambient Air Standards . . . . B
Haworth and Anderson - C.R.A.G. Correspondence. C
Noise Abatement Data. . . . . D
Travel Time Penalties Associated with Portland Business Air Travel. . E
Public Interest, Review and Public Hearings . . . . F
  Press Releases - August 8, 1973/November 21, 1973. . . . . F - 1
  Draft EIR Distribution List. . . . . F - 15
  Public Meetings, EIR Review Sites & Legal Notice Newspapers. . . . F - 22
  Public Hearing Notice. . . . . F - 24
  Public Hearing - November 30, 1973 . . . . F - 29
    Opening Remarks (Procedures for Public Comment) . . . . F - 30
    Summary of the Hearing. . . . . F - 35
    Response to Comments. . . . . F - 46

Technical Appendices not Attached to This Report

TITLE	TECHNICAL APPENDIX
Background Information and Policy Recommendations	A
Final Report of the Demand Forecast and Runway Extension Analyses	B
Construction Cost Comparisons	C
Information Concerning the Natural Environment and Water Quality	D
Status of Water Quality in Columbia Slough, Oregon	E
Communication Between Port Authority and Local Governments	F
Air Quality Analysis	G
Noise Analysis	H
Economic Impact Analysis	I


VANCOUVER
BRITISH COLUMBIA
VANCOUVER ISLAND
VICTORIA
I-5
SEATTLE
COLUMBIA RIVER
TACOMA
I-90
OLYMPIA
WASHINGTON
I-5
PACIFIC OCEAN
VANCOUVER
COLUMBIA RIVER
I-80N
PORTLAND
SALEM
OREGON
CORVALLIS
I-5
EUGENE
LEGEND
20 0 20 40 60 80 100
one inch equals approximately 40 miles
N
STATE CAPITAL
U.S. - CANADIAN BORDER
Interstate Hwy. System

MAP 1

I. Introduction

A. Description of the Existing Facility

1. Location

Portland International Airport (PIA) is located as shown on Map #1, page I-1, in the north of the Port of Portland's district and in Multnomah County, Oregon. More specifically, the airport is situated as indicated on Map #2, page I-3, on the south shore of the Columbia River and is 9 miles via freeway and surface streets northeast of the central business district of the City of Portland.

2. Airport Configuration

PIA presently occupies approximately 2,800 acres. The airport layout plan of August, 1962 has been revised through November 13, 1967 as approved by the Federal Aviation Administration. The authorized 1975 boundary is also shown on Map #3, page I-5. The major components of the airport include two parallel east-west oriented runways (so-called "north" and "south" runways because of the location relative to the terminal), one northeast-southwest crosswind runway, passenger and cargo terminals situated between the parallel north and south runways and east of the crosswind runway, a large ground-level parking area east of the terminal, and a single surface entrance from the east end. On the south side of the airport is a military installation occupying more than 400 acres.

3. Airport Facilities

The following is a more detailed description of existing airport facilities. Refer to Map #4, page I-7, for details.

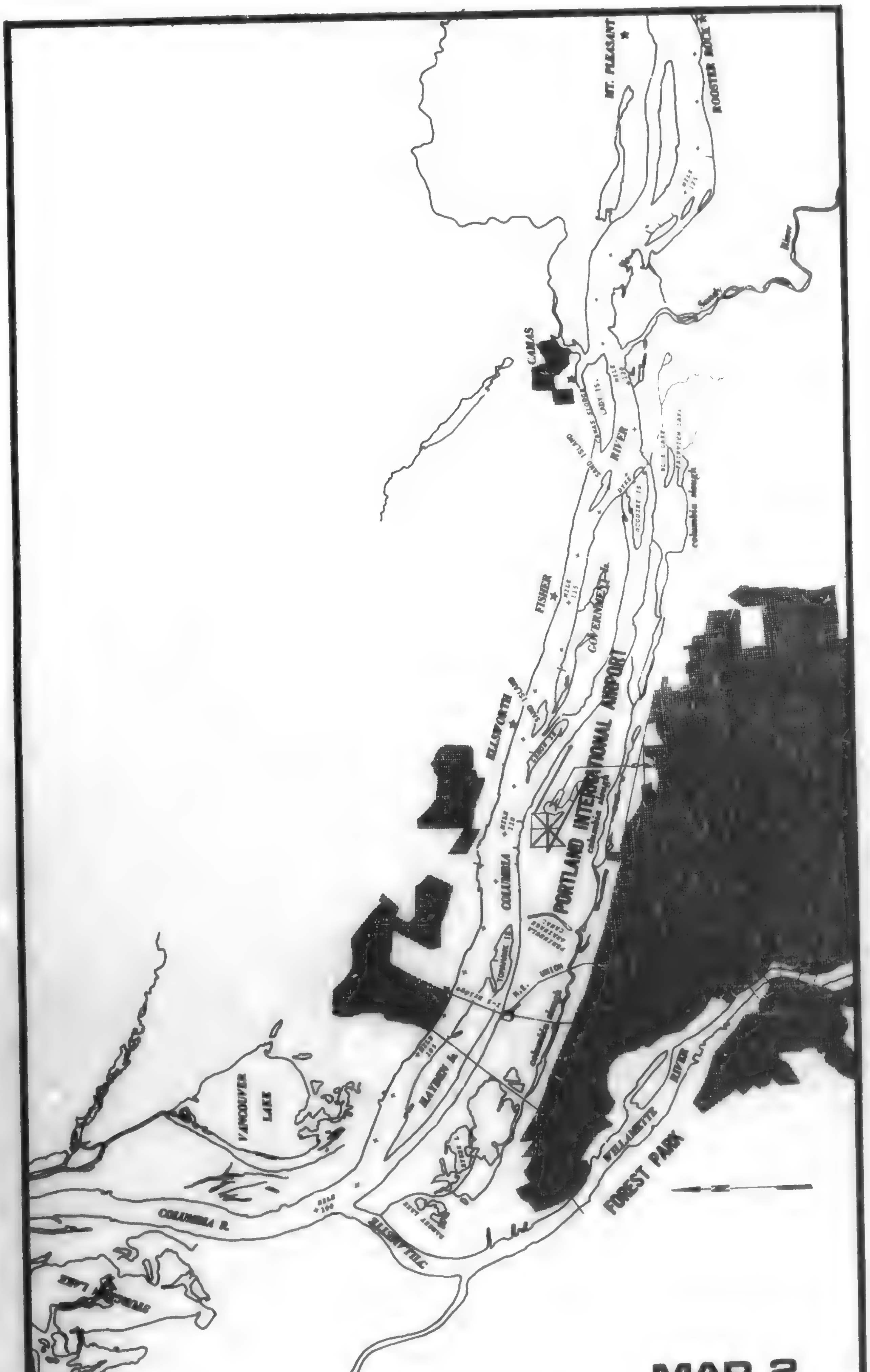
a. Terminal

The present terminal building contains 158,000 square feet and is centrally situated as mentioned above, between the parallel north and south runways. Since opening in 1958, the terminal and surrounding apron areas have been modified and improved with second level passenger jet ways[1], holding rooms with aircraft gate positions, the addition of a third concourse and baggage claim equipment, and apron expansion and strengthening.

There are now new gate positions at the terminal. The expansion at

---

[1] Moveable telescopic walkways permitting passenger-crew ingress and egress to the forward portion of a plane from second level passenger holding areas.


MT. PLEASANT
ROOSTER ROCK
CAMAS
RIVER
FISHER
GOVERNMENT Is.
ELLSWORTH
PORTLAND INTERNATIONAL AIRPORT
COLUMBIA
HAYDEN Is.
VANCOUVER LAKE
COLUMBIA R.
WILLAMETTE RIVER
FOREST PARK

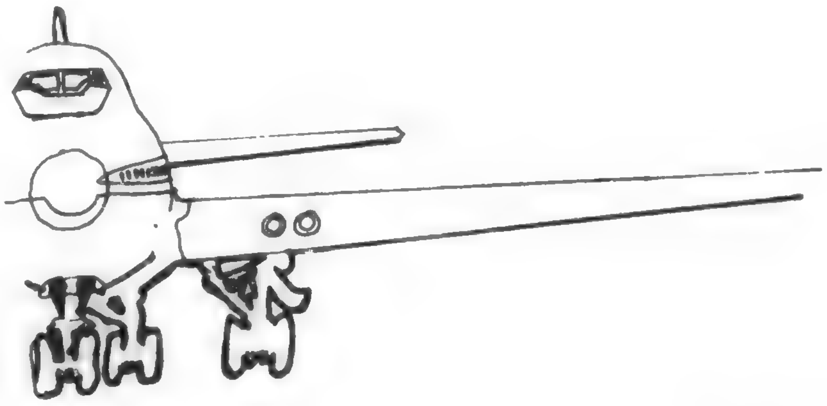
MAP 2

Concourse "K" is nearing completion, adding five 2nd level gates.

The adjacent automobile parking area, to the east of the terminal building, provides some four thousand parking spaces for employees, the public, and rental car holding areas.

The following certificated passenger air carriers utilize the terminal area:[1]

Braniff Airways, Inc.
Continental Airlines, Inc.
Eastern Airlines, Inc.
Hughes Air Corp., d.b.a.
  Hughes Airwest
Northwest Airlines, Inc.
Pan American World Airways, Inc.
United Air Lines, Inc.
Western Airlines, Inc.



Braniff offers service to south-central United States through Dallas-Fort Worth.

Continental connects to the southwest and south-central United States through Denver. In addition, service is provided to other west coast cities and Hawaii.

Eastern is the major carrier to the southeastern United States through Omaha and St. Louis and includes authority to serve the Caribbean.

Hughes Airwest is a local service carrier serving eight far western states, Canada, and Mexico.

Northwest provides service to the northwest, midwest, and the east coast. It also serves Anchorage via Seattle, direct to Hawaii, and is authorized to serve the Far East.

Pan American serves Fairbanks, Hawaii, and is authorized to serve Europe.

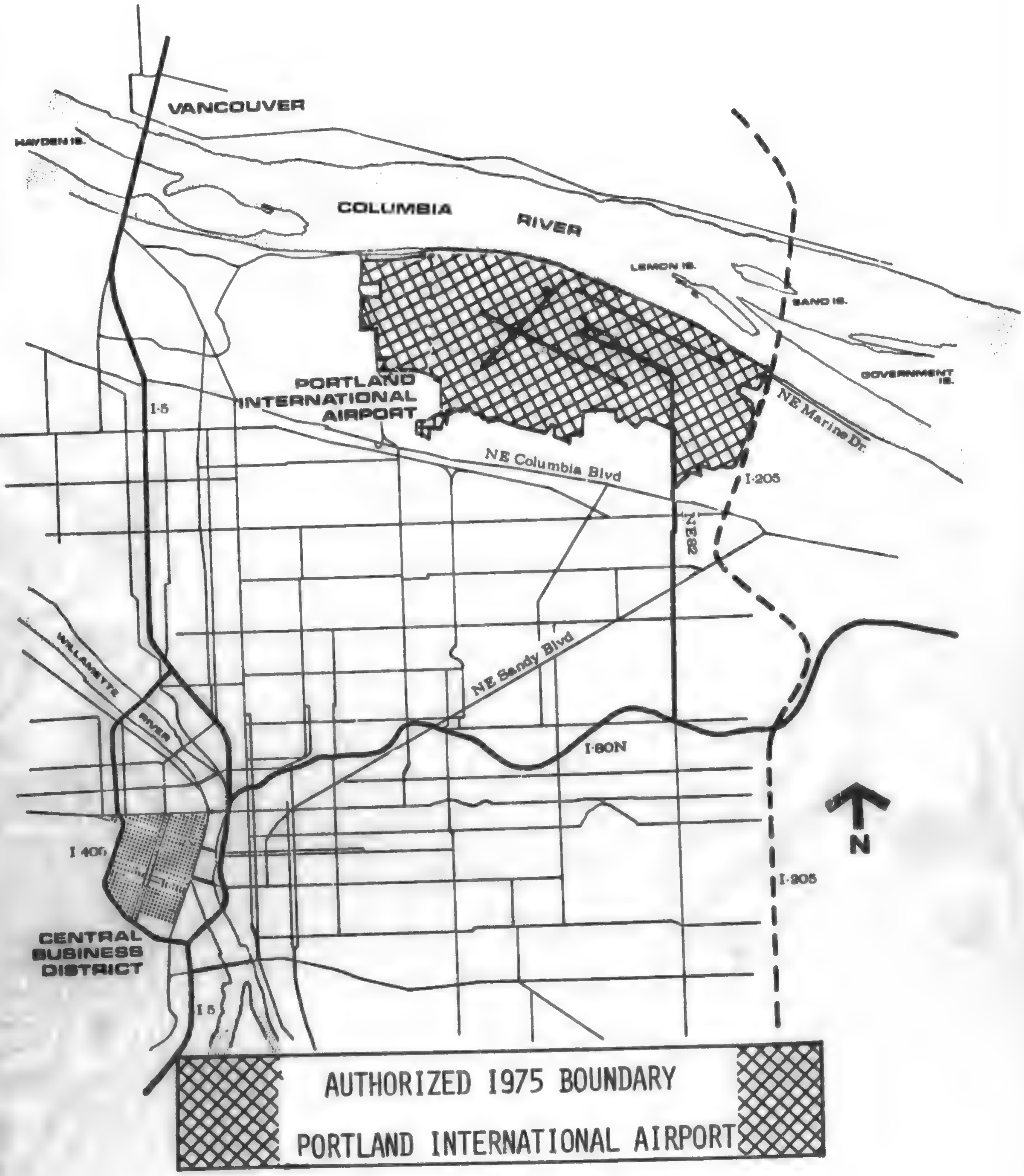
United is the largest air carrier at PIA by number of flights, passengers carried, and employees. United connects to the east coast, the midwest, the inter-mountain west, and the Pacific coast from Seattle to San Diego.

Western flies to Minneapolis-St. Paul and provides service along the Pacific coast from Anchorage to San Diego.

In addition, Flying Tiger Lines, Inc. operates certificated mail and air freight scheduled flights between Portland and major eastern, middle

---

[1] Boeing Aerosystems, Boeing Commercial Airplane Company, Renton, Washington, "Portland International Airport - Final Report of the Demand Forecast and Runway Extension Analyses", September, 1973. (See Appendix B, page B-17)


VANCOUVER
HAYDEN IS.
COLUMBIA
RIVER
LEMON IS.
SAND IS.
GOVERNMENT IS.
PORTLAND INTERNATIONAL AIRPORT
I-5
NE Columbia Blvd
NE Marine Dr.
I-205
NE 82
NE Sandy Blvd
WILLAMETTE RIVER
I-80N
I 405
N
I-205
CENTRAL BUSINESS DISTRICT
I 5
AUTHORIZED 1975 BOUNDARY
PORTLAND INTERNATIONAL AIRPORT

GENERAL AREA

MAP 3

western and west coast cities and has authority to serve the Far East.

All carriers operating from PIA have extensive route systems and can provide Portland passengers with on-line connecting service throughout the United States and to all major foreign cities.

b. Runways and Taxiways

At present there are two primary runways and one secondary runway. The two primary runways are parallel in an easterly-westerly direction (100/280 degrees magnetic heading) and are separated by approximately 3,100 feet. The north parallel runway (10L/28R) is 8,000 feet long and 150 feet wide. The south parallel runway (10R/28L) is 8,800 feet long and 150 feet wide. The end of the south runway extends to the west approximately 3,500 feet beyond the end of the north runway. The physical end of the north runway is approximately 2,700 feet further to the east than the easterly end of the south runway.

The secondary crosswind runway (2/20) extends from the west end of the north runway and southwesterly across the south runway on a magnetic heading of 020/200. Runway 2/20 is 6,500 feet in usable length and 150 in width.

The south runway was completed in 1951. The north runway became operational in 1962. The crosswind runway was a part of the original airport which was opened in 1940. An extension was added to the southwest end of the crosswind runway in 1970.

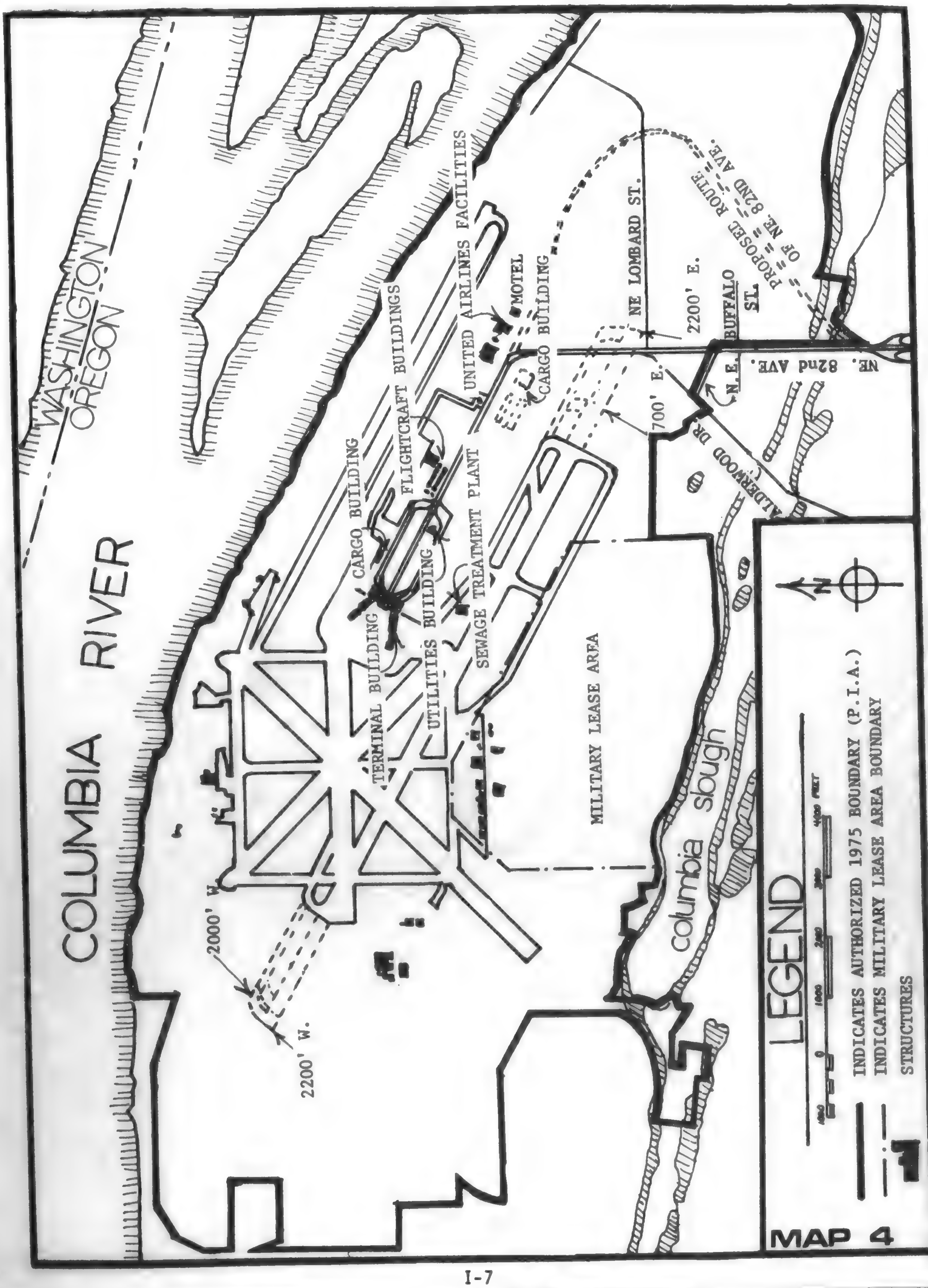
Parallel taxiways serve the north and south runways and the west end of the terminal. There are no taxiways around the east end of the terminal, and all aircraft entering or leaving the terminal area must do so around the west end of the terminal.

c. Parking Area

The automobile parking area is immediately east of the terminal and, after runways and taxiways, is the largest single use of developed land within the airport boundary. There are 3,999 parking spaces: 3,304 of which are for paid public, 579 for airport employees, and 116 for rental cars.

d. Road Access and Mass Transit

There is only one surface entrance to the airport at the east end of the parking area. The majority of traffic approaches the airport by way of 82nd Avenue from the south. Most of the remainder of the traffic approaches PIA by two means: (1) by way of Marine Drive to Lombard to 82nd Avenue extended,


WASHINGTON
OREGON
COLUMBIA RIVER
columbia slough
TERMINAL BUILDING
CARGO BUILDING
FLIGHTCRAFT BUILDINGS
UTILITIES BUILDING
SEWAGE TREATMENT PLANT
UNITED AIRLINES FACILITIES
MOTEL
CARGO BUILDING
NE LOMBARD ST.
2200' E.
700' E.
N.E. BUFFALO ST.
PROPOSED ROUTE OF NE 82ND AVE.
NE. 82nd AVE.
ALDERWOOD DR.
MILITARY LEASE AREA
2000' W.
2200' W.
N
LEGEND
1000 0 1000 2000 3000 4000 FEET
INDICATES AUTHORIZED 1975 BOUNDARY (P.I.A.)
INDICATES MILITARY LEASE AREA BOUNDARY
STRUCTURES
MAP 4

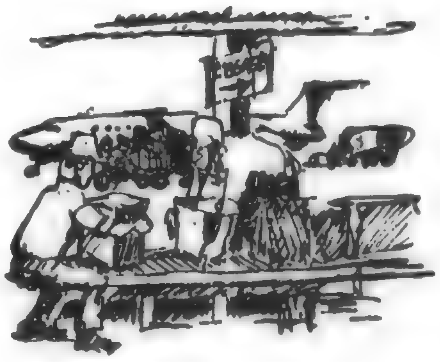
and thence to the airport facilities, and (2) by way of Columbia Blvd. and/or 82nd Avenue to 82nd Avenue extended, and thence to the airport facilities.

In October, 1971, a free shuttle bus system was initiated between the terminal building and the airport parking lots. In 1972 the Port contracted with the Downtown Airport Rapid Transportation Company (DART) to provide diesel bus limousine service between the airport, the central business district, and a few key points in between. For those who do not wish to use an automobile, DART is considered the most convenient mode of transportation to downtown Portland. Taxi cab fare is about $6.00 one way. Tri-Met buses also provide some service and this is described below.

Specifically, the DART bus runs every 20 minutes Monday through Friday. On weekends and holidays, service is provided every 30 minutes. Busses begin service at 6 a.m. The last bus leaves the airport at midnight. Service is provided to the Hilton and Benson hotels in downtown Portland and to the Sheraton near Lloyd Center. The DART fare to the downtown area is $1.75.

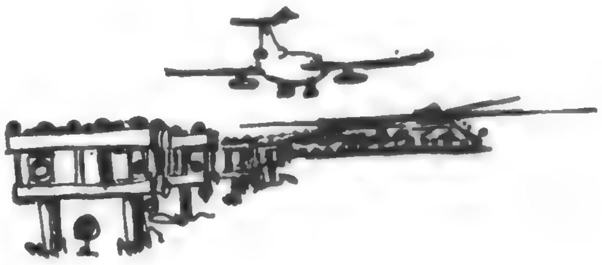
The Tri-Met transit system provides limited service to PIA with one transfer required. A bus leaves from downtown every 20 minutes. A transfer must be made at 82nd Avenue and Sandy Blvd. to a bus which stops every 30 minutes, requiring a 5 minute wait. However, even during the daytime hours, it takes 40 minutes to make a one way trip between the downtown and PIA, although the fare is only $.35.

e. Cargo Facilities



The existing cargo terminal is located immediately northeast of the passenger terminal and is approximately 27,000 square feet in area. Because the cargo terminal does not have the capacity to handle the present volume of cargo, various other facilities at the airport are currently used for air cargo operations. A 7.1 acre air cargo site is now under construction just south of the airport entrance. The facility is to include an additional 54,000 square feet of cargo space, and separate space for customs service and postal offices. United Airlines' cargo building, north and somewhat east of these facilities, provides an approximately 25,000 additional square feet.

f. Navigational Aids



The navigational aids (navaids) are the normal FAA constructed installations of instrumentation required for aircraft operations and radar monitoring of air traffic in the airport control area. The north parallel runway has an approach lighting system (ALS) and an instrument landing system (ILS) for easterly approaches. The south parallel runway is instrumented with the same equipment for westerly approaches. A temporary localizer has been installed on the crosswind runway. Authorization exists for upgrading the ILS system on the south parallel runway from Category I to Category II[1] weather conditions. This will occur in 1974.

g. Other Facilities

The airport has one fixed base operator, Flight Craft, with complete facilities for general aviation operations, located immediately east of the passenger terminal parking area between runways. The number of general aviation aircraft based at PIA has increased, going from 96 in 1967 to 130 in February of 1971. A United Air Lines air cargo facility, flight kitchen, and ground vehicle maintenance building are located east of the fixed base operator as are aircraft facilities of two private corporations. On the south side of the airport is a military installation which occupies more than 400 acres.

---

[1] Category I and Category II weather conditions. The reference is to an upgrading in the sophistication of navigational aids which pilots use for landing in inclement weather. Category II or III simply means that FAA permits a plane to land during more inclement weather than allowed under Category I.

B. History of the Project

1. Initial Development of the Master Plan

By the year 1966, the annual passenger traffic at Portland International Airport had exceeded the original design capacity of 1.5 million passengers per year. In late 1966, the Port Commission retained the airport consulting firm of Burns and McDonnell to review the existing PIA master plan and to prepare an overall airport development program. Until that point in time, the existing expansion plans had been based on the existing airfield configuration.

In February of 1967, the consultants presented ten preliminary ideas for expansion. More thorough study reduced the number of alternatives to two, which were presented in more detail in May. At that time the consultants recommended that consideration be given to moving the South runway into the military area.

Later in the year, the Port asked the consultants to investigate the cost differential between expansion of the south runway versus the development of a new site, because the cost of re-acquiring and relocating the entire military area for southerly expansion proved to be excessive. At the Joint Airline Negotiating and Technical Committee Meeting in October, the Port Commission expressed concern over an investment of this magnitude because of the limited capacity of the terminal and other ground facilities at PIA. It went on record as favoring development of an entirely new site, with a minimum expenditure at PIA. The airlines announced that they were in favor of immediate development of existing facilities. Total cost of the facilities, providing five new gates and two stretch-jet positions, was estimated at $24 million. At this same meeting, the airport consultants presented to the Port a plan to move the north runway 2,000 feet north of the existing north runway by dredging and filling the Columbia River. The airlines expressed an interest in this plan and requested that the Port determine the feasibility of such an expansion as soon as possible.

In November of 1967, the preliminary results of a Regional Aviation Study were submitted by the Port and the Columbia River Association of Governments (CRAG), the co-sponsors of the study. Initially, some 25 sites had been considered as possible alternatives to the existing PIA location. Various considerations reduced this number to seven, including the PIA site. It was decided that if the existing airport could be expanded, it would be the best alternative; [1] and on November 29, 1967, the Executive Committee of the Port of Portland Commission agreed in principle to expand PIA to the north, an idea which the airlines unanimously approved on

---

[1] The results of Port interaction with the community indicated that the people were very satisfied with the current location and expressed strong desire for it to remain in its existing location.

December 12, 1967. On January 8, 1968, the Port Commission formally authorized its staff to proceed with a feasibility study for the new expansion plan.

In March of 1968, the City of Vancouver objected to the increased noise levels that were to occur with the new expansion plan into the Columbia River. In response, the consultant recommended rotating the proposed north and south runways 7½ degrees counterclockwise to align them more directly with the shore of the Columbia River. This plan was designed to reduce noise levels in both the city of Vancouver and East Multnomah County.

After reviewing this new proposal and an alternate site plan near the city of St. Paul in the northern end of the Willamette Valley, the Port Commission authorized the Port staff to proceed with development of the proposed expansion plan. Three considerations guided the development of the plan at that time: (1) provide a minimum 5,000 feet separation between the two parallel runways (2) provide space for the terminal complex expansion and (3) provide land that would minimize the possible need for a new commercial airport in the metropolitan Portland area.

In May, 1968, the Port of Portland began making applications to the various agencies involved in the final approval of the master plan. In November the Oregon State Game Commission conveyed Government, Lemon, and McGuire Islands to the Port for $900,000 for modification during the required dredge and fill operations. The dredging permit was obtained from the Corps of Engineers in August, 1969. The FAA gave final approval to the plans in December, 1969, subject to a statement from CRAG that the proposal was compatible with regional plans. CRAG responded in February, 1970 that the proposed plan was indeed compatible with existing or contemplated regional plans.

2. Overall Airport Expansion Plans

The proposed expansion plan was to construct longer parallel runways outboard of the existing runways at an alignment rotated 7½ degrees counterclockwise from the existing configuration. This was to be accomplished by enlarging the available land area and by creating additional land to the north by dredging and filling a portion of the Columbia River. To be incorporated in the new land area was a portion of Government Island and about two-thirds of Lemon Island. The remainder of Lemon Island and all of Sand Island was to be removed to obtain sufficient material for filling.

The plan would have created a 5,600 foot separation between runways to allow for simultaneous take-offs and landings under instrument conditions and to allow room for development of the terminal complex. Terminal facilities were to be expanded to accommodate some 4 million passengers by 1975 and 9.5 million by 1980. The plan would have provided for the orderly development of airport facilities through the year 2000. When fully developed, the facility would have accommodated 25 to 30 million passengers per year, 90 gates with aprons and holding rooms for jumbo and stretch jets, and 500,000 annual take-offs and landings.

Surface access to the airport was to be completely altered. A new Airport Way was to be constructed around the central automobile parking area and joined to a new I-205 freeway system east of the airport. Airport Way was to consist of four lanes in each direction from the terminal area to the 82nd Avenue interchange and three lanes in each direction from 82nd Avenue to I-205. Also to have been included was provision for an adequate right of way for future mass transit access. Eighty-second Avenue was to be relocated from the interchange at Columbia Boulevard to its connection to the new Airport Way. This road was to be two lanes in each direction with limited ingress and egress. The relocation of 82nd Avenue would have provided additional area for the development of an air cargo warehouse area. Access would be from service roads off of 82nd Avenue and I-205 (new Airport Way).

The new runway system was designed to include the installation of improved navigational and radar equipment provided by the FAA. It was anticipated that both ends of each runway would ultimately be instrumented and provide Category III (weather) standards.

The expansion plan provided for a new general aviation area, which was planned on the south side of the airport immediately west of the military facility. The purpose of this was to separate commercial and general aviation ground traffic.

The expansion plans concept for reconstruction of the south runway would have required the relocation of part of the military facilities, including the demolition, relocation, and reconstruction of numerous buildings and facilities on the south side of the airport. New facilities for the Army National Guard helicopter unit were to have been constructed at the Salem Airport. 1/

Finally, the expansion project included the construction of a shoreline with sand beaches varying in width from 75 to 350 feet. The port would relocate Marine Drive and construct a 3½ mile parkway along the river. Upstream from the parkway a large water basin, referred to as Columbia Bay, was to be constructed with a single access to the new south channel of the Columbia River. It was to include 350 acres of water, some 3,000 linear feet of sand beach, and moorage facilities for 3,510 pleasure craft.

In September, 1969, an action challenging the expansion plan was filed in the U.S. District Court for the District of Oregon. Plaintiffs included the Citizens Committee for the Columbia River, the Sierra Club, the Washington State Sportsmen's Council, the Association of Northwest Steelheaders, and the Washington Environmental Council. Named as defendants were the United States Secretaries of the Interior, Transportation and Army, and officials of the Corps of Engineers. The Port of Portland intervened in the action as a co-defendant.

The Plaintiffs contended that the dredging permit issued by the Corps of Engineers authorized the construction of dams, dikes, and causeways

---

1/ This has actually been accomplished, although it more appropriately was a general matter of expediency rather than the execution of the expansion plan.

requiring Congressional approval. Plaintiffs also asserted that the decisions of the federal authorities relating to the expansion plan were contrary to various federal statutes requiring the preservation and protection of natural resources and that these decisions were arbitrary, capricious, and constituted an abuse of discretion.

The federal defendants challenged the standing of the plaintiffs to maintain the action. In February, 1971, the District Court dismissed the action upon the ground that the plaintiff organizations lacked standing to sue on behalf of their respective members. The plaintiffs appealed this decision to the Ninth Circuit Court of Appeals.

In April, 1971, members of the plaintiff organizations in the earlier action, filed an action in the U.S. District Court for the District Oregon challenging the project upon the same grounds used in the earlier action. The same federal officials were named as defendants and the Port again intervened as a co-defendant. The District Court ruled in favor of the defendants and this decision is pending on appeal.

A third action, tired in the same U.S. District Court, involved ownership of Sand Island, an island to be removed during the dredging for the expansion plan. The Port claimed ownership, and alternatively asked for condemnation if others were found to have any title rights. On March 26, 1971, the District Court held that the title to Sand Island was vested in the Port. The defendants appealed this decision to the Ninth Circuit Court of Appeals, which reversed the District Court and remanded for further hearing. This case is now pending in the District Court.

In October, 1971, the Port of Portland Commission approved the formulation and appointment of a ten-man Steering Committee representative of major local governments and environmental agencies, to review, expand, and update the environmental study materials which had been produced over the previous four years in connection with the proposed expansion of PIA and to supervise the preparation of the draft environmental impact statement. In addition, a Resource Panel consisting of members representing a broad cross-section of Portland-Vancouver community interests was appointed to provide a two-way communication link between the public and the Steering Committee. Under the guidance of the Steering Committee, three study teams were organized and professionally retained to perform detailed studies of the environmental impacts of the proposed plan and each of four alternate courses of action. The study teams were identified with three general environmental categories: pollution, socio-economics, and natural resources. Both the Port Commission and staff as well as the above panel held many public meetings and community interest group briefings.

3. South Runway Extension and EIS

Despite the continuous effort by the Port to implement its PIA expansion plan, the outlook in early 1973 indicated that a continued delay of five years or more would be required to obtain approval of the environmental studies and to resolve the litigation. An estimated three years would be required to construct the military alterations, and an additional two years would be required to construct a new south runway. Thus, longer runways would not be available for at least eight, and possibly ten years. The Port Commission decided a longer runway capability was necessary at the earliest possible date.

Additional schedule authorities awarded by the Civil Aeronautics Board (CAB) could not be implemented in Portland because of inadequate runway length. The Port cited both Northwest Orient Airlines and Flying Tiger authorities to fly nonstop from Portland to Tokyo. Pan American had received authority to fly nonstop to London by way of the polar route, and Continental had received nonstop authority to Hawaii.

Furthermore, citing the easing of international relations, the Port argued that existing authority for nonstop flights to Tokyo could potentially be expanded to the USSR and to the China mainland. The Port was also anxious to capture a portion of the expanding air freight activity between the U.S. and Korea and Formosa, and cited poor or limited service to Africa, Australia, and South America. Finally, the Port was actively seeking nonstop authorities to Mexico City, South America, Miami, San Juan, and points in eastern Canada.

An additional rationale for an immediate extension of the south runway was the Port's assertion that other West Coast airports were rapidly approaching saturation in development and operational capacity. They cited a need to absorb the overflow from those airports. Commercial operations that could no longer be accommodated there, but which were so vital to the economy of the Northwest and to the country in general, represented a market potential which the Port felt it could not tap without an extended runway. The longer that increased runway length (be it from expansion plan implementation or from a simpler runway extension) was delayed, the longer would the Portland-Vancouver metropolitan area continue to suffer economic penalties, especially in the loss of potential trade with the Far East. Regardless of the fate of the proposed master plan, the decision was made to proceed with an immediate extension of the south runway.

The extension proposal that received primary attention and public exposure was an easterly extension. The project itself was to consist of grading, drainage, and paving required for such an extension of the south parallel runway (10R/28L), and the associated parallel taxiway system, from the existing 8,800 feet to a length of 11,000 feet. The existing localizer and military arresting barrier would be relocated. To facilitate FAA upgrading of the Instrument Landing System (ILS) to Category II capability, the project would include the replacement of the existing high intensity runway edge lighting system, the installation of runway centerline lights, and runway touchdown zone lighting. Approximately 2,000 feet of an open storm drainage ditch which crosses the runway extension area would be converted to a large diameter storm drain pipe. Additional future requirements could then be met by a westerly extension. This project was not considered a solution for future capacity, as it will suffice for only about 8 to 10 years. It was looked upon as a means of expediting the near term prospects of increased capability in terms of sizes of planes.

Also included with an easterly extension was to be the re-routing of N.E. 82nd Avenue from the Columbia Blvd. underpass northward. Two parcels of private land, making up a total of approximately 80 acres, were to have been acquired for the relocation of 82nd Avenue. Also required would have been the vacation and closure of N.E. Lombard Street west of N.E. 96th Avenue, approximately 1,000 feet of N.E. 96th Avenue south of Lombard Street, and north of Alderwood Road. The closure of Alderwood Road would require the construction of N.E. Buffalo Street between Alderwood Road and Existing 82nd Avenue.

The project itself did relate to a previously approved runway extension for which an FAA grant offer was accepted by the Port. A project application had been submitted to FAA for a 2,200 foot westerly extension in October, 1967, and the Port Commission accepted the grant offer in January, 1968. The Port returned this grant of funds to FAA when approval was received for the master plan expansion project. However, a new application for FAA grants for the easterly extension of the south runway was necessary and an environmental impact statement (EIS) under the National Environmental Policy Act (NEPA) required in support of those applications.

4. Withdrawal of the Easterly Extension of the South Runway and its EIS

The draft environmental impact statement on the south runway extension was withdrawn during the review period. Although there were no public hearings on the matter, there were four poorly attended public briefings, at which the limited response was mixed. Due to the limited response, it is difficult to evaluate the effect of public opinion on the project.

Official criticism of the EIS was more serious, not only for speed with which it occurred, but also for specific issues it raised. Significant criticisms were noted by the Oregon Fish and Game Commission, the Oregon Department of Environmental Quality and the Multnomah County Planning Commission. The most in-depth criticism came from the latter. In a memo dated July 2, 1973, Commission staff detailed some thirty-one alleged deficiencies.

Meanwhile, the easterly extension project itself was cast in doubt by a report from the Port's consultants. Further analysis had revealed the possibility that a staggered, or offset, runway configuration had operational advantages over one in which the runway ends were directly opposite one another.[1] For this reason, and because of the problems encountered by the draft EIS, Port Commission President John Fulton acted to cancel the July 9, 1973 hearing on that extension and to withdraw the EIS.

5. Withdrawal of PIA Expansion Plans

On July 10, 1973, the Port's Executive Director issued a statement of background data which documented a number of changes which had occurred in airport expansion planning, both nationwide and at PIA, and recommended a major policy shift for the Port in the matter of expansion plans for PIA. The recommendations of the statement were shortly thereafter adopted by the Commission. The essence of the circumstances leading to the expansion plan withdrawal is very adequately summarized in the Executive Director's statement. Major points from the statement are paraphrased in the following paragraphs.

---

[1] See Technical Appendix B, page B-123, for a more detailed explanation.

The statement cited several new considerations to be made in airport planning which had not affected the original master planning that was begun in 1965. For one, the automobile's ultimate limitations and the need to shift to more efficient, multi-passenger modes of transportation were not as obvious in 1965 as they currently are. Social and economic costs had raised serious doubts about final construction of three major freeways affecting traffic flow to the airport. These factors required major shifts to mass transit if Portland International Airport passenger loads were to be served.

The Executive Director's statement continued that wide-bodied jets were still on the drawing boards during original airport master planning. Facility designers at that time could not then clearly project their effect on airline flight scheduling or the economic pressures such new generation aircraft would place on air carriers to increase the number of passengers per flight. The development of these aircraft would accelerate an historical trend wherein the number of passengers grew much faster than the number of air carrier operations. Clearly, the document stated, passenger loads would triple by 1990, while air carrier movements would remain well within PIA's present capacity. The forecasts available to airport planners during the last half of the 1960's were very different from current forecasts. As late as November, 1972, projections of annual commercial operations at PIA had been reduced from 160,000 to 102,000 for 1980 and from 200,000 to 150,000 for 1990.

Additionally, the statement explained that new technology was rapidly coming available which would probably allow more efficient instrumentation. By 1982, new microwave instrument landing systems are scheduled for 603 airports, vastly improving instrument operational capacity without increasing required runway separation. The Executive Director continued that hardware presently exists that will ultimately make landings under instrument conditions almost as efficient as present operation under visual flight conditions. This again will serve to increase airport capacity without requiring actual physical expansion.

The Executive Director's statement further explained that FAA requirements for new airport construction had been used in the original PIA expansion planning, including a 5,000 foot separation between runways, which was required for simultaneous operation of aircraft under instrument conditions. FAA guidelines suggested that the 5,000 foot separation need not apply to existing airport situations; however, simultaneous independent landings would not, under current technology, be permitted at existing airports whose runways were less than 5,000 feet apart. [1] The instrument operation capacity of the existing runway situation may increase without having to increase runway separation, if there are continued technological advances. Again, none of this was clear to Port planners and consultants in 1965 when expansion considerations began, or in 1968 when the plan was adopted.

---

[1] See Technical Appendix B, page B-123, for a more specific explanation.

The Executive Director explained that by taking all of these considerations in mind, the Airport Planning Department of Boeing Aircraft had concluded that Portland International Airport could be expanded to meet forecasts of air travel need substantially beyond 1990 within the existing runway configuration. A summary of Boeing's analysis of the existing configuration was included in the Executive Director's policy document.

The policy document also recalled the three reasons for the Port's expansion plan when it was developed: (1) provide space between the runways; (2) provide space for the terminal; (3) provide land to minimize the possibility of a need for a new commercial airport in the metropolitan Portland area. Each of these reasons had lost much of its importance (as explained elsewhere in this report).

With the above noted changes, the need for expansion and river fill greatly diminished. The dredging and fill had been cause for most of the controversy, and the main source of public opposition to the Port's expansion plans. Moreover, it had been the cause of considerable litigation, making it uncertain that court approval of the dredging could be obtained for five or more years.

The document further mentions the Port's need to meet potential international markets with a timely extension of the south runway. Pending the Commission review of the broader policy changes recommended in the July 10th document, additional technical work was required and there was a need to examine both ends of the south runway again before an extension plan could be finalized.

The Executive Director's statement concluded with the following recommendations, which were adopted on July 11, 1973:

a. Abandon the Port's PIA Expansion Master Plan.

b. Close out the existing environmental impact statement effort.

c. Contract for a new PIA expansion master plan and environmental impact statement, utilizing the existing runway configuration.

d. Prepare both ends of the south runway for possible extension.

e. Aggressive land bank acquisition program.

f. Urge strong zoning around the airport and proper configuration of the I-205 bridge.

g. Encourage innovation with mass transit.

The Port's general plans to expand PIA have been postponed indefinitely, pending the preparation of an entirely new PIA Expansion Master Plan, which will not include such a modification of the Columbia River. The existing environmental impact statement effort has been closed. Both ends of the south runway have been prepared for possible extension, i.e., filling, grading, and settling. An airport planning consulting firm was retained to determine alternative runway length and placement. An environmental consulting firm was awarded a contract to prepare a new environmental impact statement on the south runway extension alternatives, utilizing the existing runway configuration and assuming the filled, graded, and settled runway embankment extensions on either end of the south runway. 1/

1/ As described in the Port's introductory preface to this report, the filling and grading has been completed and, with certain exceptions, is not substantively addressed in this impact report.

C. Future and On-Going Action

1. Present Passenger & Cargo Terminal Expansion
Parking Lot Realignment (refer to Map #4, page I-7)

Construction is currently underway to expand the existing terminal building at PIA. When completed in 1975, the terminal will be nearly double in size. The expansion is being made in the direction of the parking area and includes the addition of some 36,000 square feet to the upper level and 68,000 square feet to the lower level. The expanded terminal is planned to accommodate 5 million passengers per year and includes the following:

a. relocation of the ticket counters into the expansion area;
b. expanding the waiting areas on the west side of the building, with large view windows overlooking the airfield;
c. expanding the existing restaurant and bar;
d. expanding concession areas on the east side of the waiting room;
3. relocating the baggage claim area into the expanded quarters on the lower level; delivering baggage on seven continuous-belt claim devices (versus three carousels in the existing facility).

Concourse K has recently been extended and modernized to provide five 2nd level gates and a new federal inspection facility.

At the east end of the present parking lot, a central utilities building is nearing completion and will serve as the control center for heating, air conditioning, electrical, and telephone service for the entire airport complex.

A 7.1 acre air cargo site is now under construction just south of the airport entrance. The facility is to include an additional 54,000 square feet of cargo space. A separate structure is being sought for forwarders, customs service, and postal offices.

The existing parking area is being reconfigured. The southerly segment of the terminal loop road is being re-routed further south to surround the area formerly given to excess parking. The total area dedicated to parking will be lessened due to the additional space to be occupied by added roadway. The utilities building and additional landscaping account for a major share of the reduction. After reconfiguration, the parking area will include a total of 3,606 spaces: 2,669 for the public, 566 for employees, and 371 for rental cars. Ultimately, a two-level roadway to the terminal will serve curbside transportation for enplaning and deplaning passengers. From the parking lots, pedestrians will enter the terminal building through 16-foot wide tunnels with escalators and elevators at each entrance.

2. Relocation of 82nd Avenue (refer to Map #4, page I-7)

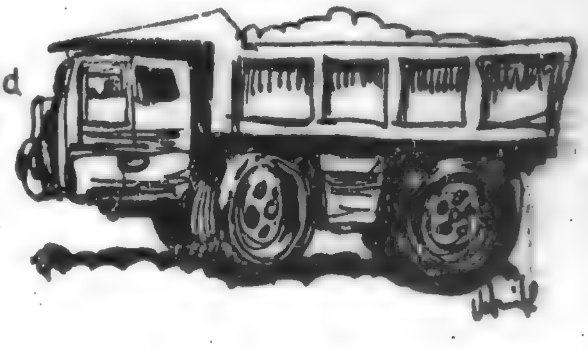
Any relocation of 82nd Avenue will depend on the direction of the runway extension in the immediate future. If the runway is extended entirely to the west, any relocation of 82nd will be re-evaluated as to timing and final design. If it is extended to the east, 82nd will, of course, have to be further to the east. Preliminary plans show 82nd relocated to form a wide arc beginning at the Columbia Blvd. underpass and extending norteasterly across the present intersection of Lombard St. and 96th Avenue. After bending around this point, it is shown extending straight to join the existing access road just north of the new cargo facility. So arranged, 82nd should cross the extended centerline of the south runway at a point approximately 3,750 feet east of the point where it currently crosses that line.

Two parcels of private land, totaling approximately 80 acres, will be acquired for such a relocation of 82nd Avenue. No residential units will have to be displaced. A new bridge will be constructed across the Columbia Slough, just north of the Columbia Blvd. underpass. As for the long term, the details of final design may differ from those above, and, in the event of a westerly runway extension, 82nd Avenue relocation will be accomplished at a later date.

3. Filling at Both Ends of the South Runway (refer to Map #4, page I-7)

As recommended by the Executive Director's policy recommendation of July 10, 1973, and adopted by the Port Commission, the Port has proceeded with the filling and grading preparation of both ends of the south runway for possible extension. A settlement period is required before other activity can take place on the graded landfills.

To the west, work recently completed includes the construction of embankments with approximately 680,000 cubic yards of sand material from two borrow sources [1] on airport property near the southwest airport boundary. Minor modification of the drainage network was also included in this phase of the filling and grading. The existing Approach Lighting System (ALS) units were displaced and stored away from the construction site. After the completion of filling and the application of crushed aggregate surfacing, the ALS units were relocated on top of the new fill.



To the east, work included the installation of approximately 990 lineal feet of 78-inch storm sewer pipe and construction of embankments with approximately 185,000 cubic yards of sand material. For this work, a borrow source just east of the south runway, immediately across 82nd Avenue was used to supply the needed fill. The existing array of localizer antennae was re-positioned after filling operations were finished. The filling and grading resulted in a sufficient base for any eastward extension up to 82nd Avenue. The borrow source immediately east of 82nd was used for this purpose and is consequently being lowered to a rough-grade level equivalent to that being established west of 82nd Avenue. Upon filling in the "cut" left for existing 82nd Avenue, enough rough graded fill will exist for an approximate 2,200 foot eastward runway extension. 1/ Filling was required to ensure adequate settling to meet any construction scheduled for next year.

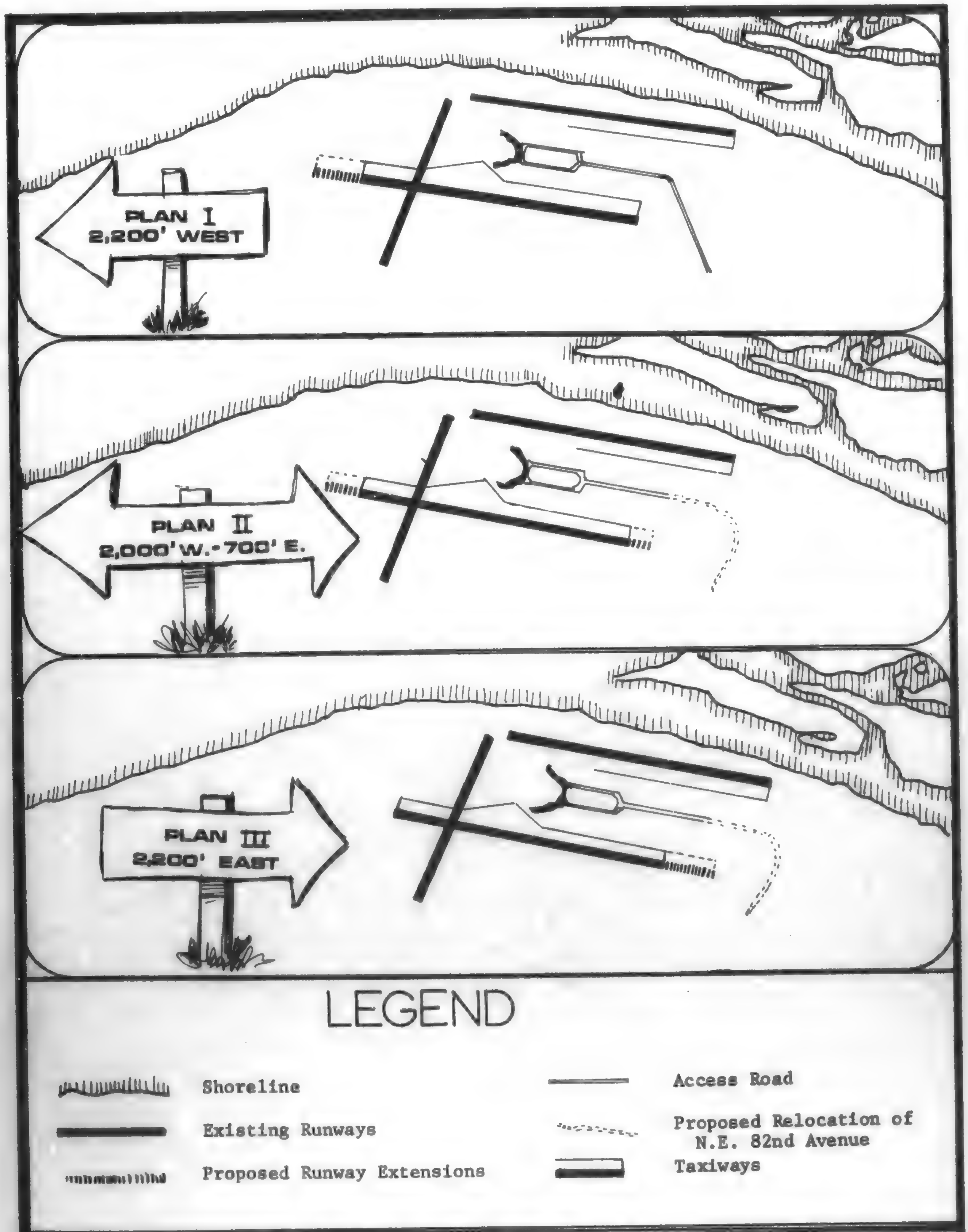
---

[1] Sources of stock piled sand fill.

4. PIA Master Plan

A new master plan will be formulated in anticipation of projected increases in passenger and freight traffic, without changing the runway alignment as presently configured. Boeing studies, the airlines, and the FAA have all agreed that the existing configuration, with proper modifications, will meet the needs of PIA through 1990. Mass transit to and from the airport will be addressed in detail in the new master plan. Timing of this plan is several years in the future and when undertaken it will assume any construction associated with a south runway extension. It will therefore not be a "dated" plan as of the start of any construction in the near future.

1/ The environmental impact of these filling and grading activities is not a topic for consideration in this report.


PLAN I
2,200' WEST
PLAN II
2,000' W.-700' E.
PLAN III
2,200' EAST
LEGEND
Shoreline
Existing Runways
Proposed Runway Extensions
Access Road
Proposed Relocation of N.E. 82nd Avenue
Taxiways

OPTIONS MAP 5

II. Proposed Project

A. Project Description

1. Direction of South Runway Extension (Refer to Map #'s 4 and 5, pp. I-7, II-1)

For the purposes of discussion, the various alternatives and options will be organized as follows:

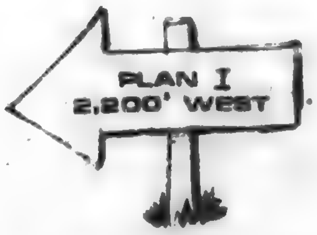
a. Alternative I
No project; existing conditions prevail. Existing conditions include the filling and grading thus far accomplished and anticipated as a part of the existing project.

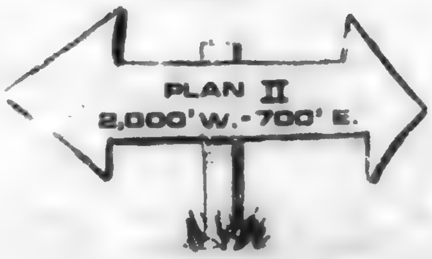
b. Alternative II
Project to extend the south runway as per recommendations in the "Final Report of the Demand Forecast and Runway Extension Analyses" 1/ (hereafter referred to as the Boeing Report) and described as the following options:

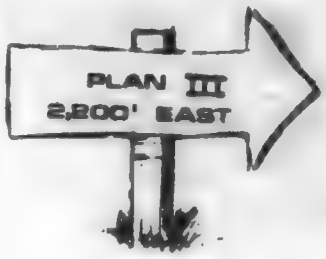
(1) Plan I
An 11,000 foot runway achieved by a 2,200 foot extension in a westerly direction.

(2) Plan II
An 11,500 foot runway achieved by a 2,000 foot westerly extension and a concurrent 700 foot easterly extension, including a relocation of 82nd Avenue.

(3) Plan III
While not a recommendation of the Boeing Report, the following option is proposed by the Port of Portland: An 11,000 foot runway achieved by a 2,200 foot extension in an easterly direction, including relocation of 82nd Avenue.







The first two options for extension (Plan I and Plan II) as depicted on Map #5, page II-1, and as recommended by the Boeing Report were arrived at by attention to two major considerations: (1) physical limitations of the site and its property boundary; and (2) operational advantages allowing the maximum number of operations per hour with the existing

---

1/ Boeing Aerosystems, Boeing Commercial Airplane Company, Renton, Washington, "Portland International Airport - Final Report of the Demand Forecast and Runway Extension Analyses", September, 1973.

parallel runway separation of approximately 3,100 feet. These issues are fully addressed in the Boeing Report, pages 123 to 126 (the Boeing Report is reproduced in full in Technical Appendix B).

Since the Boeing Report so thoroughly addressed the above issues, pages 123-126 of the Report are presented below as description of documentation for the first two optional Plans under consideration. 1/

"Runways System Operational Capacity

"Assuming no credit for threshold [beginning of landing area] displacement, the existing 10/28 parallel runway system at Portland International has a practical hourly capacity of 54 operations [take-off or landing] per hour and a practical annual capacity of 280,000 operations. This capacity level determination is based on a method used by the Federal Aviation Administration for obtaining the approximate practical hourly capacities of various airport configurations. The method is intended for use in long range (10 years or more) planning for expansion of existing airports and construction of new airports to accommodate forecast demand.

"The lateral spacing of the existing runway system [Map #4, page I-7] is approximately 3,100 feet. When parallel runways are laterally spaced apart a sufficient distance to permit independent arrivals (minimum of 5,000 feet), each runway may be considered as a single runway, and the capacities are estimated at 84 operations per hour and 340,000 annual operations.

"Lateral separation [of parallel runways] of down to 3,500 feet still permits independent approach/departure operation, and hourly capacity is only reduced by 10 operations/hour from that obtained with the 5,000 feet separation, resulting in 74 operations per hour and 330,000 per year.

"When the lateral separation is less than 3,500 feet, as in Portland, the level of capacity estimated for the 3,500 feet separation can be achieved by offset thresholds. 2/ The criteria for

---

1/ The authors of this EIR have added comments in brackets and/or footnotes in brackets to further explain what is presented.

2/ [Offset thresholds--if the two landing thresholds on the parallel north and south runway system are directly opposite each other they are laterally approximately 3,100 feet apart. By shifting (offsetting) either one or both of these thresholds east or west, the actual distance between them can be increased--hence, an operational advantage is created.]

runways with offset thresholds requires that for every 100 foot closer lateral spacing below 3,500 feet, the threshold must be offset 500 feet. When these criteria are met, simultaneous approach/departure operations are permitted and a capacity is obtained which is about equal to parallel runways with 3,500 foot spacing and evenly aligned thresholds. The ultimate capacity would then be 74 operations per hour. While not needed at present, this capacity should be preserved.

"With the current runway lateral separation, at Portland, of 3,100 feet the above criteria requires that the landing thresholds be offset by at least 2,000 feet. The present threshold offset at the East end of the runway is 2,700 feet. Therefore the extension of the South runway towards the East should not exceed 700 feet, to maintain the minimum 2,000 foot offset. The extension of the South runway towards the West would preserve the current easterly offset of 2,700 feet while increasing the offset at the West end.

"The basic methodology used in assessing runway capacity is given in FAA Advisory Circular A/C 150/5060-1, 'Airport Capacity Criteria Used in Preparing the National Airport Plan.'

"Noise Considerations

"Takeoffs toward the East from the South runway overfly Portland's eastern communities. If the South runway would be extended totally towards the West, the takeoff roll would start further away from those eastern communities and the climb over them would be at a higher altitude. Aircraft using the full length of the extended runway would still have the same climb profile as at present, over the eastern communities. Takeoffs towards the West have a climb profile over the Columbia River.

"Aircraft Ground Movements

"The movement of aircraft on the ground, namely from the landing runway to the passenger terminal, and later from the terminal to the takeoff runway, is a necessary but non-productive maneuver, and it is the cause of fuel consumption, noise, air pollution, arrival and takeoff delays, reduced aircraft utilization, and additional trip time.

"Using two runways, one for arrivals and another for departures, the minimum taxiing distance is the separation between runways. This situation can be approximated when the terminal is located between both runways, and between the end of landing roll exit and the start of takeoff position.

"With an extension of the South Runway towards the West, and with the East threshold remaining in its present position, the above condition is fulfilled at Portland. Therefore, the extension should be built totally on the West end of the South Runway.

"RECOMMENDATIONS

"The expansion of Portland International Airport's existing facilities is the most feasible method of providing the commercial aviation facilities that are estimated to be needed in this region for the next twenty years. The Port of Portland does recognize its responsibilities to the state and region beyond its own political boundaries. The Portland International Airport serves as the major hub for air travel and air freight forwarding for all of the State of Oregon and a large segment of the State of Washington. All financing is from federal aid and from revenues from operations, including payments from the airlines for the use of facilities.

"Furthermore, the economic health of the Port area is dependent on the economic health of the region it serves and that this in turn is largely dependent on the adequacy of the total transportation system of which aviation is a vital part.

"Thus, to insure a balanced economic environment which is a mandate defined in Oregon's goals, a viable Air Transportation System is a demonstrated requirement. The quality as well as the quantity of the transportation facilities is important. Dependability, reliability, safety, cost and speed are among the characteristics that determine the quality of the transportation system. The relative importance of these several factors varies both between communities and between shippers and travelers.

"Today the preferred form of transportation over long distances is non-stop air transportation. Types of business which are particularly dependent upon air passenger and cargo transportation include firms engaged in research and development and generally require considerable air travel for their personnel. Other businesses performing extensive personal contact, and thus air travel, include those firms performing business consulting services and firms with extensive marketing activities or widely dispersed production facilities.

"With regard to airfreight, the relative dependence of different types of business also varies greatly. Firms shipping commodities which must get to their destination rapidly are particularly interested in airfreight. Among such commodities are high fashion clothing, nursery products, films, certain perishable foods, pharmaceuticals, electronic equipment, and other items of relatively high value and high density.

"Air transportation has greatly facilitated the development of business and industrial operations of broad geographic scope by making it possible for technical and managerial personnel to visit scattered installations frequently and conveniently. It has been possible for industrial companies drawing raw materials from widely dispersed locations to be more effectively managed partly because of expeditious air travel. Moreover, world-wide marketing of products has been greatly facilitated by air travel of marketing personnel. These two industrial and business trends, stimulated in part by air travel, have contributed to the expansion in the scale of industrial production and thereby have made possible reductions in the unit cost and sale price on manufactured products. While the magnitude of these reductions cannot easily be measured, they are nonetheless real.

"Therefore, considering both the quantitative analysis presented in this report, the qualitative conclusions derived thereof, and the judgement which is inclusive with all long range forecasts, we recommend the extension of the south runway.

"A. Runway Length

1. Considering the results of the Aircraft Payload Range Operation Analysis, and other conditions presented in Section XI, we recommend:

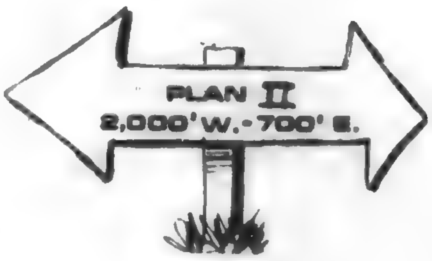
   a. An 11,000 foot runway obtained by addition of 2,200 feet towards the west. This addition does not require relocation of the airport access highway nor of the localizer. [See Map #5, page II-1]

PLAN I
2,200' WEST

   b. Maintain the current position of the east threshold to preserve the offset between both runway thresholds on the east end.

2. As an alternative for evaluation and comparative cost trade-off:

   a. An 11,500 foot runway obtained by adding 2,700 feet of which 2,000 feet would be on the west end and 700 feet on the east end. [See Map #5, page II-1]



   b. This alternative requires the additional investment of relocating the access highway and the ILS localizer."

The above physical and operational design factors were paramount in the development of the first two project options. Since the goal of any such project is to increase or retain PIA's operational capacity, it is appropriate to examine under "Project Description" the actual effectiveness of such options in regards to just how the potential capacity would be affected.

Table VI-B-2 [1] of the Boeing Report states that the 8,800 foot existing runway reduced the maximum take-off weight of nine major planes resulting in operational limitations. If one considers 100% occupancy charter passenger service, Table VI-B-5 [2] indicates that six key planes have their take-off weight and flying range restricted respectively 15 to 24 percent and 8 to 13 percent by the 8,800 foot runway. Additionally, Table VI-B-3 [1] shows that of the four key cargo planes used, three require substantially more than a 10,000 foot runway.

---

[1] Appendix, this report, page A-7.

[2] Appendix, this report, page A-10.

Table VI-B-7 [2] reports that twelve major aircraft types require more than 8,800 feet for take-off with maximum certified weight under normal design conditions. Six of these can operate on an 11,000 foot runway and ten can operate on an 11,500 foot runway. To the extent that any or all of these can serve the Portland metropolitan area, the benefits will be proportional if the potential for charter service and freight service is optimized.

In light of the above discussion, the following may be said about Plans I and II:

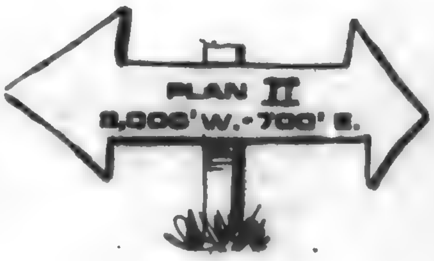
Plan I

The 2,200 foot westerly extension of Plan I is an operational compromise in that its 11,000 foot runway will handle all but six planes (two of which are no longer in production) on take-off under maximum design conditions. Additionally, the 2,200 foot westerly extension will affect only about 0.3 acres of private land with its associated clear zone. No relocation of 82nd Avenue is required with this option and the desired threshold offset is also maintained. The relocation of the Approach Lighting System (ALS) is required with this option.

PLAN I
2,200' WEST

Plan II

The 11,500 foot plan is also a compromise. The operational capacity is improved, handling all but the two planes above (no longer in production). The 2,000 foot westerly extension affects only about 120 square feet of private property with its clear zone. The accompanying 700 foot easterly extension and its clear zone do not affect private land and still maintains the desired threshold offset. This option does, however, require that 82nd Avenue be relocated further to the east.



---

[1] Appendix, this report, page A-8.

[2] Appendix, this report, page A-12.

The Port, as mentioned earlier, desires consideration in this EIR of a 2,200 foot easterly extension, which is herein referred to as Plan III.

Plan III

PLAN III
2,200' EAST

This 2,200 foot easterly extension has the same operational capacity compromise for total length as the 11,000 foot runway of Plan I. It may have, however, a further operational compromise in that the staggered threshold concept may be lost, thereby possibly reducing[1] PIA's ability to accommodate future operations without further runway alterations. The inherent advantage in this Plan is that no non-PIA land falls within the clear zone. An inherent disadvantage, however, is that not only will 82nd Avenue have to be relocated, but N.E. Lombard Street will be cut by the 1,000 foot military overrun and will consequently be vacated. The altitude of aircraft passing over eastern residential areas will be lower with this option. Once a commitment to this option would be made, the possibility of a future westerly extension could very effectively increase runway length.

The above project description has possibly gone beyond what may be considered necessary for a strict "physical" description. However, there are many diverse and important matters connected with each option that each reviewer of this EIR must have before him or her as this report develops.

2. Location of Taxiways (Refer to Map #'s 4 & 5, pp. I-7 & II-1)

The "no project" alternative, of course, involves no taxiway extensions. Regardless of the option of Plan I, II, or III, existing taxiways will be extended a distance equal to the runway extension(s) itself. The existing taxiways are parallel and to the north of the existing south runway. There is an existing taxiway south of the runway, used primarily by military aircraft, which will not be extended in the foreseeable future. The new taxiways and their necessary embankments will turn to intersect the ends of the runway extension so as to permit take-off "roll" to begin as close to the end of the runway as possible. Aircraft which do not need the entire runway length to decelerate after touchdown may taxi to terminal facilities from intermediate points on the runway.

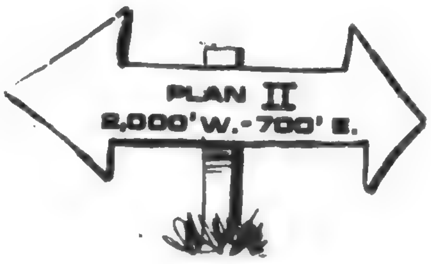
3. Relocation of Navaids

The "no project" alternative, Alternative I, will require no relocation of navaids beyond that completed to accommodate the filling and grading. Extension to the west, a characteristic of Plan I and Plan II, will require the relocation of the Approach Lighting System (ALS) and other navaids such as the middle marker, the glide slope transmitter, the Runway Visual Range (RVR) transmissometer, and the ceilometer. The ALS is a linear configuration of light towers that extend beyond the end of the runway along the runway centerline. Each tower contains a set of bright lamps and a strobe connected to a synchronizer that causes the lamps to flash in a rapid sequence, beginning with the lamps furthest out and ending with those closest to the runway. FAA regulations require a full ALS to be 3,000 feet in length, beginning 200 feet from the end of the runway. Moreover, no surface objects may penetrate the minimum 50:1 glide slope inclination. The Port is advised by Boeing Consultants that there is not enough room to extend the runway 2,700 feet west (to a total of 11,500 feet) and still allow for other tolerances such as the minimum clear zone over the levy and Marine Drive. 1/

---

[1] Depending on operational procedures adopted, there may be no affect. Only 7,000 feet are needed to land even the largest plane, so the existing landing threshold could be maintained unless other operational matters would prevail.

PLAN I
2,200' WEST



The middle marker is a ground transmitter which serves to locate a distance from the landing area for aircraft on final approach. This point is typically 3,500 feet from the end of the runway and is located by means of a vertical radio signal. Aircraft approaching exactly on the glide path are 200 feet above the ground at this point and from 10 to 15 seconds away from the end of the runway.

The glide slope transmitter is an electronic device which serves to locate the plane of the extended glide path, or aircraft approach angle. The glide slope transmitter beam is 90 degrees to the localizer beam. The transmitter itself is located between runway ends (typically 750 and 1250 feet from either end) and 400 feet off to the side.

The RVR transmissometer is a series of markers along the side of the runway which permit pilots to determine atmospheric visibility.

PLAN II
2,000' W.-700' E.

The ceilometer is an electronic device which determines the altitude of the cloud ceiling by bouncing an electromagnetic beam off any clouds which are directly above the device. The ceilometer is operated by the U.S. Weather Service.

PLAN III
2,200' EAST

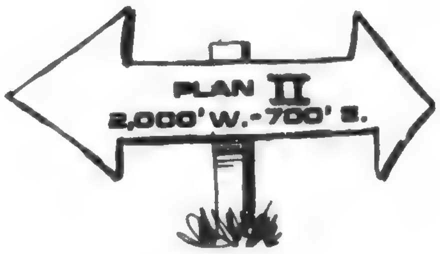
Extension to the east, Plan II and Plan III, will require the relocation of the localizer antenna array. The localizer broadcasts a continuous beam which serves to locate the vertical plane of the runway centerline. The antennae are typically located 1,000 feet beyond the end of the runway. An easterly

---

1/ It would be necessary for the Port to purchase outright or obtain the development rights to about 29 acres of prime riverfront land. It has been estimated by the Port staff that this figure could approach $8,000,000.

extension of the runway will also include the extension of the runway edge lighting, runway centerline lighting, and taxiway edge lighting systems.

4. Relocation of 82nd Avenue (Refer to Map #4, page I-7)



Associated with both Plans II and III is the relocation of 82nd Avenue. In the case of Plan II, the military overrun and localizer will cross existing 82nd Avenue, thereby necessitating the closure of 82nd Avenue, at least north from N.E. Lombard Street. If Plan III is selected, the main runway will cross 82nd Avenue, also forcing its closure. The 1,000 foot military overrun of this Plan, the 2,200 foot easterly extension, will cut across N.E. Lombard Street, thereby requiring its closure. Relocation of 82nd Avenue is planned approximately as shown on Map #4, page I-7.

PLAN III
2,200' EAST

Since federal dollars may be expended on any efforts to relocate 82nd Avenue, the project, in and of itself, will fall under the National Environmental Policy Act (NEPA). Under the provisions of this act, the environmental impact of the road on the slough area will be assessed, and either a negative declaration filed or an Environmental Impact Statement prepared.

5. Relationship to Section 4(f) Lands

Section 4(f) of the Department of Transportation Act of 1966 states that the Secretary of Transportation

> ". . .shall not approve any program or project which requires the use of any land from a public park, recreation area, wildlife and waterfowl refuge, or historic site unless (1) there is no feasible and prudent alternative to the use of such land, and (2) such program includes all possible planning to minimize harm to such park, recreational area, wildlife and waterfowl refuge, or historic site resulting from such use." (P.L. 89-670; 80 STAT. 931 89th Cong., H.R. 15963, SEC. 4(f))

The Alternative I, no project, obviously affects no 4(f) lands. The area that will be used for the proposed runway and taxiway regardless of either option (Plan I, Plan II, or Plan III) does not include land from any public park, recreation area, wildlife and waterfowl refuge, or historic site. The area to be used by any option consists of land which is entirely within the existing airport property boundary as revised May 1, 1973.[1]

---

[1] The clear zones associated with the westerly extensions do not entirely confine themselves to this boundary, but none of the land not confined is "Section 4(f)" land.

Nearly all of the land required to accommodate all extension options has been cleared and recently used for agricultural purposes. Dominant use has been for haycropping and row crops. The runway extension itself would involve land presently being worked by a limited number of tenant farmers.

Two parcels of private land, totalling approximately 80 acres, are being acquired for the eventual relocation of 82nd Avenue. The proposed route as explained earlier and shown on Map #4, page I-7, involves land which is entirely within the authorized 1975 airport boundary.[1] The reader should recall that the relocation of 82nd Avenue is not a part of Plan I, the 2,200 foot westerly expansion. It is, however, a part of both Plan II and Plan III. Regardless of whether a 700 foot or 2,200 foot easterly runway extension takes place, the relocation route will be the same substantial one to the east as earlier described under I., C., 3., "Relocation of 82nd Avenue" and as shown on Map #4, page I-7. The first private land owner, a warehouse tenant, and a subsidiary of a large steel conglomerate, and will be faced with negotiating a new lease agreement. The main facilities of this business tenant are located just blocks from the 82nd Avenue turnoff. The owner of the second large parcel of land needed for the street relocation utilizes some of the land for nursery stock, farming acreage, and rental space to an advertising firm. None of this land is included in the definition of 4(f) land.

Relocation assistance, both financial and general, will be provided for all of these activities. The above displacement will be administrated in accordance with Public Law 91-646, the Uniform Relocation Act. No residential units will have to be displaced.

In the event that 82nd Avenue is relocated as a part of Alternative II, one of the "project" Plans, a new bridge will be constructed across the Columbia Slough, just north of the Columbia Blvd. underpass. The section of the Columbia Slough affected does not involve land from any public park, recreation area, wildlife and waterfowl refuge, or historic site.

---

[1] Authorized 1975 boundary - the boundary line enclosing that area for which the Federal Aviation Administration has authorized the Port's use of Federal funds for the purchase of land.

B. Project Sequence

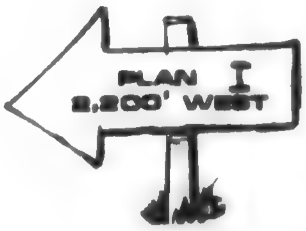
The no-project alternative involves no project sequence, however, it must be noted that increased use of PIA will occur similar to the projections without regard to any complications which may occur.

At this point of time in determining alternatives, the exact sequence of project tasks has not been determined. This direction may partially be decided on the basis of this environmental report. The previous environmental impact statements on the south runway extensions did detail separate project sequences for the extensions to the east and to the west. Using those descriptions as general guides, one can fairly accurately anticipate the sequences of action. Items marked by an asterisk (*) have been recently completed and therefore are not a consideration in this report.

1. Plan I--Add 2,200 feet of paved runway to the west end of the runway with no easterly extension.

*a. Temporary disconnection and removal of the approach light fixtures.

*b. Filling, construction, and grading for the runway and taxiway foundation with approximately 680,000 cubic yards of sand material from two borrow sources (previously stockpiled) for approximately 2,200 feet west from the end of the existing runway. Minor site drainage work was also to be included in this phase.



*c. Temporary reinstallation of the approach lights on top of the fill, to allow Instrument Flight Regulations (IFR) operations.

d. In late spring, 1974, grading of the sand fill will commence. Grading of the areas of future pavement will be delayed to the final stages of the grading phase for two purposes--first, to allow the approach light system to remain in operation during the Spring IFR weather and secondly, to allow the surcharge (extra layer of sand fill) to expedite settlement of the subgrade. Drainage of the construction area will be accomplished during the grading operations.

e. The temporary approach light system will be removed and installation of the new Instrument Landing System (ILS) and middle marker will begin as grading proceeds.

f. Paving operations on the runway and taxiway system would proceed as removal of the temporary ALS proceeds.

g. Installation of new runway edge lights and centerline lights will run concurrently with the paving operations. Touchdown zone lighting and completion of the high intensity runway lights and the taxiway lights will follow during the final stages of paving operations.

h. Final grading of the glide slope area and relocation of the glide slope facility and the RVR will occur during the middle stages of the paving operation. Additional RVR facilities will be installed approximately at midpoint of the runway and at the east end of the runway during the same period of time.

i. There will be no relocation of 82nd Avenue associated with this option.

NOTE: Proper airport design requires that a very long gently tapering slope be graded from the end of the runway's embankment down to the existing normal grade. In the case of Plans II and III, presented below, this eastern end grade is to be paved for the first 1,000 feet from the end of the runway, thus constituting the military overrun.

2. Plan II--Add 2,000 feet of runway to the west end and 700 feet to the east end of the runway.

a. Since there is to be a substantial westerly extension, all of the steps appearing under Plan I, above, would be applicable here. The only variation would be that 200 feet less paving would be taking place and there would be a resulting easterly shift of the navaids.

*b. Land acquisition for 82nd Avenue relocation. (Although land acquisition is taking place which may be used for the relocation of 82nd Ave., this is the fulfillment of the PIA's authorized 1975 boundary. This boundary is a manifestation of the Ports' policy to acquire land to minimize the problem of encroachment.)

PLAN II
2,000'W.-700'E.

*c. Filling and construction of embankments for runway and taxiway foundations with approximately 185,000 cubic yards of sand material from a previously stockpiled borrow source east of 82nd Avenue. Surcharging [1] is taking place from 82nd Avenue, westerly toward the end of the runway taxiway for approximately 1500 feet.

*d. Installation of approximately 990 feet of 78" storm sewer pipe and grading west of existing 82nd Avenue.

e. Immediately following any Port decision to select this option (Plan II), steps will be taken to begin the relocation of 82nd Avenue and the eventual vacation and abandonment of existing 82nd Avenue. However, preliminary design including the necessary surveys and soil investigations for the relocation of 82nd Avenue have been completed.

(1) Grading, drainage and paving of the new 82nd Avenue.

---

[1] Surcharging is the exaggerated piling of fill onto the extended runway alignment to speed settling. The excess will later be graded off to taper or feather the embankment sideways to the existing terrain level.

(2) Vacation of existing 82nd Avenue, Lombard Street and Alderwood Road.

(3) Finish paving of 82nd Avenue and construction of N.E. Buffalo Street. (See Map #4, Page I-7)

(4) Reroute traffic on new 82nd Avenue and place runway in operation upon the completion of all other runway and taxiway details.

f. Runway and taxiway paving will proceed after settling has occurred.

g. Runway edge lights, runway centerline lights and runway touchdown zone lights installation will run concurrently with paving operation.

h. FAA relocation of localizer antennae approximately on the existing right-of-way of 82nd Avenue and upgrading of the ILS will occur during the final paving.

i. Reinstall the military arresting barrier.

3. Plan III--A 2,200 feet of runway to the east end of the runway with no westerly extension.

*a. Land acquisition for 82nd Avenue relocation. (Although land acquisition is taking place which may be used for the relocation of 82nd Avenue, this is the fulfillment of the PIA's authorized 1975 boundary. This boundary is a manifestation of the Ports' policy to acquire land to minimize the problem of encroachment.)

PLAN III
2,200' EAST

*b. Filling, construction and grading of embankments for runway foundation with approximately 185,000 cubic yards of sand material from a borrow source (previously stockpiled) for approximatley 2,200 feet easterly from the end of the existing runway. For at least the immediate future a cut will be used for existing 82nd Avenue and for N.E. Lombard.[1]

*c. Installation of approximately 990 lineal feet of 78 inch storm sewer pipe and grading west of existing 82nd Avenue.

*d. Immediately following a port decision to select this option (Plan III), steps will be taken to begin the relocation of 82nd Avenue and the eventual vacation and abandonment of existing 82nd Avenue.

(1) Grading, drainage and paving of the new 82nd Avenue

(2) Vacation of existing 82nd Avenue, Lombard Street and Alderwood Road.

---

[1] As indicated on numerous maps, the 2,200 feet easterly extension crosses 82nd Avenue onto the borrow source stopping just short of N.E. Lombard Street. This borrow source is being lowered to the proper runway height as fill is removed to west of 82nd Avenue. As earlier described, a gentle sloping overrun area will be graded and paved for 1,000 feet as the military overrun. Both 82nd Avenue and Lombard will have temporary cuts left for them during construction.

(3) Finish paving of 82nd Avenue and construction of N.E. Buffalo Street. (Map #4, Page I-7)

(4) Reroute traffic on new 82nd Avenue and place runway in operation upon the completion of all other runway and taxiway details.

e. In late spring, the grading of the sand fill will commence. Grading of the areas of future paving will be delayed to the final stages of the grading phase for two purposes--first, to allow the existing localizer to remain in place and in continual operation for as long as possible, and secondly, to allow the surcharge (extra layer of sand fill) to have the maximum effect on settlement of the subgrade.

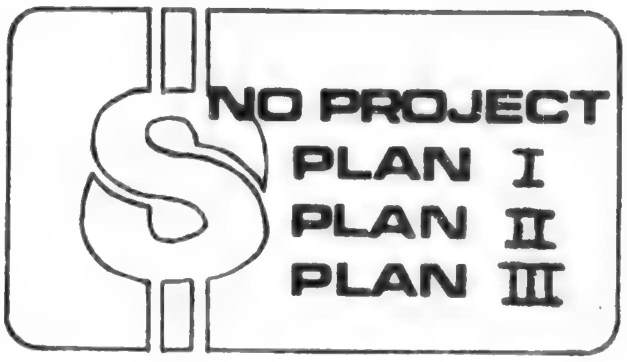
f. Paving operations on the runway and taxiway system would proceed as final grading is achieved.

g. Installation of new runway edge lights and centerline lights will run concurrently with the paving operations. Touchdown zone lighting and completion of the high intensity runway edge lights, runway centerline lights, runway touchdown zone lights and taxiway lights will follow during the final stages of paving operations.

h. FAA relocation of the localizer antennae and upgrading the ILS systems will occur during the final paving.

i. The reinstallation of the military arresting barrier will also occur during the final stages of paving.

C. Project Cost



The Boeing Consultants have made the following qualitative cost analysis:

"The extension of the south runway involves costs of varied nature. Some of these costs are directly related to the runway extension and to the length of the extension, such as:

1. Fill, drainage, and pavement of the runway extension.
2. Fill, drainage, and pavement of the parallel taxiway.
3. Installation of the necessary runway and taxiway supplemental lighting.

Other costs represent the expense of relocating navaids and illumination, as follows:

4. Relocation of runway threshold and approach lights. [1]
5. Relocation of runway related navaids. . . [1]

While others are complex, as:

6. The relocation of the airport access highway, which includes the removal of the present pavement and utilities, the delineation of the new right of way, fill, drainage, and pavement, and utilities." [2]

The Boeing Consultants continued:

"Consideration of runway extension length, and the associated costs for each length increment, discloses the following choices:

1. Minimum Cost. The do-nothing choice, or that of not extending

---

[1] These navaid relocations have taken place as associated with the filling and grading projects completed.

[2] Boeing Aerosystems, Boeing Commercial Airplane Company, Renton, Washington "Portland International Airport - Final Report of the Demand Forecast and Runway Extension Analyses", September, 1973. (See Technical Appendix B, page B-113)

the south runway, obviously represents the minimum cost that should be used as the base yardstick for other choices. 1/

2. Limited Cost Extension. A least cost extension would be that one which extends only one end of the runway. This can be accomplished by maintaining intact the present East end of the South runway (10R-28L). This avoids the cost of relocating (a) the access highway and (b) the ILS localizer. However, the cost of the extension to the west, would include the sum of fill, drainage, and pavement for the runway the parallel taxiway, as well as the supplemental runway and taxiway lighting, and of the middle marker, glide slope, and Visual Approach Slope Indicator (VASI) bases. This extension would be limited by the boundaries of the airport property.

3. Maximum Extension. Once the airport property west end limitation has been reached, it shall be necessary to consider the additional expense of relocating the ILS localizer, the access highway, together with those other expenses which are proportional to length of extension such as fill, drainage, pavement, and supplemental lighting of both runway and taxiway." 2/

1/ Although not mentioned here by the Boeing Consultants--but elsewhere addressed in this EIR--this "no project" alternative has the liability which was the Port's initial reason for considering the project. Specifically, that of limited operational capability because of not being able to take off certain numbers of larger and more heavily loaded planes whose destinations, when fully loaded exceed those currently attainable.

2/ Boeing Aerosystems, Boeing Commercial Airplane Company, Renton, Washington, "Portland International Airport - Final Report of the Demand Forecast and Runway Extension Analyses", September, 1973. (See Technical Appendix B, page B-120)

In consideration of Alternative I, the no project concept, there is no cost involved as far as this EIR will consider. The costs of the current filling and grading are definitely a reality, but are currently being absorbed by existing programs.

Under the "project" alternative consisting of Plans I, II, and III, the following cost estimates are provided:

TABLE 1
Runway Cost Comparisons - Phase I, II and III

Item	Plan I (2,200' West)	Plan II (2,000'West 700'East)	Plan III (2,200' East)
Grading & Filling *	$ 550,000	$ 650,000	$ 200,000
Final Grading and Drainage (including utility modifications perimeter road & fencing)	600,000	640,000	400,000
Pavement Construction	1,418,000	1,750,000	1,250,000
Runway Lighting	200,000	210,000	180,000
Navaids	350,000	450,000	100,000
Total Estimated Construction Cost	$3,118,000	$3,700,000	$2,130,000
Engineering design, construction, inspection & supervision, administration & contingencies	882,000	1,036,000	600,000
Total Extension Project	4,000,000	4,736,000	2,730,000
82nd Avenue Relocation	---	2,822,000	2,822,000
TOTAL PROJECT**	$4,000,000	$7,558,000	$5,552,000

---

* It must be noted that approximately $750,000 has been expended to accomplish the preliminary filling and grading under all of the Plans.

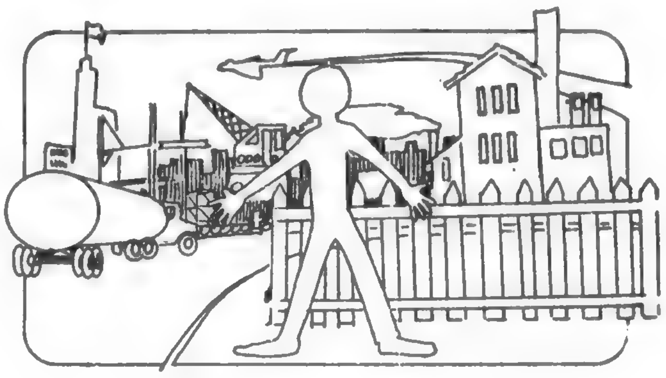
** Does not include cost of category II centerline & touchdown zone lighting for existing runway length (Est. $470,000). This project will be concurrently undertaken.

SOURCE: Cost estimates provided by Port of Portland (See Technical Appendix C, page C-1)

D. List of Section 16 Affected Communities

Section 16(c) (3) of the Airport and Airway Development Act of 1970 states,

"(3) No airport development project may be approved by the Secretary (of Transportation) unless he is satisfied that fair consideration has been given to the interest of communities in or near which the project may be located." [1]



Accordingly, the following list identifies those communities within approximately thirteen (13) miles of PIA. [2]

Community and State	Directional Quadrant and Miles From PIA
	N.E. QUADRANT
Orchards, Wash.	6 Mi.
Brush Prairie, Wash.	10 Mi.
Ellsworth, Wash.	2 Mi.
Proebstel, Wash.	8 Mi.
Fisher, Wash.	5 Mi.
Camas, Wash.	9 Mi.
Washougal, Wash.	11 Mi.
	S.E. QUADRANT
Gresham, Oregon	10 Mi.
	S.W. QUADRANT
Milwaukie, Oregon	10 Mi.
Lake Oswego, Oregon	12 Mi.
Portland (CBD), Oregon	7 Mi.
Beaverton, Oregon	13 Mi.
	N.W. QUADRANT
Vancouver, Wash.	5 Mi.
Felida, Wash.	10 Mi.

---

[1] (P.L. 91-258; 84 STAT. 227, May 21, 1970, 91st Cong., H.R. 14465, SEC. 16(c)(3).

[2] Source: Approximately 12 mile radius circle drawn on Oregon state road map, Standard Oil Company of California, 1973 edition.

A department of Transportation Order implementing Section 16 of the Airport Act also requires the Port of Portland to include the following information in the final environmental impact statement on the project:

1. "Identification of steps taken by the applicant to determine the interests of those communities, including economic, environmental, and social interests, as well as transportation interests.

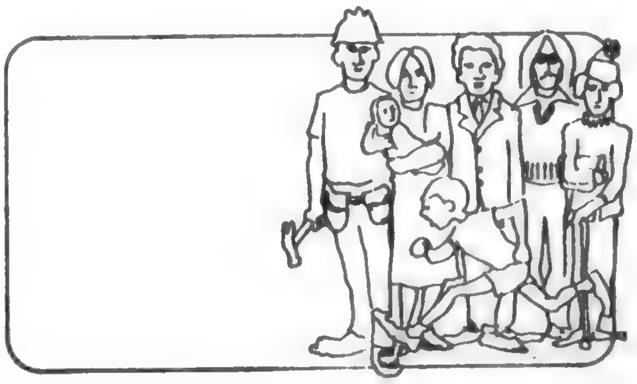
2. "Statement of the specific actions taken in planning the project to recognize and to meet the communities' interests.

3. "For identified community interests which are in conflict with the project, a statement explaining why the interests have not been met, what alternatives have been investigated to meet the community interests, estimated costs of the alternatives and the reasons for not adopting the alternatives.

4. "For any project found to have an adverse effect on the environment, and for which no feasible and prudent alternative exists, identify all steps taken to minimize such adverse effect.

5. "For any project found to have an adverse effect on the environment, and for which all possible steps have been taken to minimize such effects, a request that the Secretary render the appropriate findings, in writing.

6. "Statement that the public hearings required by Section 16(d) of the Airport Act have been held.



7. "Statement by appropriate local planning officials that the project is consistent with the goals and objectives of such urban planning as has been carried out by the community." [1/]

The Port Commission and its staff is engaged in a continuing process of addressing the matters covered in the above seven items. Some of them have received specific attention in this draft and other items by necessity will be addressed only in the final document.

Specifically, the Port staff has been engaged in the following activities:

A. Port of Portland staff visited local government agencies and citizen groups in the area to probably be impacted by the extension plans. (See list of governments, Technical Appendix F). A letter of explanation was

---

[1/] ORDER, DOT 5610.1, 10/7/70, p. 11.

left at this time also, including an outline of the proposed EIR.

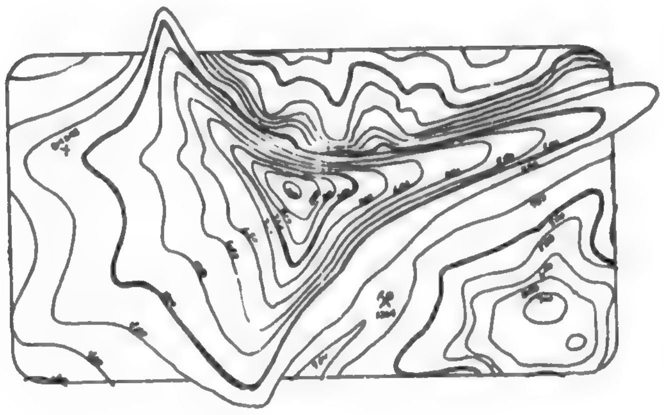
B. Copies of the outline of the EIR were submitted for review and comment to these various governments and agencies.

C. Three following newsletters have been forwarded to the governments and agencies. (See Technical Appendix F)

D. Three public information meetings, publicized by radio, TV, newspapers and fliers were held respectively October 8, 9, and 10 at Fremont Jr. High School, Columbia Grade School and Ft. Vancouver Regional Library. The purpose of the meetings was to provide information and to gather local comments and input concerning this project.

E. Additional public briefings will be held prior to the hearing associated with the EIR.

F. The project has also been submitted to the A-95 review agency for processing. Actual circulation will be reserved until the specific alternative and/or option is selected.



III. Environmental Impact

A. Natural Environment

1. Terrain and Topography [1]

a. Existing Conditions

The Region

The area comprising the PIA site is associated with Oregon's Willamette River Basin as well as the vast Columbia River (see Map #6, page III-2). This basin is situated in the northwest portion of the state and is roughly oblong in shape and runs in a north-south direction. The western watershed boundary is set by Oregon's Coastal Range, whose center runs north and south varying from approximately 11 miles to 40 miles inland from the Pacific Ocean. This range extends south beyond Eugene, the southernmost city in the Willamette Basin. The eastern watershed boundary is set by Oregon's Cascade Range, whose center line runs north and south approximately 115 miles inland from the Pacific Ocean. The Willamette River courses up the western third of this valley in a northern direction. However, PIA's relationship to the Willamette Basin is more socio-economic than physiographic.

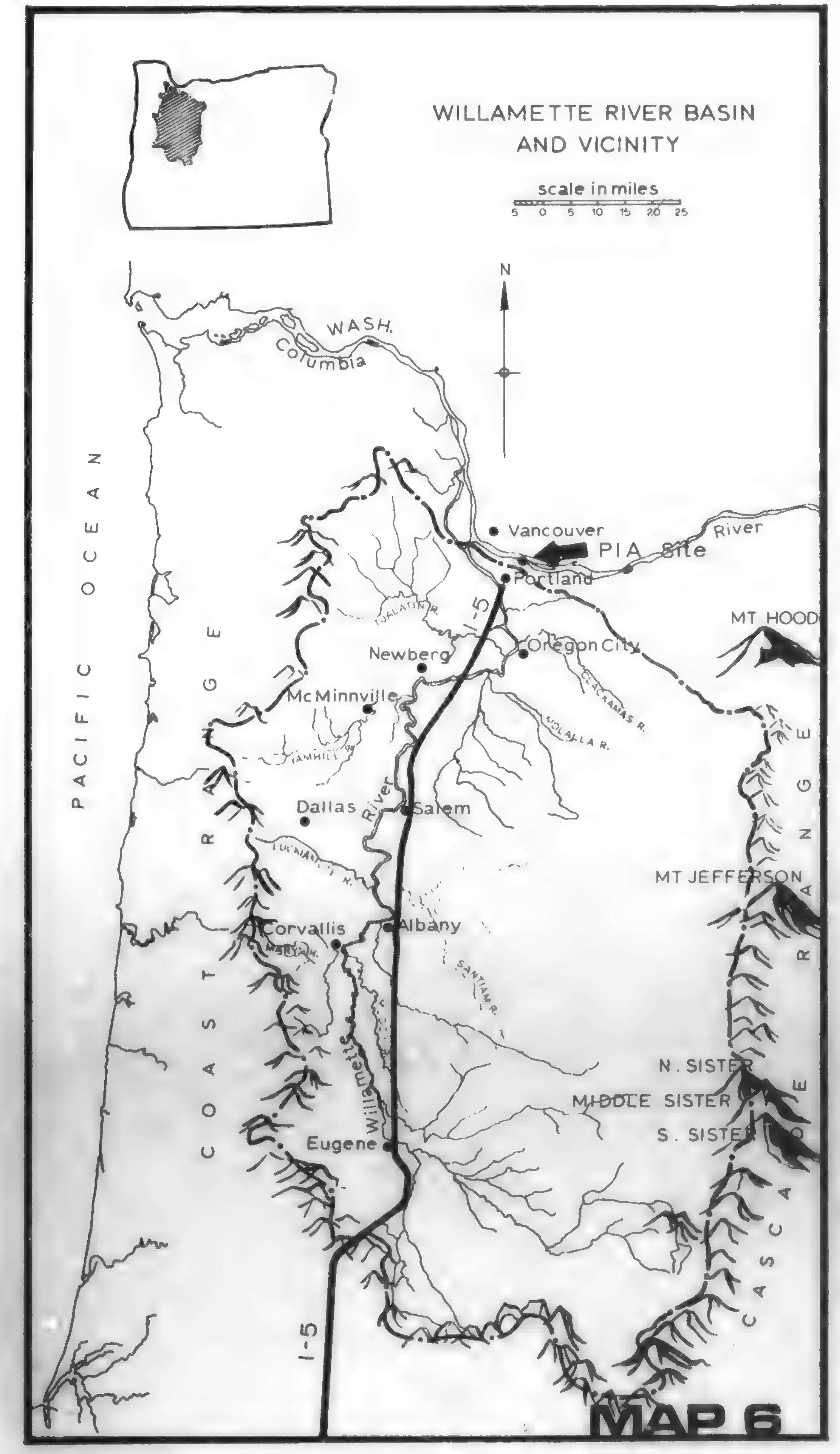
The airport is actually located on the Columbia River some 8½ miles upstream from its confluence with the Willamette River. So situated, the airport site is beyond the northern watershed boundary of the Willamette Basin and is more appropriately associated with a western extension of the Columbia River Gorge. In terms of precise physiographic location, PIA is situated on the south shore of the Columbia River floodplain. Since the regional land and water resources are in large part a consequence of this particular topographic position, they are most conveniently associated with two broad physiographic categories: floodplain and upland. The floodplain within the PIA impact area is restricted to elevations below 30 feet mean sea level (msl). All land above this plain is classified as upland.

Flooding along the Willamette and Columbia Rivers has always been a serious problem. Prior to the construction of dams on the main stem of the Columbia and tributaries of the Willamette, seasonal floods inundated thousands of acres of farmland. Although much of the problem has been alleviated with regulated flow from upstream dams and reservoirs, severe flooding still occurs on some sections of the valley lowlands.

The Columbia River at PIA generally experiences two periods of high water: December-January and May-July. The first period (December-

---

[1] Source: Port of Portland, Environmental Impacts, Portland International Airport Expansion, Natural Resource Study, Exhibit I, July, 1972, Portland, Oregon, pp. A-2 through A-7 (See Technical Appendix D, pp. D-1 through D-4).

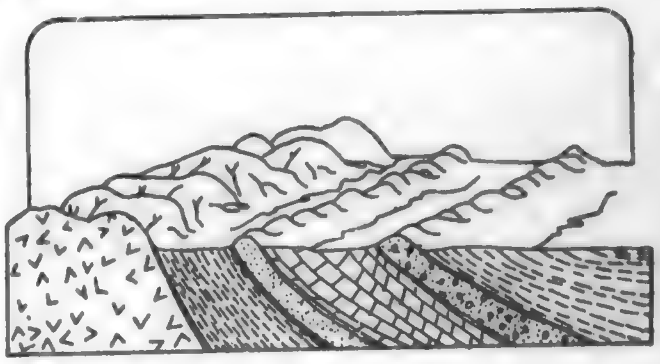

WILLAMETTE RIVER BASIN
AND VICINITY
scale in miles
5 0 5 10 15 20 25
N
WASH.
Columbia
River
PACIFIC OCEAN
Vancouver
PIA Site
Portland
I-5
TUALATIN R.
MT HOOD
Newberg
Oregon City
CLACKAMAS R.
MOLALLA R.
McMinnville
YAMHILL R.
Dallas
Salem
River
COAST RANGE
MT JEFFERSON
Corvallis
Albany
SANTIAM R.
N. SISTER
MIDDLE SISTER
S. SISTER
Willamette
Eugene
CASCADE RANGE
I-5
MAP 6

January) occurs on the lower Columbia and corresponds with the period of greatest storm activity. The largest floods are usually associated with a prolonged rainfall and unseasonably warm temperatures that melt high mountain snow. Flooding is more intense when saturated or frozen ground facilitates rapid runoff. Runoff during the second period (May-July) is associated with the seasonal melting of snow at higher elevations or east of the Cascade summit. The 100-year regulated flood, based on 1973 storage conditions for December-January, approximates 24 feet msl at PIA. The 100-year regulated flood for May-July crests at about 26½ feet msl.

Although the present PIA site is only 20 feet above the mean level of the Columbia River, a system of levees coupled with regulated flow from upstream dams affords a considerable amount of protection. In the vicinity of the airport, the height of the levee is about 40 feet above mean sea level. This elevation is considered to be sufficient to prevent floods of unregulated 100 year frequency; however, there is always some element of risk in building on a floodplain. The failure of the levee during a crucial period of heavy runoff could result in severe flood damage. Elevations are essentially the same throughout the general airport area. Periods of high water on the floodplain are primarily associated with rapid runoff from the urbanized upland or the infiltration of river water from under the levee.

The Setting [1] (See Map #7, page III-4)

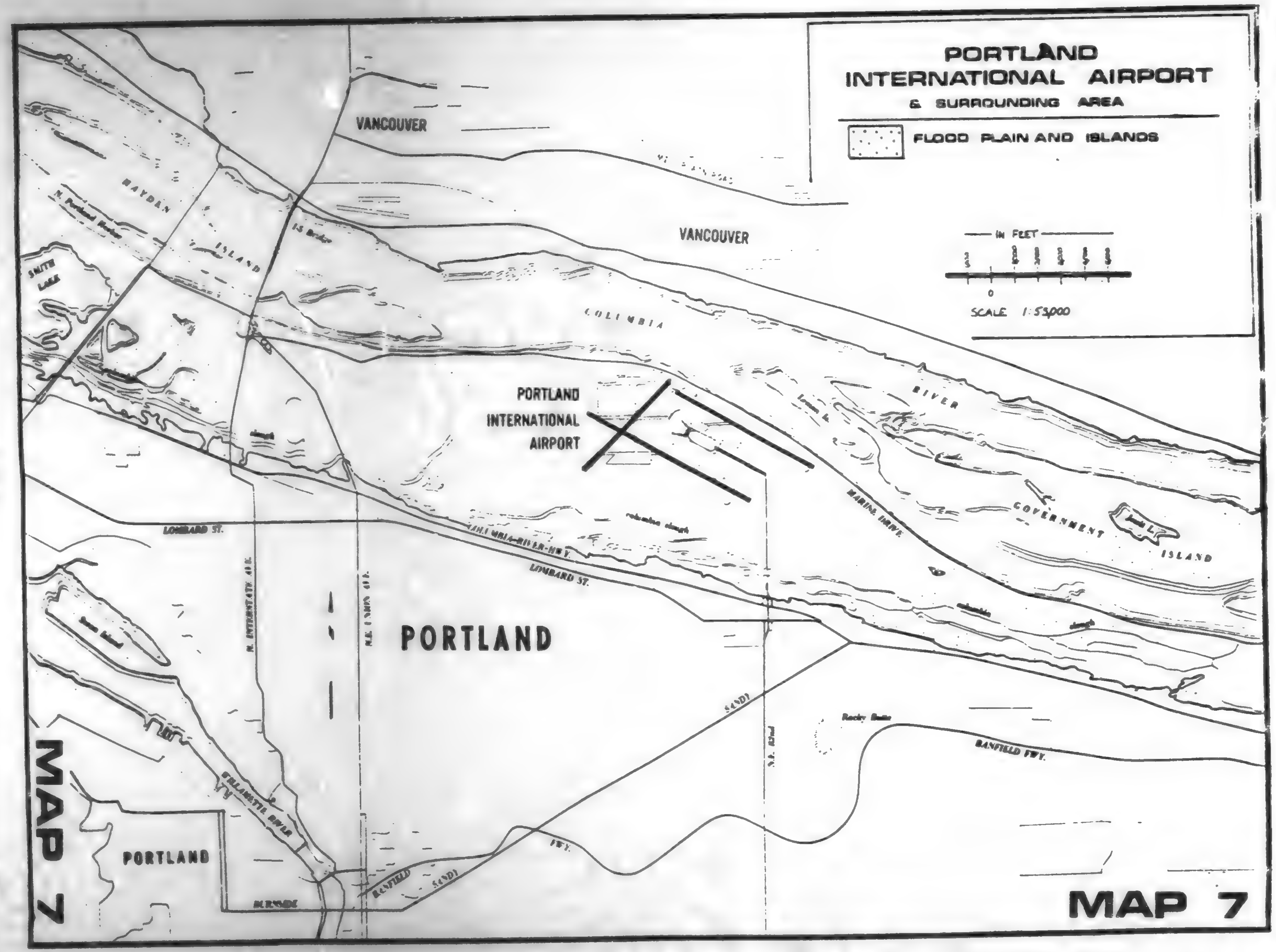
In the vicinity of the airport, the Columbia River floodplain is some two miles wide. This is about the greatest width attained in the floodplain's 21 mile extent. Prior to airport construction, the site itself was laced with sloughs and contained several shallow ponds. Present airport facilities are built on fill materials that were established during the construction phases of the 1930's and 1950's. A large slough system (Columbia Slough) is still present immediately south of the present Portland Air Base and a number of small lakes and ponds are yet scattered throughout the area. The floodplain is terminated on the west by the Willamette River and on the east by the foothills of the Cascade Mountains. The extensive floodplain that is present on the Oregon side of the Columbia is considerably wider than its counterpart on the Washington side.



Directly across the Columbia River from PIA, in the state of Washington, bluffs cut by the river rise about 120 feet in less than one-half mile distance. This rise in elevation affords scenic vistas of the Columbia River and its islands, the City of Portland, and snow-capped Mt. Hood. The bluffs consist principally of sandstone and conglomerate belonging to the Troutdale formation, a local geologic unit which outcrops on both sides of the river. The upland behind

---

[1] Source: Port of Portland, Environmental Impacts, Portland International Airport Expansion, Natural Resource Study, Exhibit I, July, 1972, Portland, Oregon, pp. A-10 and A-11 (See Technical Appendix D, pp. D-5 and D-6).


PORTLAND
INTERNATIONAL AIRPORT
& SURROUNDING AREA
FLOOD PLAIN AND ISLANDS
IN FEET
0
SCALE 1:53,000
VANCOUVER
VANCOUVER
HAYDEN
ISLAND
SMITH LAKE
COLUMBIA
RIVER
PORTLAND
INTERNATIONAL
AIRPORT
MARINE DRIVE
GOVERNMENT
ISLAND
COLUMBIA RIVER HWY.
LOMBARD ST.
LOMBARD ST.
N. INTERSTATE AVE.
N.E. UNION AVE.
PORTLAND
SANDY
N.E. 82nd
Rocky Butte
BANFIELD FWY.
FWY.
BANFIELD
SANDY
BURNSIDE
WILLAMETTE RIVER
PORTLAND
MAP 7
MAP 7

the bluffs is essentially a rolling topography containing residential sections and parcels of vacant land. Upland farms are on the periphery of the rapidly growing suburban developments of Vancouver, Washington.

The Columbia River widens from ½ mile at PIA to a width of 1 2/3 miles upstream, in the vicinity of Fisher, Washington. (This width combines the north and south channels and Government Island.) The configuration of the river and its islands suggests that erosion is presently more active on the Washington (north) shore with principal deposition occurring on the Oregon side. The main river channel conforms to the Washington shoreline.

The Columbia River islands in the proximity of PIA are comparatively recent in origin. Consisting mostly of alluvium rather than bedrock, Government, Sand, and Lemon Islands have undergone considerable alteration in a short span of time. The steady downstream progression of the islands has been recorded since 1917. River surveys reveal that the Sand Island of 1917 bears very little resemblance to the Sand Island of 1972. The Lewis and Clark Expedition that passed along this section of the Columbia in 1805 would scarcely recognize the riverene landforms in their present state.

Of the three islands, Government Island is the largest and most stable. Approximately five miles in length and almost a mile in width, the island has become a favorite recreation area for local boating enthusiasts. Although there have been several attempts to farm the island, floods and inconvenience are responsible for the lack of intensive crop production on the island today. Several small lakes and ponds are scattered throughout lowland portions. The greater portion of the island is less than 40 feet msl in elevation and is consequently susceptible to flooding.

Because of their composition, relative lack of vegetation, and susceptibility to annual flooding, the neighboring islands of Lemon and Sand barely maintain their same configuration over a period of several years. Some amount of protection is afforded from the riparian vegetation that has established itself in the center of Lemon Island and on the north side of Sand Island. The maximum elevation on both islands is less than 30 feet msl, making them particularly susceptible to flooding. Government and Lemon Islands are owned by the Port and Sand Island's ownership is being resolved in the Courts.

The general elevation of the north shore upland within the study area is about 300 feet msl. Elevations fall off gradually toward the Columbia River until the bluffs are encountered. A rise in elevation occurs eastward toward the city of Camas. The general form of the area is one of undulating uplands merging on the east with the foothills of the Cascade Range.

The upland within the confines of metropolitan Portland, the south shore, is more intensively developed than that of the north shore. The predominant land use is residential, although some industries are scattered throughout the area. The local topography conforms to Pleistocene terraces similar in structure and origin to those of the north shore. Construction sites here are more limited by a lack of large parcels of land than by poor physical conditions. Urban development has all but eliminated natural environments in the Portland uplands.

The Site

Airport terrain varies in elevation from 10 feet to 28 feet above mean sea level. The official airport layout plan shows two point elevations on the south runway. Towards the west end of the runway, where it is intersected by the crosswind runway, the elevation is 19.9 feet. At the eastern edge of the runway the elevation is 18.3 feet. The effective gradient is 0.02%, sloping from west to east.

Grading operations recently completed are causing changes to local elevations within the airport boundary. To the west, fill extensions to the runway embankment of 2,200 feet and to the parallel taxiway embankment of 1,500 feet will temporarily raise the overall elevation of those areas from an existing elevation of 10 feet to 28 and 24 feet msl respectively. Settling of the fill material will lower these elevations to a level closer to that of the existing runway pavement. Fill material was obtained from a borrow area directly to the south, where a fill stockpile varying in elevation from 10 to 24 feet is being cut to a uniform elevation of 10 feet msl. Fill material was also obtained from a second borrow area just east of the crosswind runway's south end, where a fill stockpile varying in elevation from 16 to 21 feet was cut to a uniform elevation of 14 feet msl. Both borrow areas are within the existing airport boundary and were filled in the past with material obtained from dredging in the Columbia River. As part of the earthwork to the west, shallow drainage ditches were re-routed or replaced with culverts.

To the east, fill extensions to the runway and taxiway embankments up to 82nd Avenue raised the overall elevation of those areas from an initial height of 15 feet to 22-27 feet msl. Similarly, settling of the fill material will lower these elevations to a level closer to that of the existing runway pavement. Fill material here was obtained from a borrow area immediately to the east of 82nd Avenue, where a mound from 28 to 30 feet in elevation was cut to a uniform elevation of 22 feet msl. The fill covered a new storm sewer pipe to replace a drainage ditch bordering 82nd Avenue. The ditch was approximately 10 feet deep; its bottom elevation being 5 feet msl.

b. Changes Associated with the Alternatives and Options

The "no project" alternative obviously involves no changes in the physical environment. None of the options under the "project" alternative involve any modification of the Columbia River. The options under the project alternative, Plan I, the 2,200 foot westerly extension, involve slight changes in terrain elevations of the recently constructed embankment and of those areas where the ALS towers, the glide slope transmitter, and the marker beacon are to be installed. General grading and leveling of the ALS areas has taken place. As for the runway and taxiway embankment, settling of the fill material will have lowered its recently constructed elevation to a level closer to that of the existing runway pavement. Final grading will prepare the embankment for the application of runway and taxiway paving. The new surface will have zero slope, compared to an existing runway gradient of 0.02%. The elevation of the newly constructed western runway end will be approximately 19 feet msl.

PLAN I
2,200' WEST

The installation of ALS towers, glide slope transmitter, and marker beacon will involve the general site requirements of access roads, security, and site drainage. The access road to the navaids will necessitate surface grading to allow a flat surface for service vehicles. The existing ALS service road is unimproved and serves adequately. The glide slope transmitter will need a tower foundation sufficient to keep the tower vertical and to prevent settling, a concrete pad for the monitor probe, cable and trenching for power and instrumentation between the probe and the transmitter building. Likewise, the marker beacon and ALS towers require adequate foundations. The above facility installation requires some alteration of existing terrain or topography.

Plan II, the 2,700 foot extension option, will impact the topography and terrain to the west in similar manner as Plan I. The major exception has to do with the shorter length of final grading and paving - 2,000 feet to the west. Identical site modifications are involved in the relocation of the ALS towers, the glide slope transmitter, and the marker beacon. Although these navaids will be located 200 feet further east under Plan II, according to FAA specifications, there are no significant differences between the terrain modifications involved in navaid installation of either plan to the west.

PLAN II
2,000'W.-700'E.

However, Plan II necessarily involves modifications at the east end of the runway, as does Plan III, which are not involved in Plan I. These include additional final grading for the runway and taxiway embankments and for the relocation of 82nd Avenue. Plans II and III also necessitate the relocation of the existing ILS localizer at the east end of the runway and the reconstruction of the military overrun. Recently completed filling and grading operations have provided enough embankment for any of the Plans. Note, of course, that Plan III is significantly longer to the east--2,200 feet versus 700 feet for Plan II.[1] This will create a settled surface with an elevation equal to that of the existing runway surface, i.e., 18.3 feet msl. Final grading will prepare the extended embankment for the application of runway and taxiway paving.

PLAN III
2,200' EAST

The re-installation of the localizer involves the general site requirements of access roads, security and site drainage. A level base for the antenna array will be provided by a concrete pad or footings. A level surface will also be provided for monitor probes. Trenching for instrument cabling will be done between the monitor probes, the antenna array, and the transmitter building. Navaid installation will therefore not require any significant modification of existing terrain or topography to the east end of the extended runway. An embankment extension is not necessary to allow positioning of the localizer. Minor grading is required.

The additional embankment necessary for a military overrun will be constructed before the south runway is fully operational. The borrow source currently being used (east of 82nd Avenue and north of N.E. Lombard Street) contains sufficient fill and hauling will be minimal. Temporary relocation of N.E. Lombard could be accomplished with little or no interruption of traffic.

As for the relocation of 82nd Avenue, terrain alterations at its new location will not be significantly different from those involved at the present location of 82nd Avenue. Where the existing road is traversed by the Columbia Blvd. overpass, north to the airport entrance, 82nd Avenue crosses the level terrain of the Columbia River floodplain. Grading and paving has been done at or near existing elevations. High groundwater prevents locating the road below grade.

Present plans show 82nd Avenue relocated to form a wide arc beginning at the Columbia Blvd. underpass and extending northeasterly across the present intersection of Lombard St. and 96th Avenue (See Map #4, page I-7). After bending around this point, it is shown extending straight to join the existing access road just north of the new cargo facility.

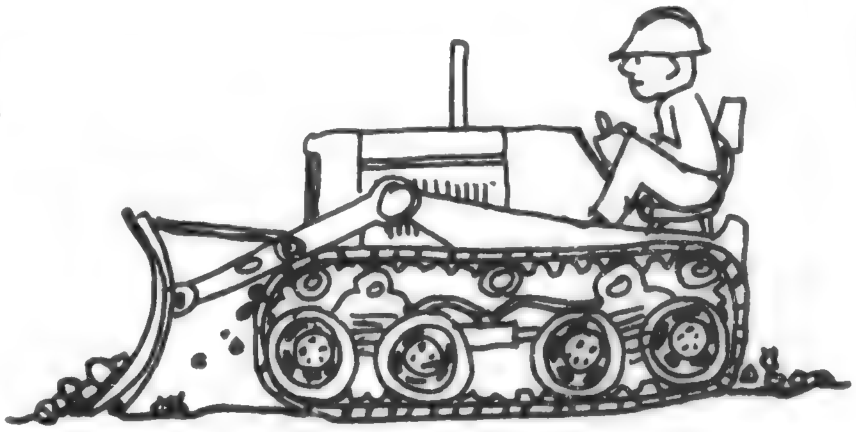
---

[1] The filling and (rough) grading (reference drawing number PIA 73-39) provides embankment for a maximum 2,200 feet easterly extension, with a cut for 82nd Avenue extended. Any grading in anticipation of a 1,000 foot military overrun will be additional and will require closure of existing N.E. Lombard Street and subsequent permanent relocation of same. As in the case of existing 82nd Ave., a cut will be left for N.E. Lombard St. until new 82nd Ave. is constructed. Both cuts will be filled and some traffic interruption will result.

So arranged, 82nd would cross the extended centerline of the south runway at a point 7,500 feet east of the point where it currently crosses that line. It would also cross the Columbia Slough at a point approximately 1,000 feet to the east, or upstream from the point where it currently crosses the Slough. Except for the construction of a new bridge, no other alteration of the shoreline terrain of the Slough will occur.

c. Methods of Minimizing Adverse Impact

Considering that the major terrain and topography are "existing" in the form of the embankments, subsequent finish grading and paving will be nearly inconsequential. FAA standards dictate the fine points of water runoff and drainage from the paving. The grading must generally act to dissipate this water efficiently in harmony with any constructed drainage system. This includes getting the water into any natural and/or man made surface water runoff system. Grading and drainage which will allow water to sit at the base of the embankment should be avoided. [1] Any grading done for service and access roads to the navaids, should be done with design standards allowing for use in all types of weather characteristic of the region.



In the event that the borrow sources are not totally used for embankments, they should be graded so as to not interfere with the natural or current slough drainage. Their final status should reflect thoughtful consideration concerning aesthetics and general appearance of the landscape. Natural appearing grading, ground cover and shrubs should be provided in an effort to return landscape to its natural state.

The same general principles described above should be adhered to the case of 82nd Avenue's relocation. The new roadway must be done in such a fashion so as to not interfere with the slough system. Consideration should also be given to the manner in which 82nd is vacated, particularly if re-grading of the existing roadbed takes place. Any new bridge construction for relocated 82nd Avenue will have to display as little interference as possible where it spans the Columbia Slough--both during construction and as a finished project.

---

[1] It should be noted that the Port, in conjunction with the Multnomah County Drainage Dist. #1 has had years of experience working with runoff in the Columbia Slough area. The Oregon Department of Environmental Qualities' report "Status of the Water Quality in Columbia Slough, Oregon" (Technical Appendix E) is not critical of the manner in which PIA affects runoff.

2. Vegetation[1]

a. Existing Conditions

The native vegetation of the PIA site belongs to an Interior Valley or Pinus-Quercus-Pseudotsuga (pine-oak-Douglas fir) zone. Within this zone, cities, farmsteads, and other human developments are a dominant landscape feature. The natural vegetation includes grasslands, oak woodlands, coniferous forests and various riparian species.

There is a wide variety of natural and seminatural community types within the Interior Valley Zone. The term seminatural makes reference to the fact that much of the vegetation has been disturbed by human activities such as logging, clearing, grazing, or burning. At the PIA site, the structure and species composition of riparian vegetation has changed very little since the days of early settlement.

Within the Willamette basin, riparian vegetation occurs on poorly drained sites that are generally subject to annual flooding. Typical species include Oregon ash (Fraxinus latifolia), black cottonwood (Populus trichocarpa), big leaf maple (Acer macrophyllum), and red alder (Alnus ruba). Willow (Salix spp.) is characteristic as an understory. Although some riparian species have found a commercial outlet through the pulpwood and furniture markets, their principal value is as uncut vegetation protecting stream banks in times of high flood. There are also certain aesthetic and wildlife values associated with riparian vegetation. In an area of rapidly diminishing woodland, the dense thickets along stream banks provide a much needed habitat for a variety of birds and animals.

The upland on the Washington side of the Columbia River supports a coniferous forest vegetation composed mainly of Douglas fir (Pseudotsuga menziesii) and Grand fir (Abies grandis). Big leaf maple (Acer macrophyllum) is also common and is frequently a component of these stands. Western red cedar (Thuja plicata), while not numerous, may be found in association with these species. The shrubs that generally comprise the understory in this plant community consist of vine maple (Acer circinatum), hazel (Corylus cornuta), oceanspray (Holodiscus discolor), and baldhip rose (Rosa gymnocarpa). The upland has been subjected to many years of farming and logging. As a consequence, the composition of many stands includes alien species that were purposefully or accidentally introduced.

The vegetation associated with the Columbia River islands is almost totally riparian. The predominant tree is black cottonwood (Populus trichocarpa). Willow (Salix hookeriana) is scattered along water courses or areas subject to frequent flooding. The common understory consists of black elderberry (Sambucus racemosa), blackberry (Rubus lacimatus), and snowberry (Symphoricarpos albus). The quantity of oak (Quercus) growing within the boundaries of the general environmental impact area is quite small in comparison with other species. While this listing of vegetation is by no means complete, it does include the most significant types occurring in the PIA area.

---

[1] Source: Port of Portland, Environmental Impacts, Portland International Airport Expansion, Natural Resource Study, Exhibit I, July, 1972, Portland, Oregon, pp. A-8, A-9 (See Technical Appendix D, pp. D-7 and D-8).

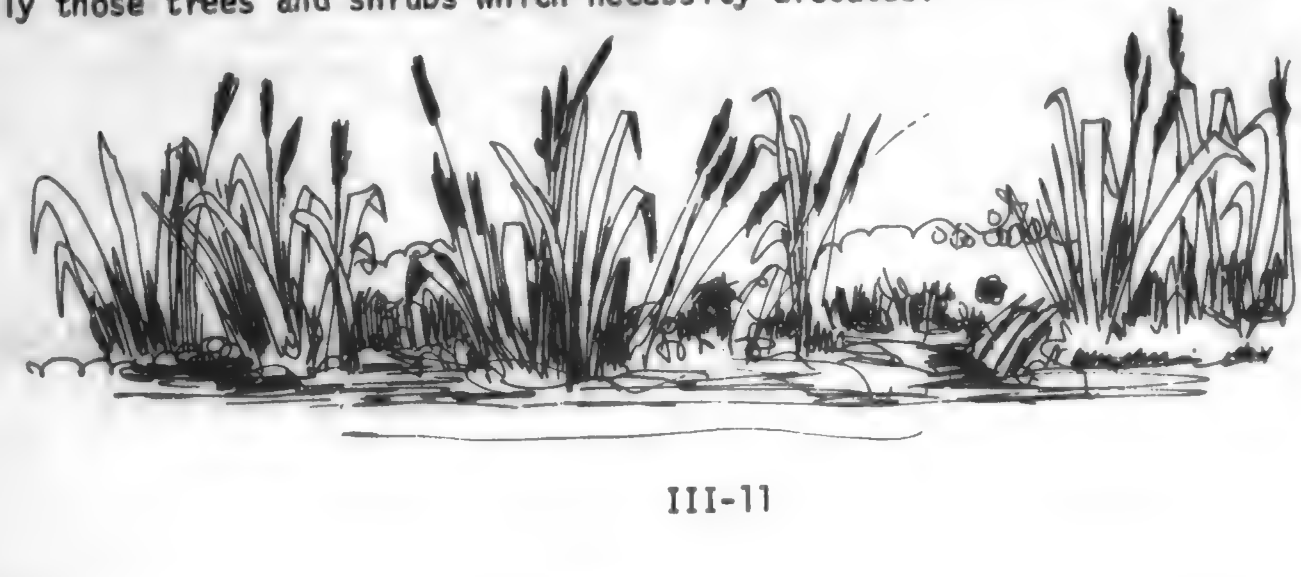
b. Changes Associated with the Alternatives and Options

To the west, grassland, various sage scrubs, and agricultural crops now occupy the flat lands to be affected by the installation of the navaids. Likewise, various riparian species line the drainage ditches which intersect the extended runway centerline. Similar vegetation is found to the east and will be removed under Plans II and III as part of additional grading for the runway, taxiway, navaid installation, and relocation of 82nd Avenue. A cluster of trees, estimated to be 30 feet in height, will have to be removed just south of N.E. Lombard Street. They are within 50 feet of the extended runway centerline and fall within the clear zone of a runway such as anticipated in Plan II and Plan III.

The greatest amount of vegetation will be removed for the relocation of 82nd Avenue. This includes all existing hay and row crops being farmed within the new right-of-way, and the riparian species which line the banks of the Columbia Slough to be crossed by the new bridge. Similar riparian species line the drainage ditches to be crossed by the new 82nd Avenue under both Plan II and Plan III. The analysis of the flora conditions indicate that there are no species of plant life presently (or anticipated to be) on an endangered species listing.

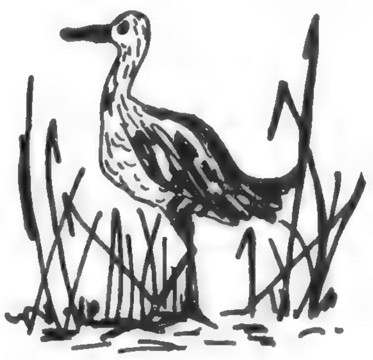
c. Methods of Minimizing Adverse Impact

In addition to the nutritional value provided by agricultural vegetation, all types of vegetation have certain aesthetic and physiographic benefits. Trees and dense shrubbery afford pleasant visual relief to an otherwise uniform terrain. Ground covers of all types prevent erosion and generate oxygen. Larger trees are especially beneficial for a number of reasons. They filter and cool the air, generate oxygen, afford visual relief, stabilize the soil, and provide habitat for birds and other small animals. For these reasons, the impact of the project on the vegetative environment can be minimized if useful farmland not specifically needed for the Project can continue to be worked, if exposed soils are seeded to prevent erosion, and if care is used in constructing the new Slough crossing so as to remove only those trees and shrubs which necessity dictates.



3. Wildlife and Waterfowl [1]

Birds. Approximately 175 species of birds occur in the Portland area at one season or another. Of these, about 120 species commonly winter in this area. Among the more common and numerous wintering birds are two species of blackbirds, the starling, four species of gulls, eight species of ducks, Canada geese, whistling swans, numerous species of shorebirds, three species of grebes, and several species of hawks and owls; less conspicuous birds are also common. Bald eagles were occasionally observed on Government Island in the 1940's and 1950's, but none have been seen in recent years. None of the bird species presently found in the region is in the endangered classification.



Accurate census data are available only for waterfowl on Government Island. Under intensive management, a peak post-hunting season population of 20,000 ducks was recorded in the early 1960's. Peak wintering populations subsequently declined to 1,000 to 2,000 ducks. The decrease in wintering ducks corresponded to an opening of Government Island to waterfowl hunting in 1963 and to a decrease in the management effort.

An estimated 1,500 ducks, 30 Canada geese, and 25 whistling swans were observed on Government Island on January 17, 1972, and on February 16, 1972. About 75 percent of the waterfowl were recorded on Jewit Lake. Also observed on February 16, 1972 were 125 gulls, 15 great blue herons, several hundred starlings, and numerous robins. Use of the area around PIA by waterfowl was estimated at 200 to 300.

Estimates of gull populations are difficult because of the great mobility of gulls, but upwards of 500 are probably present in the impact area during the winter; 200 mew gulls were observed on and around the present south runway on February 29, 1972.

Common breeding birds in the Portland impact area include five species of swallows, eight species of warblers, four species of sparrows, meadowlarks, chickadees, several woodpeckers, crows and ravens, five species of hawks, and several species of owls. In all, about 100 species of birds would be expected to nest in the impact area at one time or another. The only population data available for summer bird populations are an estimated 100 mallards and 100 wood ducks nesting on Government Island.

Wildlife Habitats. Four basic habitat types are found in the study area:

---

[1] Source: Port of Portland, Environmental Impacts, Portland International Airport Expansion, Natural Resource Study, Exhibit I, July, 1972, Portland, Oregon, Pages H1 through H-4 and H-9 through H-13 (See Technical Appendix D, Pages D-9 through D-17).

1. Agricultural habitat is characterized by short vegetation, although fields may be bordered with shrubby fencerows. Besides the cultivated fields located southeast of the airport, the golf course, the airport proper, much of the idle land around the airport, and about one-half of Government Island is in this category. This habitat type is much used by gregarious birds (e.g., starlings, gulls, waterfowl, etc.) and by small rodents.

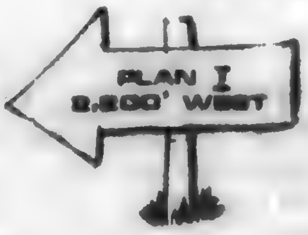
2. Slough and shallow-lake habitat occupies about one-fifth of Government Island; Columbia Slough, south of the airport, is also included in this category. This habitat type is used most heavily by various water birds (waterfowl, herons, shorebirds, etc.) and by aquatic mammals (beaver, nutria, muskrat, and river otter).

3. Woodland habitat occupies nearly all of McGuire and Lemon Islands, part of Sand Island, and about one-third of Government Island. No woodlands of any consequence occur in the rest of the impact area. For the most part, woodlands on Government Island have only a sparse understory, due to annual flooding and livestock grazing. Woodlands on McGuire and Lemon Islands have well-developed understories; the woodland on the extreme eastern end of Government Island has a dense understory of blackberries, severly hedged by cattle. Woodland habitats are used by many mammals (deer, rabbits, woodrats, etc.) and a great variety of small, mostly solitary songbirds (warblers, flycatchers, vireos, juncos, chickadees, etc.).

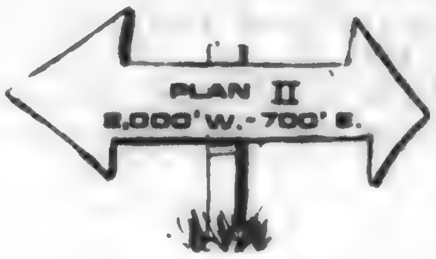
4. The habitat of the Columbia River shoreline and sandbar is used most heavily by aquatic birds (gulls, ducks, geese, loons, grebes) and shorebirds.

b. Changes Associated with the Alternatives and Options and Methods of Minimizing Any Adverse Environmental Impacts

Plan I will involve additional grading and paving of an embankment which has been prepared. It is doubtful whether new shrubbery will have enough time to establish itself on the new embankment to provide any habitat similar to the one which existed prior to the grading and filling. Installation of the navaids beyond the west end of the extension will involve a slight intrusion on the existing agricultural habitat there. This includes a reduction in the area of short grass cover available to attract feeding and loafing starlings and gulls.



Plan II will involve a similar, albeit proportionately smaller reduction in the area of agricultural habitat to the west end. Likewise, it, and Plan III, will involve additional grading and paving of the embankment which has been prepared to the east and which will not be permitted to develop into suitable habitat for wildlife. This area just west of 82nd Avenue provides very little in the way of natural habitat, as it consists



mainly of graded fill materials. The area east of 82nd Avenue is currently being used as the borrow area for grading and filling operations. In the case of Plan III, a small amount of agricultural habitat just south of N.E. Lombard Street and some trees will be removed, as explained earlier.

PLAN III
2,200' EAST

The relocation of 82nd Avenue will, of course, involve the reduction of some agricultural lands and the loss of some wildlife ground cover. The Port's initial environmental impact statement on the 2,200 foot eastern extension, Plan III, stated that a decrease of agricultural habitat in the amount of 41 acres was involved in the project. The largest share of that acreage had to do with the relocation of 82nd Avenue. Plan II involves a shorter extension to the east than Plan III, and thus a proportionately smaller reduction in agricultural habitat.

The aquatic habitat to be affected includes the Columbia Slough where 82nd Avenue's new bridge will be constructed, and two smaller drainage channels south of N.E. Lombard Street between 82nd and 96th Avenues, where additional crossings will be constructed. The latter will involve the installation of drain pipes which will be graded over. The impact on wildlife habitat caused by the construction of overcrossings is of much smaller magnitude than the use of agricultural habitat for the rest of the road. The Port's current plans for the remaining land being acquired for the relocation of 82nd Avenue are to retain the space in its natural form by preventing commercial and industrial buildup in that area.

To the extent that construction of the proposed runway extension would stimulate airport-related economy and thus the construction of off-site buildings, roads, etc., there would result a proportionate loss in wildlife habitat. It is not expected that such construction would eliminate all animal populations since some species have a high tolerance and possibly a preference for man-made habitats, but the diversity of the biota would be greatly reduced.

The net effect of the Project on wildlife, taken by itself, is insignificant in regard to the total wildlife in the general Portland area. The expansion of the Portland metropolitan area, however, has encroached upon wildlife habitat and has resulted in reducing both the population and variety of wildlife species. To the extent the Project is a part of expanding urbanization, it contributes to a long-range reduction of wildlife.

As for environmental pollution, it is expected that vertebrate wildlife species will be affected by pollutants to the extent that the basic productivity of the various ecosystems is interrupted by the air and water pollution associated with continued airport operation. Direct reduction of wildlife populations will result only from the catastrophic release of pollutants into the air and water and onto the land, which will not be the case at PIA.

Noise emitted by large jet aircraft is a prominent feature of any large airport. However, within the constraints of the environment, wildlife apparently are somewhat, but usually minimally, affected by noise, as noted below. There are numerous references in the literature to the rapid habituation of birds to a wide variety of noises, including the noise from jet aircraft. Several observations at PIA corroborate the above references. Ducks loafing on the pond directly in the approach pattern and within 100 yards of the north runway, and sleeping killdeer within 100 yards of the same runway displayed no response to the arrival and departure of jet aircraft. Mew gulls, starlings, and blackbirds adjacent to and on the south runway were only temporarily disturbed by aircraft using the south runway. The displaced birds returned immediately to the same location from which they had been frightened.

Oral communication is an important aspect of the behavior of birds, but no studies have been conducted to determine if aircraft noise significantly disrupts bird behavior. The only study that could be located in the literature which related to aircraft noise and birds involved the effects of simulated airplane flyovers at a noise level of 100 db on the production of sperm by male leghorn chickens and the hatchability of eggs fertilized by treated males. There was no effect on sperm production, but the hatachability of eggs fertilized by treated males was significantly reduced. Although similar effects of such noise on wild birds is not available, inference from the above example suggests that, although reduced hatchability may be of a significant nature, its reality in an airport environment may tend to ease any existing "bird strike" problem.

Effects of aircraft noise on mammals is unknown. Again, the presence of mammal populations around airports is an indication that mammals are not greatly affected by aircraft noise. However, it must be stressed that no studies have been conducted on this problem, and subtle effects may occur, but are undetected at present.

Bird Aircraft Collisions. Collisions between birds and aircraft are insignificant in terms of bird populations, but they are catastrophic in terms of aircraft operations. The present Portland International Airport has a low record of bird strikes: 10 in 1969, 3 in 1970, and 4 in 1971. The decrease in strikes from 1969 to 1970-71 is due to the institution of bird dispersal procedures including disturbance of bird concentrations by persons on foot and in vehicles, firing of cracker shells, and, as a last resort, shooting.

Most bird strikes occur at the time of takeoff or landing at an altitude of less than 500 feet. Gregarious birds, such as gulls, starlings, blackbirds, and waterfowl, are attracted to the short grass vegetation of the airport, particularly when water is allowed to collect in shallow depressions. This fact suggests more than ever that adequate attention be given to runway water runoff and the terrain grading that can effectively disperse that water without creating such standing ponds. Present dispersal techniques should be adequate to alleviate the problem of bird concentrations and other suitable techniques 1/ (other than killing) are available to disperse concentrations should the presently employed methods prove ineffective.

1/ The three most effective bird hazard deterrents are (1) denial of food, water, and roosting areas; (2) clearing and gravel surfacing of airport open areas not immediately adjacent to pavements; and (3) scare device programs using recorded bird distress and natural enemy calls; carbide exploders, fuse strings, and explosive shotgun shells. Destruction or scaring of bird life is not a true

Continued. . . . . . .

Spring and fall migration periods are times of particular hazard because of bird strikes by aircraft. Birds migrate both during the daylight hours and at night. Nocturnal migrants are generally more numerous and fly at greater altitudes and in more dispersed flocks than do diurnal migrants. Both diurnal and nocturnal migrants follow topographic features such as mountain ridges, coastlines, and rivers. About 90 percent of nocturnal migration occurs below 5,000 feet, while most species of diurnally migrating songbirds migrate at tree-top height. Anytime these streams of migrants, particularly nocturnal migrants, enter an approach pattern to an airport, they constitute a hazard to aircraft.

Dispersal of migrating birds is an unworkable approach to the problem of strikes of migrating birds. However, the Canadian government has developed a warning-surveillance program based on predicting periods from weather data and radar surveillance of migrating birds. Pilots are warned of dangerous periods and/or concentrations of migrants. Although aircraft-bird collisions do not represent an impact on wildlife, they are a potential problem involving wildlife that may require further study regardless of airport location.

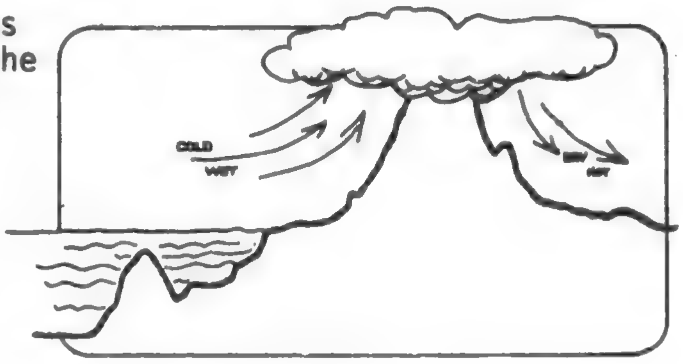
---

solution as it is contrary to efforts of wildlife preservation and is only temporarily effective due to constant bird migrations. This does not get to the basic problem. The solution is to make the airport unattractive to bird life.

Specifically, municipal and Port Authority attention should be taken to fill, level, and clear airports and adjacent land which creates bird refuges and increases bird hazards by providing feeding, bathing, loafing, and nesting places. Birds are attracted to garbage dumps, food and fish processing wastes, feed pens and piggeries, ponds, sloughs, swamps, man-made lakes and reflecting ponds, sewage lagoons and outfalls, seed and fruit producing plants and trees, tall grasses, reeds, and shrubbery. Such areas should be eliminated from the airport vicinity by municipal pressure and influence; by relocation; or by draining, leveling and surfacing with materials unattractive to bird life such as gravel. Airport outleases to farmers should stipulate crops least attractive to birds, and cooperation of food and waste processors should be actively solicited by airport management. Source: Department of Transportation; Federal Aviation Administration, Advisory Circular, 150/5200-3A, "Bird Hazard to Aircraft", March 2, 1972.

4. Meteorology [1]

Weather is an important factor in the operation of airports and their impact on the environment. Wind produces an impact upon operations by affecting the direction used by aircraft in take-offs and landings. Both the direction of flight and wind conditions in turn influence the impact of pollutants and aircraft noise. Air temperature, air pressure, and relative humidity combine to determine air density, which affects the ability of the airflow to lift aircraft wings.



The climate of the airport site is principally influenced by marine air masses moving inland from the Pacific Ocean. Moist air lifted over the Coast Range cools, condenses and falls as rain or snow in the Willamette Valley. The Coast Range, located to the west of PIA, produces a rain shadow. The precipitation averages about 40 inches a year, with 45 percent of the total occurring in the winter months. Summers are relatively dry, receiving approximately 5 percent of the yearly precipitation. Spring and fall each receive about 25 percent.

The marine west coast climate is characteristically mild. There are long periods without killing frosts - 263 days at the airport site. Winter maximum temperatures are generally in the mid-40's; minimums are in the mid-30's. Snowfall is light, on the average, 8 inches total, and seldom persists for more than a few days. Summer maximum temperatures average in the high 70's. Minimums occur in the mid-50's.

Perhaps the greatest climatic difference between the PIA site and the lower Willamette Valley is related to the occasional outbreaks of continental air westward through the Columbia River Gorge. During the winter months these outbreaks result in rapidly falling temperatures which are often accompanied by driving snow or freezing rain. During the summer months the surge of continental air through the gorge is hot and dry and sometimes creates an extreme fire hazard in the nearby forests. While the lower valley is affected to some extent by air masses moving through the gorge, PIA being on the Columbia River is affected to a somewhat greater degree. As a general rule, the Cascade Mountains are an effective barrier to a westward movement of the continental air.

The main runways of the Portland International Airport are aligned approximately parallel to the columbia River in a generally east-west direction. Aircraft utilize these runways except under conditions in which there is a wind component of more than 15 knots blowing across the runways at an angle greater than 70 degrees. When these conditions occur, the crosswind runway, aligned in a generally north-south direction, is utilized. Based on observations over an 18-year period, conditions necessitate the use of the crosswind runway on a very limited basis. Under normal conditions, landings and takeoffs are performed from the east during approximately 40% of the year, from April through September. Operations are prevalent from the west during another approximately 40% of the year, from October through March. Two percent (2%) of the operations occur on the crosswind runway and the remaining 18% do not clearly fall into a seasonal pattern.

---

[1] Port of Portland, PIA Environmental Impact Statement, Draft, Portland International Airport Expansion, Portland, Oregon, September 1972, pp. 89-90. (See Technical Appendix, pp. D-18 and D-19).

Port of Portland, Environmental Impacts - Natural Resource Study - Exhibit I, PIA Expansion, Portland, Oregon, July 1972, Chapter D, pp. D-18, D-19; Chapter A, pp. A-5, A-6. (See Technical Appendix D, pp. D-2, D-3).

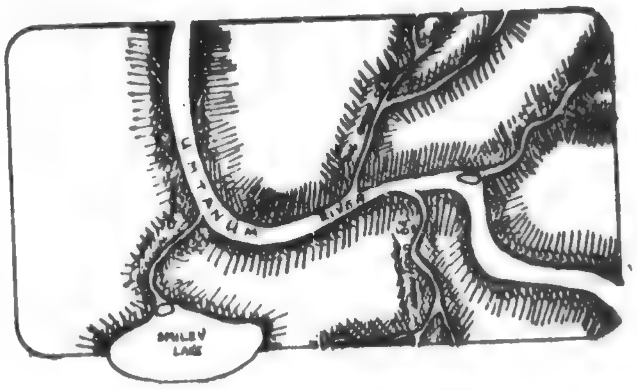
Pollutant dispersal conditions vary with the time of day or night, with the most stagnant conditions occurring during the night hours. Based upon readings taken between 1948 and 1965, a wind speed of one knot or more has been measured at the PIA site all but 9.9 percent of the time. The mean wind speed is 6.7 knots. The wind direction is generally from an easterly or westerly direction, dispersing pollutants and noise along a path generally paralleling the Columbia River.

Wind speeds do vary with the seasons, however, and accordingly affect the capacity of the atmosphere to accept and disperse or assimilate air pollutants. Restricted natural ventilation occurs primarily in the late summer and fall and into the winter. The natural ventilation along the Columbia River is less restricted, due to more wind movement, than that in the three basins to the south. Greater detail will be given to the subject of meteorology as it affects air quality in subsequent sections of this report.

B. Water Quality

1. Drainage Patterns

a. Existing Conditions



PIA exists in the Multnomah County Drainage District. The direction of natural drainage at PIA is south towards Columbia Slough through a system of open ditches. The Slough generally flows from east to west and ultimately enters the Willamette River. Most storm water and seepage water is presently collected by means of drainage canals and ditches which lead directly to Columbia Slough. Storm drainage from airport facilities, including the existing south runway, are piped directly to that system. During construction of the existing PIA area, subsurface drains were placed on the original land surface and covered with sandfill, with a comparatively higher permeability and void ratio than the underlying material. Hence, the PIA fill may have a relatively low rate of direct surface runoff, but a high rate of infiltration and drainage runoff. Some storm waters remain standing on the ground or paved areas until evaporation or seepage removes them.

Where airport fill material is shallow, the underlying heterogeneous floodplain soils limit the ability of the unpaved airport lands to accept storm water. When the water levels of the Columbia River and Columbia Slough are high, there is little or no gradient for subsurface drainage away from the airport location. In fact, reversals of subsurface flow at such times, which would add seepage water to the PIA lands, are possible. Similarly, high river levels lead to some seepage through the PIA lands to Columbia Slough.

The PIA site is the only floodplain area near the river with an extensive system of storm sewers. These drains tend to reduce the effective gradient between the river and slough in the PIA area. But because the soils in both the underlying floodplain and the levees are loams (sandy silts) the river infiltration is not considered to be particularly high during normal river stages.

Two continuing events are currently taking place which are modifying the drainage characteristics of PIA and the Columbia Slough. One is an increase in urbanization on the upland area. The second is the change in the seasonal discharge pattern of the Columbia River, resulting from upstream flow regulation which will increase the river stages at Vancouver during November, December, and January.

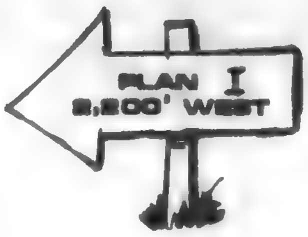
The change in land use in the upland area is resulting in increased total direct runoff and a very significant decrease in its time of concentration. This increase of the direct runoff and the rate at which it reaches Columbia Slough will necessitate an increase in pumping capacity at both ends of the slough. The slough is now blocked at the easterly end where it leaves the Columbia River and at the western edge of PIA where the Peninsula Drainage Canal enters the slough. Pumping is generally required to drain the slough. Pumps east of the airport discharge into the Columbia River; those at the west end discharge into that part of the Columbia Slough, which empties ultimately into the Willamette River.

The construction of dams and reservoirs in the Columbia Basin has decreased the seasonal variations of streamflow and increased river stages during the rainy months for PIA. Increased river stages will probably require greater pumping capacity because a greater average discharge head of pumped water will result. The time periods during which gravity outflow from the slough can occur will be reduced to almost zero in December and January and will be fairly low in November. This problem will increase the probability of flooding in the district because the water will nearly always have to be pumped in the future, whereas now there is some chance that a major rain in Portland will occur when the river stages are low enough for gravity outflow from the slough to occur. There will be an increase in daily river stage variation when the flow is below 300,000 cubic feet per second (cfs) if the proposed second powerhouse at Bonneville Dam is constructed. The impact of this increase in daily variation on the slough has not been investigated.

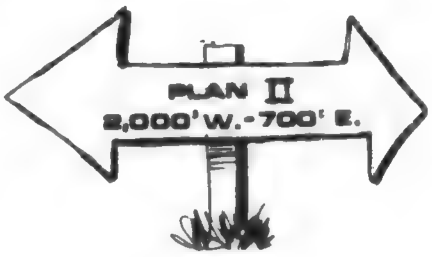
Modifications of the existing drainage ditch pattern in the immediate areas of the south runway occurred as part of the filling and grading of new embankments completed at both ends of the south runway. This work involved the rerouting of some open drainage ditches and the installation of large drainage pipes where existing ditches crossed the new embankment areas. The rerouting occurred to the west where ditches crossed the embankment area and a new ditch was constructed between the end of the existing runway pavement and the beginning of the new embankment. The installation of approximately 990 feet of 78-inch storm sewer pipe has occurred to the east, where the new embankment covers the previously existing drainage ditch between the end of the runway and 82nd Avenue. As such, the work completed will not significantly alter the existing drainage pattern at PIA, and most of it was associated with the filling and grading project, which is not a subject of this EIR.

b. Changes Associated with Alternatives and Options

Plans I and II involve only minor changes to the existing drainage system at the west end of the runway. The ditch, between the end of the existing runway pavement and the beginning of the new embankment, is to be replaced with a storm sewer pipe. Replacement with a pipe is the best solution as this arrangement most closely follows the natural terrain and drainage direction at that point. Another drainage ditch will intersect the string ALS towers beyond the west end of the extended runway. At the present this ditch crosses beyond the west end of this string. It will be replaced with a drain pipe and covered with fill. As such, Plan I will not involve any significant modifications of the existing drainage pattern at the west end of the runway.



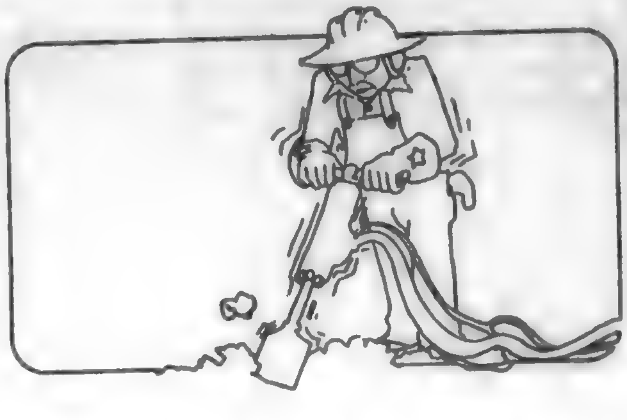
Plan II will have the same negligible effect as described above on drainage to the west as will Plan I. To the east, under Plan II and III a new embankment will have to be constructed across the area where 82nd Avenue currently crosses the extended runway centerline. This will have a localized impact on the immediate direction of storm water flows, but these will be handled by additional underground drainage facilities from the extended runway and taxiway and the immediately adjacent areas. These waters will be directed to the existing system of open ditches south of the extended runway, and then on to the Columbia Slough.



The relocation of 82nd Avenue, an inherent part of Plan II and Plan III, will also require some modification of the existing drainage system. The roadway will cross the main channels of the Columbia Slough and several other open ditches. A bridge structure will be provided at the main Slough in order to ensure proper flow conditions and to guarantee suitable clearances for possible recreational boating in the Slough at a future date. Other crossings will be made utilizing culverts. Surface drainage from the roadway will be collected and piped to the existing ditch system in the same manner that exists along 82nd Avenue. Storm runoff will eventually reach the Columbia Slough, as it does now.

PLAN III
2,200' EAST

Because a relocated 82nd Avenue extended will result in the closing of sections of N.E. Lombard and Alderwood Road, in addition to the vacation of the old 82nd Avenue, these unused pavement surfaces may be removed, exposing permeable soils which were previously covered with a relatively impermeable pavement. The rate of runoff from these surfaces would thereby be decreased, although the direction will continue as it has in the past, toward the Columbia Slough. Since a new pavement surface will be constructed further to the east, and since it nearly equals in length the sections of road to be closed, the net change in impermeable surfaces will increase, unless old paving is removed. The pattern of drainage will be altered in that the swift runoff from the existing 82nd Avenue and sections of Lombard and Alderwood will be displaced farther east, to the new location of 82nd Avenue.



New runway pavement associated with all Plans will, of course, involve the application of a similarly impermeable surface over one which was hitherto permeable. However, the overall pattern of drainage will not be significantly altered as a consequence. Runoff from the extended runway and taxiway sections will be directed into the existing system of open ditches.

The actual quantity of surface runoff will be changed, however. This will be discussed in the subsequent section on quantities of surface waters affected.

c. Changes During Construction

The construction of new culverts anticipated under all Plans will necessitate the temporary diversion of the drainage ditches affected. Although details on the final design of the bridge to cross the Columbia Slough are not available as of this writing, slough crossing will not necessitate any temporary or permanent diversion of the slough waters under the bridge. No other significant alterations of the existing pattern of drainage are anticipated from the project construction phase. Construction is scheduled during the least rainy part of the year for entirely practical reasons. However, this will minimize siltation runoff. Construction impacts upon the quality of surface waters as affected by possible erosion and siltation will be discussed in subsequent sections dealing with the quality of surface waters affected.

d. Methods of Minimizing Adverse Impact

Little information is currently available with which to evaluate to what extent other factors such as urbanization will change the impact of the slough upon airport drainage. It may be that the existing drainage pattern at PIA will have to be modified at some future date so that more PIA drainage can be carried directly to the Columbia River. Alternately, it may be necessary to store drainage water temporarily within PIA lands when the water level in the slough is high. As upland urbanization continues, there may be relatively little which PIA can do to protect itself from problems caused by added runoff from other parts of the Columbia Slough drainage basin. Further study is recommended to determine feasible options to the existing drainage pattern at PIA in the event that it should prove inadequate at some future date.

A well drained new 82nd Avenue should divert 100% of its runoff into the Slough. All evidence points to the fact that the Slough system, including pumps, can handle the rather small additional load. The removal of all unnecessary pavement, i.e., existing 82nd Avenue and N.E. Lombard Street, would make the net increase in street paving very minimal, thus minimalizing direct storm water influx into the Slough. This would result in an increase in the quantity of ground water.

2. Ground Water

a. Existing Conditions

PIA soils are similar to those found throughout the alluvial valley in which it is located. The valley has been crossed by many sloughs and small channels which, in many cases, have been filled with sand. Sand, silts, and sand-silt mixtures alternate to depths of 30 feet or more.

There is one ground water well on the airport property, and water table measurements indicate that the ground water level varies generally from the surface, during the winter and spring months, to a depth of about 10 feet during the summer and fall seasons. Ground water movement is from the Columbia River towards Columbia Slough during high river stages (winter and spring), and from Columbia Slough towards the Columbia River during low river stages (summer and fall). The movement rate is slow through predominantly sandy silts, and seepage from the Columbia River does not appear to infiltrate the Columbia Slough drainage area in significant quantities. The soils of the levee and floodplain have a limited permeability on the order of 10^{-4} centimeters per second (cm/sec), or about 13.61 inches per day.

Data from the ground water well indicates that a ground water mound exists between the river and the slough. The mound has an elevation of 12 to 15 feet msl during much of the year and discharges water to both the river and slough when stages are below 10 to 13 feet. When the river stage is above 13 feet, usually in May and June, the ground water slope is probably away from the river toward the slough, but the rate of discharge from the river to the slough is low. During the winter months, when the river stages have been low, the mound builds up by rainfall recharge almost to the ground surface, and drainage is into both the slough and the river at all times.

There are no wells in the area which are used for potable water. All potable water is imported from remote surface supplies managed by the City of Portland. The principal mode of residential sewage disposal in the general area is by cesspool or septic tank, making it unlikely that ground water will be utilized for potable water in the near future. In the Central County Service District immediately east and southeast of the airport, some 8 million gallons of sewage flow into cesspools daily.

Ground water flow velocities are estimated to be as low as 10 feet per year, and only in coarse materials or fissures does the velocity exceed 1 mile per year. Flow tends to be laminar with little lateral or vertical diffusion. Thus, contaminants are not diluted to nearly the extent that surface water turbulence provides. Since movement is slow, pollutants added to the ground at one point may not affect the quality of ground water at nearby points for many years. When it is discovered, the damage cannot be repaired by stopping the pollution. Purification by leaching and dilution will require a longer time than the period of original pollution.

The mechanical filtering by the porous upper layers of soil remove suspended solids and in most cases bacteria. If the upper layers are aerobic, i.e., the water table is below the surface, the natural microorganism population will stabilize dissolved and suspended organic substances However, some chemical species such as chloride, chlorates, boron, nitrate, phenols, and detergent constituents are not removed by the upper layers and will build up in the ground water.

As of this writing, no quantitative data are available on the existing quality of PIA ground water. Because of the naturally slow movement, ground water at the airport site sustains pollutants for longer periods of time than water which is more frequently flushed. Known contaminant sources include the small amounts of salt and urea which escape the storm drainage system after snow or ice control operations, small amounts of Skylight Fog dispersant which settle on soil rather than runways during fog control,[1] and occasional small fuel or oil deposits from aircraft or motor vehicles, etc. The quantities of these sources are negligible in relation to potential ground water pollution.

The only potential source of significant ground water pollution would be an accident in which an underground jet fuel line or surface fuel storage tank were to rupture. The jet fuel storage tanks at PIA are located some distance from the terminal, for safety reasons. They are north of the south runway's west end, directly in line with the terminal between the parallel runways. This possibility exists, regardless of any south runway extension.

b. Changes Associated with the Alternatives and Options

The runway extension is expected to have little effect on ground water quality, water table level, or ground water flow. The relocated 82nd Avenue will be constructed on a sand embankment in order to provide a suitable sub-base for the roadbed. The water table may be encountered in some low areas during construction; however, neither those occasional disturbances nor the finished roadbed are expected to significantly alter ground water quality or flow.

The infiltration of storm water will be reduced by the application of impermeable pavement to the runway embankment. This will have a minor effect upon seepage and subsurface water levels. Because more of the rainfall would be intercepted and collected by the drainage system, less would recharge the ground water. This would diminish the amount of ground water flow away from PIA lands, particularly toward the Columbia River or the Columbia Slough. If river slough levels are high, on the other hand, the reduced recharge of rainwater to PIA soils could permit more seepage of river or slough water toward the airport. No magnitude can readily be assigned to the seepage impact. The quantity of direct runoff attributable to the runway extension is discussed in the section dealing with surface water quantity.

One justification for the south runway extension is the resulting possibility of longer flights with larger planes, and the subsequent need of such aircraft to carry greater quantities of fuel. The short 8,800 foot runway has prevented the longer flights with their associated larger quantities

---

1/ Skylight Fog is not used any longer at PIA, but had limited use in the past.

of fuel and heavier loads. An extended runway will therefore necessitate through-put of slightly larger amounts of jet fuel at PIA, thus proportionately increasing the chances of mishap such as a serious spill from a jet fuel line or surface storage tank. As presented later in this EIR under the economic section, the increase in jet fuel has been estimated. In 1972 approximately 62,023,470 gallons were used at PIA. In 1980 and 1990 respectively, it is estimated that 113,462,000 and 229,261,000 gallons will be used. These projections, of course, include some increase due to a runway extension, but generally they reflect increased traffic, much of which could operate on existing runways. There would then exist the potential for a proportional increase in mishaps, but only minor amounts attributable directly to an extension.

c. Methods of Minimizing Adverse Impacts

Information concerning the net increase in jet fueling, which will occur after the runway is extended, is presented above. Insofar as this increase in jet fuel through-put increases the probability of spills in large quantities, the quality of existing ground water would be degraded by those quantities which would not be flushed away by the existing storm drain system. The longer amount of time required to remove ground water pollution as opposed to surface water pollution enhances the importance of this consideration.

As described above, any direct impact of an extension, whether in quantity or quality of the ground water, will be strictly from the presence of the paving of runways and taxiways. The drainage system will retard ground water recharge by shunting much of the runoff directly to the Slough. However, some of this runoff will end up in ground water system. Therefore, the only direct concern is contaminants on the runway and this runoff issue is discussed in more detail in the subsequent section of surface water.

Indirectly, a small increase in use of jet fuel and related services will result. These may proportionately impact the ground water by increasing the chances for fuel spills or the release of contaminants. It would therefore not be inappropriate to discuss the problem in general, as a means to reduce any indirect impact of the extension--regardless of how small the impact.

Experience with fuel line and storage tank ruptures in Glendale, California indicates that it can be controlled and removed from ground water over an extended period of time by a combination of drawdown cone wells for gradient control, pumping free of gasoline, and removal of soil absorbed gasoline by aerobic micro-organisms. Of course, appropriate measures to prevent such mishaps in the first place constitute far superior mitigating measures. Waste fuel that normally accumulates around a hose connection (hydrant box) should be pumped out regularly and safely taken for treatment or disposal without dilution by water.

The following paragraphs further address mitigating measures. [1/]

"The best method for dealing with spills is to contain them rapidly and use a petroleum absorbant material to absorb the fuel on the surface. Typical absorbants are oleophillic and hydrophobic,

---

[1/] The following five paragraphs are from pages 277-279 of Airports and Their Environment, Department of Transportation, Office of the Secretary, (DOT P. 5600.1), September 1972.

which are readily available at moderate expense. When applied to contained fuel, the result is a fairly solid mass that can be shovelled or swept into containers for disposal. Such material should be readily available at each refueling site in convenient-sized quantities.

"All equipment should be inspected periodically and personnel should be carefully briefed on their roles should a spill occur, since rapid containment and application of absorbants is important. If, by chance, some fuel gets into storm water, each refueling facility should have an individual oil-water separator to skim as much oil as possible before allowing discharge to the main drainage system. Such separators must also be periodically inspected and maintained.

"Routine maintenance and aircraft washing involve the use of grease and other petroleum products, cleaning solvents, and the removal of waste petroleum products. Areas for the storage of waste products should be readily available, carefully marked, and frequently inspected. Employees should be advised of the need for their exclusive use for waste disposal. Dumping of wastes down the storm drains should not be tolerated. These storage areas should be emptied frequently, and the materials taken for treatment and disposal.

"Solvents and detergents used in washing are immediately diluted in water, which makes their removal more difficult. Therefore, low phosphate content detergents should be used. Because oil from the aircraft will be in the wash water, some form of separator or oil skimming device should be located in the maintenance facility. . . In any abatement plan, inspection, good maintenance, and personnel training are vital.

"Transportation of fuels from outside sources to the airport, and storage and distribution on the facility can present a major waste problem. Accidental spills, caused by broken equipment or faulty operating procedures, can cause large amounts of petroleum products to enter the surface or ground water. Large-scale transportation by barge or pipelines requires adequate inspection and the establishment of procedures for minimizing the size and number of accidental spills. and for dealing with spills when they occur. Above-ground storage areas should be completely enclosed by low berms to force all storm drainage around the tanks through an oil-water separator before discharge to the storm drainage system. Below-ground pipelines and storage tanks should be inspected periodically for underground leaks. Again, inspection and personnel training are important elements."

3. Surface Waters[1] (Refer to Map #2, Page I-3)

a. Existing Conditions

The most recent estimate of the direct storm runoff from the total area draining into Columbia Slough in 24 hours is some 890 cfs for a 1-in-10 year storm and 1,090 cfs for a 1-in-25 year storm. The quantity of runoff from PIA land in 24 hours is estimated to be 152 cfs for a 1-in-10 year storm and 187 cfs for a 1-in-25 year storm (17% of their respective totals). The PIA area is approximately 2,800 acres, which is about 15 percent of the total drainage area for the slough.

Columbia Slough is a system of channels and lakes south of the Columbia River along the southern edge of its floodplain. The slough leaves the Columbia River opposite the lower end of McGuire Island and is joined by other channels which drain the nearby floodplain or adjacent land to the south. Columbia Slough then runs westward roughly parallel to the Columbia River until it reaches and empties into the Willamette River just upstream of the Willamette's confluence with the Columbia River.

In its natural state, Columbia Slough apparently was the internal drainage of the floodplain behind natural levees formed at the edge of the main channels of the Columbia. With the construction of artificial levees, the slough became even more important as the drain for the floodplain and for the higher ground south of the floodplain.

The eastern portion of the slough and floodplain are within Multnomah County Drainage District Number 1. The slough is now blocked at the easterly end where it leaves the Columbia River. It is also blocked just west of the western edge of PIA where the Peninsula Drainage Canal (also blocked where it leaves the Columbia River) enters the slough.

The drainage district has pumps at both ends of the blocked slough. Two pumps are located at the easterly end with a total rating of 50,000 gallons per minute (gpm) and provisions for two additional pumps of 25,000 gpm capacity each, allowing an ultimate capacity of 100,000 gpm (equivalent to 223 cfs). These pumps discharge slough water into the Columbia River. Another pumping station is located west of PIA where the slough is blocked by a fill near the Peninsula Drainage Canal. The station has five pumps with a total rated capacity of 135,000 gpm (301 cfs) and discharges into that part of the Columbia Slough which is on the west side of the fill. The district can pump water out of Columbia Slough from both ends at once or from either end alone. The fall in elevation between the two stations is on the order of a foot; consequently, the flow at any location can be toward either end of the slough, depending on the relative pumping rates.

---

[1] Department of Transportation, Office of the Secretary, Assistant Secretary for Environment & Urban Systems, CLM/Systems, Inc., Airports & Their Environment - A Guide to Environmental Planning September 1972, DOT P 5600.1, pp. 276-291. (Technical Appendix D-20 through D-35)

Port of Portland, Portland, Oregon, Environmental Impacts - Pollution Study - Exhibit II, PIA Expansion, July 1972, Chapter D, pp. D-17 through D-44. (Technical Appendix D, D-36 through D-47)

Port of Portland, Portland, Oregon, Environmental Impacts - Natural Resource Study - Exhibit I, PIA Expansion, July 1972, Chapter B, pp. B-11, B-24 through B-27, B-48 through B-54. (Technical Appendix D, D-48 through D-77)

Five 66-inch pipes, each with a sluice gate, are located near the westerly fill across Columbia Slough and allow gravity flow of water from the slough when the Columbia River is at low stage. When the river stage is less than elevation 6.0, pumping may not be required. When the river stage is above 8.0, pumping is always necessary. This datum makes reference to the Columbia River Datum (CRD) at Vancouver.

The district has a storage capacity within its channels and in Fairview Lake of 2,100 acre-feet of water between elevation 2.5 and 9.0. Flooding results at an elevation of 8.7 feet CRD.

The operating procedure of the district in handling storm runoff is to pump the slough to lower its water level to 3 feet CRD in order to allow for storage of runoff (and to obtain a lower power rate). If the district receives more than 2 inches of rain in 24 hours when the river stage does not permit gravity flow, the slough needs 72 hours to recover the lost storage capacity.

The district is apparently finding it difficult to remove the water entering the slough without having some flooding. This is occurring because of changes in land use in the slough's drainage area outside the drainage district. The total area drained is 18,400 acres, of which 10,900 acres are in the higher area south of the slough and outside of the drainage district, and 7,500 acres are in the district (principally on the floodplain).

Water draining into Columbia Slough has four likely sources: (1) direct runoff (2) infiltration from ground water originating as rainfall (3) ground water flow from the Columbia River to the slough and (4) imported water (e.g., that from municipal or industrial water supplies) discharged into the slough from drains and infiltration. The rates of infiltration to the slough are 74 cfs in July and 300 cfs in December, after prolonged rainfall. The infiltration rate of 300 cfs is 74 percent of the total existing pumping capacity of the drainage district. Seepage from the Columbia River does not appear to infiltrate in significant quantities. No significant decrease in infiltration occurs when the river is at low stage. Infiltration from the Columbia River occurs only when the river is at high stages.

The quality of runoff waters from PIA, and its associated impact on the water quality of the Columbia Slough, is affected by the contaminants deposited on the surface of all open areas at the airport. The runways, taxiways, non-critical apron areas, and automobile access roadways are all subject to rainfall flushing which carries a variety of pollutants into the storm water drainage system of the airport. Runways and taxiways collect jet engine exhaust products, fuel and oil leakages, and tire deposits just as access roads collect the same type of deposits from automobiles.

During the winter season, from November 1971 through March 1972, 6 tons of salt (NaCL) and 4 tons of Urea were spread on roadways for snow and ice control. Sand is used exclusively on runways, taxiways and aprons for the same purpose.

During the month of November 1972, approximately 1,800 lbs. of "Skylite," a proprietary cationic polyelectrolyte, was dropped on the main runways from 200 feet altitude for fog control. This material is manufactured by the Hercules Company who state that it is a water-soluble, non-corrosive, and non-toxic synthetic acrylic polymer. The 5-day biochemical oxygen demand (BOD) of a 500 mg/l solution is 28 mg/l. The airport administration has discontinued use of fog dispersal compounds because they have not dispersed the fog.

In the last five years, runways have been foamed only two times. The foam concentrate is protein hydrolystates and ferric salts with a chemical oxygen demand (COD) of 500,000 mg/l and a BOD of 120,000 mg/l. It is mixed with 9 parts water before application.

Most large airports require chemical cleaning of the main runways to remove tire deposits and oils which become slippery when wet. Oily, wet runways have 1/3 the breaking effectiveness of clean wet runways. The chemical cleaner for asphalt concrete is a rubber alkaline degreaser. Tire deposit build-up is not a problem at PIA, but could be a problem in the future.

The above materials are flushed from the airport surface via the drainage system into the Columbia Slough. The highest concentrations will occur when the first major rain of the fall season (usually in October) flushes out the accumulation from the summer dry period. It is impossible to make a reliable prediction of these concentrations, but they are judged to be small at the present time.

Apron fuel spills and de-icing glycols are also flushed directly to the slough at the present. 25 fuel spills, recorded from February 19, 1973 to June 27, 1973, amounted to a total of 469.5 gallons, or an average spill of 18.8 gallons. During the 128-day period, this amounted to a frequency of one spill every five days. One of the spills was extremely larger than the others. Subtracting the 250 gallons for this one spill from the total resulted in an average spill of 9.1 gallons. It must be remembered that fuel begins to evaporate quickly once released from a closed container. The spills recorded during the period in question occurred in quantities large enough to require immediate dilution from water washdown. Washdown quantities ranged from 30 to 3,000 gallons.

Other quantities of jet fuel reach the PIA surface which do not receive immediate corrective action. Jet aircraft continue to release a small amount of jet fuel during takeoff. Each time a turbine engine is shut down, a small amount of fuel is drained into a manifold drain can, primarily as a safety measure. A smaller amount of fuel is added on startup. The amount accumulated varies with engine type, but it is described as a "pint to a quart per engine." It is released into the atmosphere as the air speed is increased during climbout. This practice, which came to national attention in 1970 through criticism of federal pollution officials, is considered a prime source of the kerosene odor around airports and a contributor to the black, gummy material which gets on objects near airports. Because of evaporation, this practice is considered a greater source of air pollution than water pollution. Extensive efforts, under strong federal pressure, are now under way to develop methods of handling this fuel other than through release into the atmosphere.

De-icing glycols are also used to remove ice which accumulates on the wings of aircraft during freezing weather. This is the only reason that aircraft are washed at PIA at the present time. The substance used is known as ethylene glycol. At PIA, about 17,000 gallons were used during the winter season of November 1971 to March 1972. The glycol is diluted before application, usually with one part water but sometimes with 3 parts water, depending on the air temperature. It mixes well with water, is very refractory, and is fatal to humans in 100 cc quantities (about 3 1/2 fluid ounces). No data was found in the literature regarding the toxicity of ethylene glycol to fish, but it would likely be toxic if it were to reach Columbia Slough without proper dilution. As the number and size of aircraft at PIA increase, it will be important, although possibly difficult, to treat this material before releasing it to either the sanitary sewer system or the slough. At the present time it is released to the storm sewer system.

It is apparent that particulates settle into water bodies and are scavenged from the air during rainfall and enter the water bodies around PIA. Rain also carries large amounts of gaseous pollutants such as NO_x, SO_2 and hydrocarbons out of the atmosphere and into the soil and water. While this is nearly continuously occurring during nine months of the year at PIA, the effects on the Columbia River are certainly negligible due to the very large flows involved, and the effects on Columbia Slough are probably not detectable. Attempts to quantify this effect at Seattle in 1965 by researchers from the University of Washington led to the conclusion that air contaminants were not a significant contributor to reservoir water quality degradation at that time. The major potential pollutants were soluble and insoluble leads from auto emissions. Jet aircraft fuels do not contain lead.

The quality of the Columbia Slough, and the Willamette and Columbia Rivers into which it drains, is thus affected in one way or another by the above contaminants when they enter runoff. Water quality information on the slough has been obtained by a survey conducted by the Oregon Department of Environmental Quality on August 18, 1971. The area of concern extended from the Fairview community to about N.E. 17th Avenue at the pumphouse intake of Multnomah County Drainage District No. 1.

The overall water quality in the Main Drainage Canal from N.E. 185th to N.E. Alderwood (near 82nd Avenue) was good. This portion of the slough was stagnant because water was backed up for irrigation of farm lands primarily concentrated east of N.E. 82nd Avenue. The stagnant nature of the slough in this reach enhanced algal growth which was reflected by dissolved oxygen saturation levels reaching as high as 120 percent. Irrigation return waters and the discharge from three private secondary sewage treatment plants located at N.E. 82nd and N.E. 92nd Avenues were causing increases in sulfate, nitrate-nitrogen, and chloride levels. These increases in enrichment, however, had no observed detrimental effects on fish or other aquatic life. These three small sewage treatment plants will become inoperable upon completion of the county's approved sewer plan.

The water quality in the short stretch of the Main Canal at 47th Avenue was also good. The high levels of nitrate-nitrogen and chlorides indicated that irrigation return waters were also entering this stretch of the Main Canal.

The water quality in the Main Drainage Canal below the South Slough Mouth was also good and reflected the mixing of South Slough and Main Canal waters. The high levels of dissolved oxygen and suspended solids indicated that algal productivity was greater than that observed in the Main Canal above N.E. 47th Avenue. A large portion of the algae present was attributed to seeding from the South Slough Arm where a luxuriant bloom had occurred.

As for the South Slough Arm, a lower temperature of 14 degrees C. was recorded at S.E. 122nd Avenue where a large volume of water was issuing from a spring. Extensive algal production occurred in the wide, shallow sections of the slough, causing increased water temperatures, pH, dissolved oxygen, BOD, suspended solids, alkalinity, and turbidity. The configuration of this slough arm was such that it would enhance greater biological productivity and thus yield aesthetically less desirable appearing water than in the Main Drainage Canal.

b. Changes Associated with the Alternatives and Options

The options of the project alternative will have a very limited effect on the existing conditions. Below in Table 4 is the estimated effect of runoff due to any new construction. The direct effect of the runoff on the flow rate of the Slough is expected to be approximately 1,0% less, and will therefore not have a serious adverse impact.

Table 4

Estimated Effect on Storm Runoff Due to Project Alternative

Plan	Net Acres Increase in Impermeable Surface	Increase in Runoff in ac.ft./yr* (40"/yr.)	Estimated Runoff from a 0.1 in./hr. rainfall		
			ac.ft.*	cu.ft.	Increased Runoff Flow from PIA Due to Runway Extensions
I	22.57	75.15	.1881	8194	8 cu.ft./sec.
II	40.80**	135.85	.3399	14806	14.5 cu.ft./sec.
III	31.60**	105.22	.2632	11465	11.2 cu.ft./sec.

*ac.ft./yr. - The amount of water one foot deep covering one acre of surface due to the rainfall of an average year.

** Includes the net effect of relocated 82nd Avenue.

Predicting the net change in any contaminant concentrations in the runoff due directly or indirectly to the extension is fairly difficult. Ostensibly, a runway extension will allow a change in the mix and volume of air traffic. However, the Boeing Report indicates that most of the same planes will be in use without a south runway extension--it is rather a matter of the larger payloads and longer flights permissible with the longer south runway offered in any of the optional Plans. Therefore:

(1) This will somewhat increase the amount of fuel handled at PIA, thereby slightly increasing the chance of fuel related

mishaps affecting runoff;

(2) As earlier discussed, any chemicals, compounds or other materials or substances ending up on the runway and taxiway surfaces will be flushed off in greater quantities, proportional to the added amount of impermeable surface.

Additionally, one should not incorrectly assume an added passenger load and the related consequences to the terminal, ground access traffic, etc., for the Boeing Report does not present evidence of increased enplanements due to any south runway extension. The Report did, however, make the point that enplanements are expected to increase on the basis of other factors affecting air traffic growth.

Runoff results in ground water recharge, as well as increased volume in the storm sewer drainage system. Studies are not available which give any indication of the separation ratio. Consequently, any predictions of net changes in surface water quality due directly or indirectly to a runway extension are qualitative judgments at best, and highly unreliable impressions at worst.

With this and the previous discussion on existing conditions in mind, the project alternative and its three optional Plans will actually affect a limited:

(1) increase in the amount of sand used for runway snow and ice control in the winter;

(2) increase in salt and urea used for snow and ice control on a longer 82nd Avenue;

(3) increase (very minor) in exhaust products, fuel and oil leakages, and tire deposits from more aircraft operations and a subsequently higher (also minor) fueling rate;

(4) increase in the amount of de-icing glycols used on aircraft wings during freezing temperatures and a subsequent increase in the amount of de-icing glycols entering the Columbia Slough via the storm drain.

Managerial and technological changes along with factors other than the runway extension may very well change these impacts. For example, the Port is making stronger efforts both now and in the future to prevent spills from occurring during aircraft fueling. This is of little consequence in view of the minor anticipated increase in fueling rate brought about by the runway extension. Likewise, technological advances are expected to eliminate the need for jet aircraft to release raw jet fuel into the atmosphere during takeoff, further reducing the extension's impact.

Without knowing specific quantitative changes in the quality of PIA surface runoff, it is not possible to make any detailed comparisons between anticipated water quality and the water quality standards for the State of Oregon. Insofar as the concentration of contaminants increases, particular attention must be paid to established standards so as not to exceed them. The following standards apply to all waters of the State of Oregon except where they are clearly superseded by Special Water Quality Standards applicable to specifically designated waters, such as the Columbia. Hence, the following standards can apply to the Columbia Slough:

"No wastes shall be discharged and no activities shall be conducted which either alone or in combination with other wastes or activities will cause in any waters of the state:

(1) The dissolved oxygen content of surface waters to be less than six (6) milligrams per liter unless specified otherwise by special standard.

(2) The hydrogen-ion concentration (pH) of the waters to be outside the range of 6.5 to 8.5 unless specified otherwise by special standard.

(3) The liberation of dissolved gases, such as carbon-dioxide, hydrogen sulfide or any other gases, in sufficient quantities to cause objectionable odors or to be deleterious to fish or other aquatic life, or which are injurious to health, recreation or industry.

(4) The development of fungi or other growths having a deleterious effect on stream bottoms, fish or other aquatic life, or which are injurious to health, recreation or industry.

(5) The creation of tastes or odors or toxic or other conditions that are deleterious to fish or other aquatic life or affect the potability of drinking water or the palatability of fish or shellfish.

(6) The formation of appreciable bottom or sludge deposits or the formation of any organic or inorganic deposits deleterious to fish or other aquatic life or injurious to public health, recreation or industry.

(7) Objectionable discoloration, turbidity, scum, oily sleek or floating solids, or coat the aquatic life with oil films.

(8) Bacterial pollution or other conditions deleterious to waters used for domestic purposes, livestock watering, irrigation, bathing, or shellfish propagation, or be otherwise injurious to public health.

(9) Any measurable increase in temperature when the receiving water temperatures are 64 degrees F. or above, or more than 2 degrees F. increase when receiving water temperatures are 62 degrees F. or less.

(10) Aesthetic conditions offensive to the human senses of sight, taste, smell or touch.

(11) Radioisotope concentrations to exceed Maximum Permissible Concentrations (MPC's) in drinking water, edible fishes or shellfishes, wildlife, irrigated crops, livestock and dairy products or pose an external radiation hazard.

(12) The dissolved nitrogen concentration (DN) relative to the water surface to exceed one hundred and five percent (105%) of saturation." [1]

---

[1] SOURCE: State of Oregon, Department of Environmental Quality, Sections from Oregon Administrative Rules, "Regulations Relating to Water Quality Control in Oregon", Chapter 340, p. 37, August 15, 1972

Due to the physical and technical impracticability of computer modeling the entire slough area, monitoring of these standards is unlikely. However, the DEQ report on Slough water quality did not identify violations. (See Technical Appendix E)

The following standards apply to the Columbia River, the ultimate recipient of waters drained from PIA:

"No wastes shall be discharged and no activities shall be conducted which either alone or in combination with other wastes or activities will cause in the waters of the Columbia River:

(1) Dissolved Oxygen (DO). DO concentrations to be less than 90% of saturation.

(2) Organisms of the Coliform Group where Associated with Fecal Sources (MPN or equivalent MF using a representative number of samples).

a. (From the eastern Oregon-Washington boundary downstream to the Interstate Highway 5 bridge between Vancouver, Washington, and Portland, Oregon). Average concentrations of coliform bacteria to exceed 240 per 100 ml or to exceed this value in more than 20 percent of the samples.

b. (From the Interstate Highway 5 bridge between Vancouver, Washington, and Portland, Oregon, to the mouth). Average concentrations of coliform bacteria to exceed 1,000 per 100 ml, with 20 percent of the samples not to exceed 2,400 per 100 ml.

(3) Turbidity. (Jackson Turbidity Units, JTU). Turbidities to exceed 5 JTU above natural background values except for certain short-term activities which may be specifically authorized by the Department of Environmental Quality (DEQ) under such conditions as it may prescribe and which are necessary to accommodate essential dredging or construction where turbidities in excess of this standard are unavoidable.

(4) Hydrogen-Ion Concentration. pH values to fall outside the range of 7.0 to 8.5.

(5) Temperature. Any measurable increase when river temperatures are 68 degrees F. or above, or more than 2 degrees F. increase when river temperatures are 66 degrees F. or less.

(6) Dissolved Chemical Substances. (Above the zone of marine water intrusion, approximate river mile 40). Guide concentrations listed below to be exceeded except as may be specifically authorized by the DEQ upon such conditions as it may deem necessary to carry out the general intent of Section 41-010 of this subdivision and to protect the beneficial uses set forth in Table A.

	mg/l
Arsenic (As)	0.01
Barium (Ba)	1.0
Boron (Bo)	0.5
Cadmium (Cd)	0.01
Chloride (Cl)	30.0
Chromium (Cr)	0.05
Copper (Cu)	0.005

Cyanide (Cn)	0.01
Fluoride (F)	1.0
Iron (Fe)	0.1
Lead (Pb)	0.05
Manganese (Mn)	0.05
Phenols (totals)	0.001
Total dissolved solids	200.0
Zinc (Zn)	0.1
Heavy metals (Totals including Cu, Pb, Zn, and others of non-specific designation)" [1]	0.5

PIA's drainage is into the Columbia Slough as previously stated. An examination of the DEQ's Slough report (Technical Appendix E) shows no indication of contaminants from PIA causing any problems which would ultimately affect the quality of the Columbia River.

c. Changes during Construction

A potential water quality problem to be possibly encountered during construction of the project is wind and/or water produced erosion, particularly siltation in the Columbia Slough resulting from grading actions.[2] Soil exposure and disturbance during final construction operations, general operation of heavy equipment in the area, and occurrence of high intensity rainfall during 5 or 6 months of the year could lead to high turbidity and suspended or settleable solids concentrations in those areas of the Columbia Slough which receive the airport drainage.

The relative amount of turbidity added would vary with Plans I, II, and III. The full embankment material required for Plans I, II, and III has been placed in or near its final location. Very minor soil disturbances are anticipated for installation of the navaids and related service roads. Under Plans II and III, a new 82nd Avenue would have to be constructed before existing 82nd Avenue and sections of other roads are vacated. The cut left for old 82nd Avenue will require additional grading at a later time and Plan III requires later grading of the cut left for N.E. Lombard Street.

The relative amount of turbidity added by any Plan will also vary throughout the construction according to the intensity of earth disturbance elsewhere. The larger the area of exposed soil during any one period of time, the greater will be the impact of erosion on water turbidity. The amount of rainfall during these times will also affect the amount of turbidity.

The addition of suspended or settleable solids and generally turbid surface waters to the Columbia Slough is viewed as construction-related only and thus short-term. The turbid runoff would take place at times when other storm runoff entering Columbia Slough is also turbid (and for much the same reason - ongoing upland watershed development). The relative amount of turbidity added by PIA is dependent upon concurrent or recent construction elsewhere in the drainage basin and therefore cannot be predicted reliably. Even absolute quantification is dependent on rainfall, wind, temperature, and the germination rate of newly sown grass seed. The construction of a new bridge across the Columbia Slough will have a direct, but short-term impact on the turbidity of slough waters.

---

[1] SOURCE: State of Oregon, Department of Environmental Quality, Sections from Oregon Administrative Rules, "Regulations Relating to Water Quality Control in Oregon", Chapter 340, pp. 39-40, August 15, 1972.

[2] Practically speaking, much of this major grading, which is not an issue of this EIR, has taken place during a nearly record dry summer, and siltation problems, if any, have been therefore minor. It additionally is to be noted that even the grading of the original runways caused little, if any, such problems.

d. Methods of Minimizing Adverse Impact

The current water quality of the Upper Columbia Slough main drainage canal is satisfactory according to a report by Oregon DEQ.[1] August 1971 measurements of total solids, suspended solids, and turbidity were 234 mg/l, 18 mg/l, and 9 JTU respectively. These and winter levels for said parameters can be used to establish concentration limits for runoff during construction so that the existing quality of the slough will not be impaired during the construction phase of the project.

In the design and construction phases, every attempt should be made to prevent soil erosion by preserving and protecting graded slopes, borrow sources and the banks of water channels. Materials and structures can be used to protect land susceptible to erosion; this includes accelerating the construction of permanent control structures and the establishment of final grades. Unprotected surfaces can be temporarily protected by using fiber mats, woven plastic filter cloth in drain channels, gravel, mulches, quick growing grasses, sod, and, as a last resort, bituminous spray. Methods to slow down water flow through the unfinished project include berms, dikes, dams, drains, and sediment basins. Removal of vacated paving will decrease runoff through a drainage system and speed ground water recharge.

Construction practices that will limit erosion can be accomplished by showing temporary as well as permanent control measures on the plans and in the specifications. Wherever possible, unit prices for temporary control work should be a specific bid item. There should be a specific schedule for accomplishment of temporary erosion controls as well as other pollution control measures. Inspection, monitoring, and enforcement procedures should be clearly specified in the contracts. A limit should be placed on the surface area of erodable material exposed by clearing, grubbing, excavation, borrow, or fill. The FAA suggests a maximum of 750,000 square feet.

Other desirable construction practices include: limiting the fording of existing drainage ditches by specifying temporary culvert installation; immediately removing all construction debris from water bodies; settling or filtering of water from aggregate washing; and preventing fuels, lubricants, or other construction chemicals from reaching surrounding water bodies.

Since many of these measures involve possible changes in construction practices as well as added materials, the added costs of such requirements should be specified and separate prices established so there can be no question of their inclusion in the contract.

---

[1] Department of Environmental Quality, State of Oregon, "Status of Water Quality in Columbia Slough, Oregon", 1972. (See Technical Appendix E)

There is a potential backwater problem in the Columbia Slough because Slough water is necessarily pumped up into the Columbia. To ameliorate the general impact of PIA's runoff, which this project tends to heighten, short-term storage of drainage water may be necessary at times when the slough water level is high enough that addition of airport drainage would cause or aggravate flooding. Alternately, the hydraulic characteristics of the slough might be improved to offset the increased flooding potential caused by any added water. Or it may be necessary to alter the existing drainage pattern at PIA so that more PIA drainage can be carried (and pumped) directly to the Columbia River. Further study should be done to determine feasible options to the existing drainage pattern at PIA in the event that it should prove inadequate at some future date, regardless of the runway extension project selected.

The highest concentrations of runway contaminant build-up pollution will probably occur when the first major rain of the fall season flushes out the accumulation from the summer dry period. Since it is impossible to make a reliable prediction of these concentrations and the impact of a runway extension is minimal, as established above, the drainage system discharge to Columbia Slough should be sampled, at least once each year at this peak concentration time and before it enters the slough, to monitor this pollution source. Eventually, as airport use increases, this discharge may require treatment. There is no substitute for a well managed water quality monitoring program. Its greatest advantage is the provision of trend data. Problems can be anticipated and design solutions developed in advance.

4. Sewage Disposal

An examination of airport operations and the potential for impacting the sewage disposal system discloses that wastes affecting the sanitary sewer system are of three types.

a. Human waste, shredded restaurant wastes and other drainage associated with the terminal complex, etc., but proportional to the passenger load of PIA.
b. Industrial waste associated with maintenance, chemical de-icing, possible fuel mishaps, etc., but related to the number of planes handled.
c. The handling of waste from airplane holding tanks and any chemicals associated therewith.

The Boeing Report provides the analysis that there will eventually be associated with PIA an increased number of operations by a larger fleet of planes handling a greater number of enplanements. However, all of this will occur regardless of whether a south runway extension is constructed--only the payloads and the flight distances will increase.

Therefore it is concluded that none of the Plans as outlined will adversely impact the sewage disposal system at PIA or any related municipal treatment plant.

C. Air Quality

The following analysis of air quality is provided through the facilities of Haworth and Anderson, with technical assistance from Professor Elmer Robinson, Civil Engineering, Air Pollution and Meteorology Section, College of Engineering, Washington State University, Pullman, Washington. Professor Robinson is an associate with Haworth and Anderson. The technical documentation to this is contained in Technical Appendix G.

1. Introduction and Standards

The operation of any airport can be expected to affect the quality of the air and PIA is no exception. The escaping by-products of normal airport activity are dispersed by winds and finally become part of the ambient air. Ambient air is defined as the air that surrounds the earth excluding the general volume of gases contained within any building or structure. It contains the normal gases of the atmosphere, plus those substances man calls pollutants. The primary pollutants for consideration in this report are suspended particulates, carbon monoxide, hydrocarbons, and nitrogen oxides.

Suspended Particulates -- are small particles of solids or liquids that are suspended in the atmosphere and can be transported by winds and currents. They are normally less than 100 microns in size and form through combustion, condensation in the atmosphere, or other human activities.

Carbon Monoxide -- is a gas, one of the most common air pollutants, and is generated primarly through the incomplete combusion of gasoline It is colorless, odorless and extremely toxic.

Hydrocarbons -- are organic compounds resulting from the incomplete combustion of fossel fuels (gasoline, oil, coal, natural gas). They can be produced in large amounts when fuel users are inefficient, such as untuned automobile engines.

Nitrogen Oxides -- are primarily by-products of the internal combustion engine. Nitrogen and oxygen gases from the atmosphere, when subjected to the extreme heat and pressure of such engines, form nitrogen oxides.

Photochemical Oxidants -- are formed in the atmosphere when certain hydrocarbons and nitrogen oxides are mixed and exposed to sunlight, a situation that has the potential of occurring in the Portland and PIA area. Some common oxidants include ozone, nitrogen dioxide, peroxyacyl nitrates, aldehydes, and acrolein. This body of pollutants can cause reduced visibility, offensive odor, deterioration of materials, eye and lung irritation, and vegetation damage.

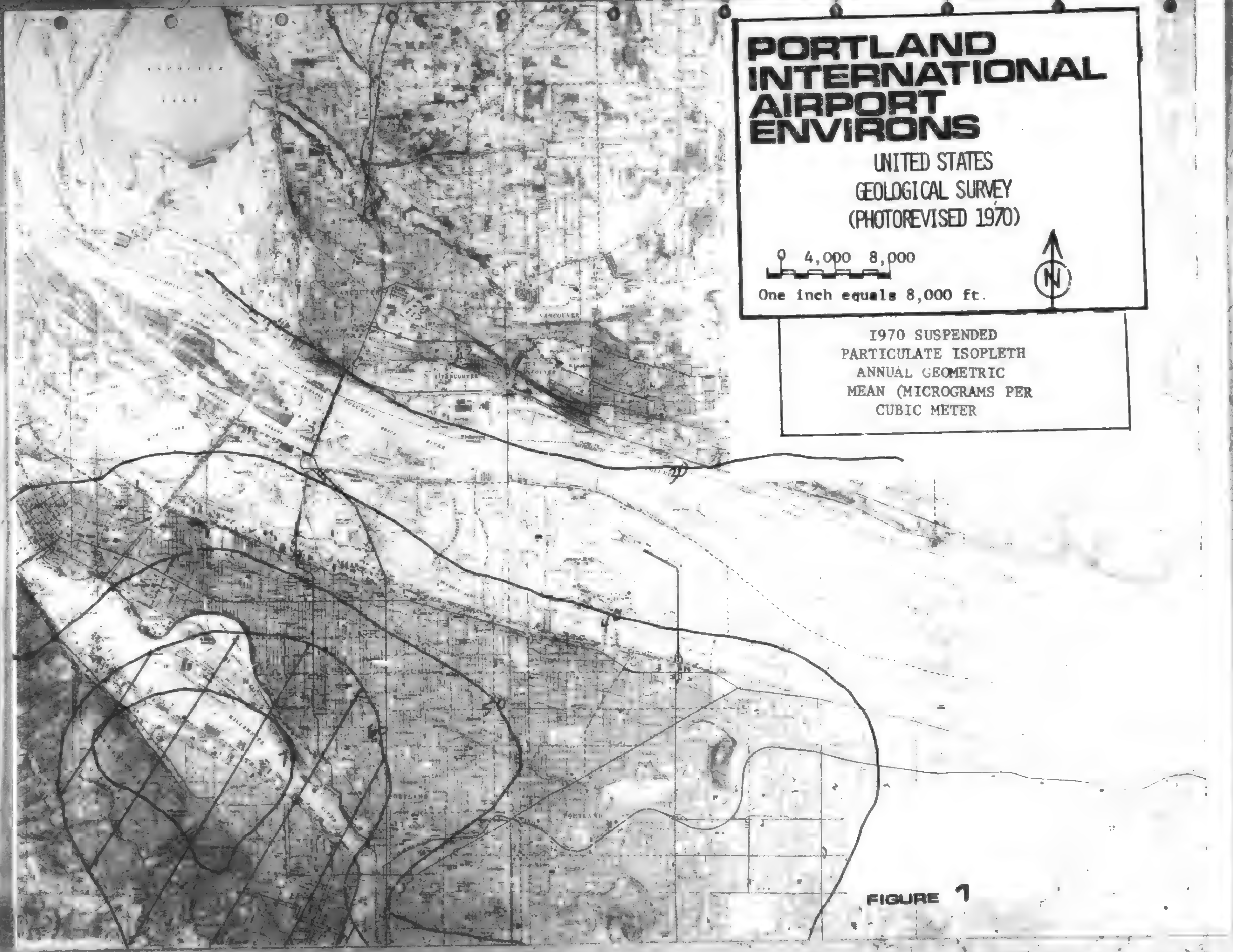
Since the above pollutants are generally considered harmful or at least objectionable when present in abundant quantities, it has become necessary to monitor and regulate their concentration levels in the atmoshphere. The Air Pollution Control Office of the Environmental Protection Agency (EPA) is responsible for air quality on the federal level via the Congressional Clean Air Act. The Oregon State Department of Environmental Quality (DEQ) has jurisdiction on the state level over ambient air quality. Until recently, the Columbia-Willamette Air Pollution Authority (CWAPA) was active in the northwestern portion of the state (Clakamas, Columbia, Multnomah and Washington counties). CWAPA is now defunct, and its activities have been taken over by the State Department of Environmental Quality. Table 1 in the Summary Appendix B and Technical Appendix G summarizes the ambient air standards set down by the Environmental Protection Agency and the Columbia-Willamette Air Pollution Authority. It should be noted that CWAPA standards are more stringent than the EPA standards, and have been adopted by DEQ. The Oregon State Department of Environmental Quality ambient air standards are as strict as the CWAPA standards and are generally more comprehensive. These standards are presented in Table 2 in the Summary Appendix B of this report.

In order to adequately control air quality, the State of Oregon also adopted a set of air pollution emission standards. Through this type of standard, control is attempted by regulating emissions at the source before they become part of the ambient air. The Oregon State Emission Standards are presented in their entirety in the Technical Appendix G. These standards are concerned with non-vehicular emission sources (basically, stationary sources), and deal with visibility factors concerning particulate matter and nominally, sulfur dioxides.

2. Existing Ambient Air Quality - PIA Area

Very little information is available concerning the ambient air conditions for the area around Portland International Airport. A detailed ambient air quality study (entitled "The Columbia South Shore Study - Air Pollution and Land Use Planning") was being conducted by the CWAPA when this organization was terminated. Phase One of the above report, which included analysis of particulate concentrations, and to a lesser extent, sulfur oxides, was completed in October, 1970. An isopleth map, derived from this report, showing isopleth contours for existing suspended particulate concentrations is presented on the following page (Figure 1). It should be noted that the annual geometric mean for suspended particulates acting as ambient air in the area of PIA ranges from 30 to 40 micrograms per cubic meter. This isopleth map was derived by connecting measured points of equal particulate concentrations over the Columbia South Shore study area for the year 1970. The area within the 60 micrograms per cubic meter contour exceed federal secondary standards and Oregon state standards for particulate concentration (60 micrograms per cubic meter, annual geometric mean). This area roughly corresponds to downtown Portland.

If the Columbia South Shore Study was complete, similar type of isopleth maps for other pollutant concentrations would have been available. Unfortunately, this is not the case and the information has not been developed. It can be hypothesized that since a major factor in the establishment of isopleth contours is average wind conditions, other pollutant isopleth contours



PORTLAND INTERNATIONAL AIRPORT ENVIRONS

UNITED STATES
GEOLOGICAL SURVEY
(PHOTOREVISED 1970)

0 4,000 8,000

One inch equals 8,000 ft.

N

1970 SUSPENDED
PARTICULATE ISOPLETH
ANNUAL GEOMETRIC
MEAN (MICROGRAMS PER
CUBIC METER

FIGURE 1

VANCOUVER
COLUMBIA RIVER
PORTLAND
WILLAMETTE RIVER

would grossly approximate the suspended particulate map. However, the location of the concentration points and their various values cannot be estimated, let alone mapped. It would be quite helpful for any future analysis of ambient air in the Portland area (outside of the center core) to have this data available. Carbon monoxide, oxides of nitrogen, hydrocarbon, and some sulfur oxide measurements have been completed in the downtown Portland area. This data is not sufficient to allow the development of any accurate estimate or conclusion for the PIA area. It may be posulated, though, that on an annual geometric mean basis, overall ambient air in the PIA area will not be exceeding existing air quality standards, as is the apparent case represented by suspended particulates.

3. PIA Emissions by Source and Rate

Identification of Sources

In order to determine the PIA impact on the area air quality, it was first necessary to identify those activities associated with airport use that would act as emission (consequently pollution) sources. The most obvious source, as well as the single largest contributor is aircraft. Three distinct types of aircraft types and operations were identified and measured: (1) commercial aviation, (2) military activities, and (3) general aviation (privately owned and operated aircraft).

Ground vehicular access traffic is the next largest contributor of emissions associated with the airport operations. This includes measurement of all vehicular (auto, bus, truck) traffic carrying passengers and goods to and from the airport. Associated with this vehicular access traffic as a like emission source are the ground service vehicles or those vehicles used in the operation of the airport by the airport management, the airlines, and their support services. This ground service vehicle category also includes all other vehicles used exclusively on the airport site.

All of the above emission sources are considered mobile while some stationary sources do exist. Facilities used for heating and air conditioning of airport buildings and structures, and equipment used for cooking in food service areas, all produce certain emissions. Another major stationary emission source is the aviation fuel storage and handling facilities. Evaporative losses from those facilities (and the consequent operations) contribute primarily to the hydrocarbon emissions at PIA.

Aviation

Commercial aviation is the largest single category of emission sources associated with PIA. Total emissions were calculated from the present and predicted future commercial fleet mix and aircraft engine emission data. 1973 fleet mix and operations data were derived from 1972 data compiled by the Port of Portland and extrapolated for 1973. Data for 1980 and 1990 was derived from the Boeing Report. This data, summarized in the Technical Appendix, shows the average daily number of engine operations. An engine operation is defined as one whole landing-takeoff cycle (LTO) for one aircraft engine. One four engine aircraft completing one LTO would constitute four engine operations. This data was developed for the years 1973, 1980 and 1990. To complete the data requirements for basic calculations, the model emission factors for the major types of aircraft were prepared. (These factors can also be found in the Technical Appendix). The time-in-mode-of-operation information was derived from the United States Department of Transportation publication "Airports and Their Environments: A guide to Environmental Planning", September, 1972. The emission rates for each mode were derived from the United States Environmental Protection Agency publication "An Air Pollution Impact Methodology for Airports - Phase I", January, 1973. Using this data, and the equation presented below, daily emissions were calculated (in pounds per day) for 1973, 1980, and 1990.

Aircraft Air Pollution Inventory Formula

$$Q_y = \sum_{i=1}^{n} \sum_{j=1}^{4} \sum_{k=1}^{6} o_i e_i t_k r_{jk}$$

where Q_y = quantity of pollutants per day during year y, in pounds

n = number of plane types

o_i = number of operations per plane type i per day

e_i = number of engines of type i per plane type i

t_k = time of operation of engine type i in mode k, in minutes

r_{jk} = rate of emission from engine type i of pollutant type j during mode k, in pounds per minute

NOTES:

i_{max} varies with y ($i_{max} = n$)

$k_{max} = 6$: (1) approach (2) landing (3) taxi (4) idle
(5) take-off (6) climb-out

$j_{max} = 4$: (1) particulates (PT) (2) carbon monoxide (CO)
(3) hydrocarbons (HC) (4) nitrogen oxides (NO_x)

This formula takes account of four basic variables: (1) the number of operations of each plane type per day (o_i), wherein the subscript "i" equals the i^{th} plane type, (2) the number of engines of type i on each plane type (e_i), (3) the time of operation of engine type i in each of six operational modes during the entire landing-takeoff cycle (t_k) in minutes, and (4) the emission rate from engine type i of pollutant type j during each operational mode (r_{jk}) in pounds per minute. The subscript "i" has a maximum value of n, the number of different plane types in operation.

For the purpose of computing pollutant emissions, plane type is determined by engine type. A plane is classed as plane type if, and only if, it uses engines of the same type. For example, the DC-9 and the 737 are classed here as the same plane type because they use the same engine type. (For example, engine type 1 may be the same as engine type 3.) Multiplying the number of operations of each plane type per day times the number of engines on each plane type $(o_i \text{ X } e_i)$ results in the number of engine operations per day for each engine type. The factors t_k and r_{jk} are somewhat more complex because (a) each engine has different emission rates depending on (b) the type of pollutant emitted and (c) the mode of operation. The subscript "j" identifies each of four pollutants: (1) particulates (PT), (2) carbon monoxide (CO), (3) hydrocarbons (HC), and (4) nitrogen oxides (NO_x). The subscript "k" identifies each of six operational modes: (1) approach, (2) landing, (3) taxi, (4) idle, (5) take-off, and (6) climb-out. The variable t_k identifies the time in minutes that each engine spends in each operational mode. The variable r_{jk} identifies the emission rate in pounds per minute of each pollutant during each operational mode.

Summing across all operating engine types, all four pollutant types, and all six operational modes, the total quantity of pollutants in pounds per day (Q_y) is calculated. The subscript "y" identifies the year - 1973, 1980, 1990. It must be noted that the emission rates for 1973 were used to calculate Q_{80} and Q_{90} because these are the only quantitative figures available. Improvements in engine technology can be expected to reduce engine emission rates in subsequent years.

A similar process was carried out for military aircraft operations assuming all military craft are propelled by an equivalent engine to the JT3D. Twenty-five daily operations were used to calculate 1973 emissions and 20 operations per day were used for 1980 and 1990. In a like manner, the general aviation contribution was calculated. In this case, 137 daily engine operations were calculated for 1973 utilizing the gasoline powered Cessna 210 engine. 1980 general aviation operations were projected to be 187 engine operations, and in 1990, 209 engine operations. Business jet operations, a very small factor at PIA, was calculated on the basis of 6 (twin-engine) operations daily in 1973, 11 in 1980, and 15 in 1990.

The emission data obtained from application of the previously presented formula to commercial, military, and general aviation activity is summarized in numerized analytical tables presented in the Technical Appendix. The total aviation contribution to air pollution in pounds per day for the years 1973 (present condition) 1980, and 1990 is presented in Table 1, below:

Table 1

Total Aircraft Emissions at PIA (lbs./day)

Mode	1973	1980	1990
Approach	1,448	1,395	1,647
Climb-out	2,297	2,038	2,977
Ground	7,816	7,198	7.470
TOTAL	11,208	10,631	12,095

It should be noticed that the LTO cycle uses six (6) modes. For the purpose of this air quality analysis, those modes considered ground operations - landing, taxi, idle, and take-off - are presented as "Ground". The other two modes - approach and climb-out - are presented separately.

Access Traffic

From traffic counts taken at the intersection of Lombard and 82nd the total number of trips to and from the airport were determined for an average 1973 day. A trip in this discussion is considered to be a one-way journey from the airport boundary to the terminal facility, the most common destination. No distinction is made between the to and from journeys; a small fraction are bus trips made by the DART line and Tri-Met line. Delivery truck traffic accounts for another small part of the total. Automobile traffic makes up the largest portion of the daily trip count. The number of trips multiplied by the average distance per trip (2.15 miles) equals the number of vehicle miles per day. Automobile access consists of enplaning and deplaning passengers, passenger related visitors, casual visitors and employees. These individuals may arrive or leave by private auto, taxi or rented car, however, no distinction or breakdown for PIA can be made due to the lack of specific information concerning these factors.

Prior to determining the auto emissions, the age distribution of cars for 1973, 1980, and 1990 was established. This includes the age, model, year, per cent of auto population and average number of vehicle miles for each age group. These data for the years 1973, 1980 and 1990 are presented in the Technical Appendix. The growth in auto traffic, as well as all other access modes, was assumed to be a linear function equal to the predicted growth rate for enplaned passengers as supplied by the Port of Portland. Using the vehicle-mile emission factors presented in the "State of Oregon Clean Air Act Implementation Plan", DEQ, January 1972, total daily emissions were calculated for all aged automobiles, buses and delivery trucks. The summary of these emission data can be seen below in Table 2.

Table 2

Access Traffic Emissions (lbs/day)

1973

Mode	Vehicle-Miles	Hydrocarbon	Carbon Monoxide	Nitrogen Oxides	Total
Auto	25,510	548.53	2986.65	261.31	3796.49
Truck/bus	1,282	3.52	30.21	71.11	104.84
Total	26,792	552.05	3016.86	332.42	3901.33

1980

Mode	Vehicle-Miles	Hydrocarbon	Carbon Monoxide	Nitrogen Oxides	Total
Auto	40,663	145.51	1304.72	173.88	1624.11
Truck/bus	1,886	5.61	48.53	113.40	167.54
Total	42,549	151.12	1353.25	287.28	1791.65

		1990			
Auto	69,411	55.71	253.79	76.44	385.94
Truck/bus	3,218	9.57	82.23	193.53	285.83
Total	72,629	65.28	336.02	269.97	671.77

Ground Service Vehicles

Ground vehicles used to service the aircraft, airport facilities, passengers, and personnel add measurable amounts of emissions to the PIA area. Listed in the Technical Appendix are those ground service vehicles and their numbers that operate at PIA. In 1973, those vehicles consumed 900 gallons of fuel each day. This consisted of an estimated 80% gasoline consumption and 20% diesel fuel. Using emission factors found in the EPA publication "An Air Pollution Impact Methodology for Airports - Phase I", January 1973, ground service vehicle emissions were calculated. Again assuming that fuel consumption would increase at the same rate as enplaned passengers, emissions for 1980 and 1990 were also calculated. The total emission for PIA ground service vehicles is shown in Table 3 for years 1973, 1980 and 1990.

Table 3

Ground Service Vehicles Emission (lbs/day)

Year	Level Consumed lbs/day	Particulate	Carbon Monoxide	Hydrocarbon	Nitrogen Oxide	Total
1973	900	7	1,642	365	151	2,165
1980	1434	7.1	502.9	83.2	269.6	862.8
1990	2448	9.0	197.5	50.9	345.0	602.4

Stationary Sources

There are two distinct sources of pollutants that remain more or less stationary within the PIA site. The first of these is storage and handling facilities for jet, ground service vehicle, and general aviation fuels. Emissions from these sources consist of hydrocarbons evaporated from vents or during transfer. In the case of commercial aviation, jet fuel is usually pressure fed under the wing and subject to evaporative losses of only 0.55 pounds per 1,000 gallons pumped. (All evaporative loss factors are derived from the aforementioned EPA publication.) For ground service vehicles, fuel (gasoline and diesel oil) is pumped through gooseneck hose and subject to an evaporative loss of 3.63 pounds per 1,000 gallons pumped.

Fuel for general aviation consists of both gasoline and jet fuel. For gasoline, the evaporative loss factor would be the same as ground service vehicles or 3.63 pounds per 1,000 gallons pumped. About 25% of the general aviation jet fuel is pumped by gooseneck over the wing and would experience an evaporative loss of 3.63 pounds per 1,000 gallons pumped, while the remaining 75% is pressure fed under the wing. It would, therefore, be subject to an evaporative loss of 0.55 pounds per 1,000 gallons pumped. Table 4 summarizes the evaporative loss from fuels used at PIA.

Table 4

Fuel Evaporation Loss

1973

Fuel Use	Gallons Pumped/day	Evaporative Loss Factor/1,000 gal	Evaporative loss lbs/day
Commercial Aviation	210,000	0.55	115.5
Ground Service	900	3.63	2.94
General Aviation	4,400	3.63/0.55	9.91
Total	215,300		128.35
	1980		
Commercial Aviation	310,854	0.55	170.9
Ground Service	1,434	3.63	5.21
General Aviation	7,014	3.63/0.55	13.54
Total	319,302		189.72
	1990		
Commercial Aviation	628,112	0.55	345
Ground Service	2,448	3.63	8.89
General Aviation	11,972	3.63/0.55	15.07
Total			369.42

Again, these emissions are composed of hydrocarbons and it is assumed that fuel consumption will increase at proportionally the same rate as enplaned passengers.

The second major stationary pollutant source is the central utility building. The present facility burns #400 fuel oil at a rate of 958.9 gallons per day. However, by 1974 a new utility plant will be in service. During the winter months (October through May) it will burn fuel oil at a rate of 1,500 gallons per day. During the summer months (April through September) it will burn natural gas at a rate of 216,000 cubic feet per hour. By 1990 fuel consumption is expected to increase, again at the same rate as enplaned passengers, to 2,556 gallons of oil per day during the winter and 368,712 cubic feet of gas per day during the summer. The emissions derived from this fuel combustion is summarized in Table 5 for the years 1973, 1980, and 1990.

Table 5

Utility Building Emissions (lbs/day)

1973

	Fuel Oil (Year Around)
Particulate	42.26
Sulfur Dioxide	302.26
Sulfur Trioxide	3.83
Carbon Monoxide	0.40
Hydrocarbon	5.75
Nitrogen Oxides	115.53
Total	470.03

1980

	Fuel Oil (Winter)	Natural Gas (Summer)
Particulate	69.25	4.10
Sulfur Dioxide	472.87	0.13
Sulfur Trioxide	6.00	
Carbon Monoxide	0.62	4.32
Hydrocarbon	9.00	1.73
Nitrogen Oxides	180.75	16.20
Total	738.49	24.48

1990

Particulate	118.00	7.01
Sulfur Dioxide	805.78	0.22
Sulfur Trioxide	10.22	
Carbon Monoxide	1.06	7.38
Hydrocarbon	15.34	2.95
Nitrogen Oxides	308.00	27.67
Total	1258.40	45.23

The contribution of stationary sources to PIA air pollution varies seasonally. During the winter when the utility plan is burning fuel oil, emissions will be higher than summer when the plan will burn natural gas. Fuel evaporative loss will be roughly the same year round. A summary of the stationary source emissions can be seen in Table 6.

Table 6

Stationary Source Emissions
(lbs/day)

	1973	1980*	1990*
Evaporative Loss	28.35	189.72	369.42
Utility Plan	470.03		
Summer		26.48	45.23
Winter		738.49	1258.40
Total	598.38		
Summer		216.20	414.65
Winter		928.21	1627.82

*Note: in 1980 and 1990, the proposed new utility plan will burn fuel oil for six months (winter) and natural gas for six months (summer) each year.

4. Temporary Construction Air Quality Impact

The temporary construction period for the proposed new runway surface and taxiway (extensions of the existing facilities), and potential relocation of 82nd (options two and three), will all involve some degree of air quality degradation. The initial site preparation, cutting, filling, compacting, and grading, have already been completed. During the six months of relatively little rainfall (May through October) in 1974, the remaining construction phases are anticipated to be completed. Although sufficient information to determine the quantity of air pollution is not available, some indication of emission sources and severity of pollution can be made. Since construction impacts on air quality is a "one-time operation", no long term adverse effects are anticipated.

Certainly significant sources of emissions are the construction and transport vehicles. No figures are available concerning the number of such vehicles, time of operation or fuel consumption during the proposed project period, but the types of vehicles that might be expected include bulldozers, graders, scrapers, loaders, and dump trucks. All are diesel powered and emissions from these are assumed to be similar to other diesel powered vehicles (i.e. the diesel ground service vehicles).

An estimated 100,000 tons of asphalt will be laid to form the new surface for the runway, and the taxi way extention. The asphalt will be mixed in an on-site portable batching plant. Asphalt mixing and application can be expected to generate some amount of particulate and hydrocarbon emissions. No quantitative estimate of these emissions is possible without more detailed information.

Since construction is to be conducted during the summer dry months, dust generation may at times become significant; however continuous watering is generally required for grading operations on sand fills. Until final surfacing and landscaping are complete, the exposed soil may supply unknown quantities of dust which would be introduced into the air by construction vehicle traffic and local winds.

5. Summary of PIA Total Emissions

The total contribution of emissions from PIA is the sum of all emission sources and types discussed thus far. This data is summarized in Table 7 below:

Table 7

Total Emissions From PIA (lbs total/day)

	1973	1980	1990
Air Traffic	11,208	10,631	12,095
Access Traffic	3,901	1,792	672
Ground Service	2,165	863	602
Stationary	597	543	1,018
Total	17,871	13,829	14,387

Note: Temporary Construction Emissions are not included due to lack of adequate data. Also, this category of emissions will be experienced on a one-time basis only.

Total emissions decreased from a 1973 level of 17,871 pounds per day (or 3,261 tons per year) to 13,829 pounds per day (or 2,524 tons per year) in 1980. The greatest single reason for this reduction is found in the reduction of internal combustion emissions from access traffic and ground service vehicles. By 1980, it is anticipated that presently proposed federal controls, along with present pollution control on existent ICEs (Internal Combustion Engines), will significantly reduce the amount of ICE emissions. A second factor in the reduced emissions is the relative constant, if not reduced, total daily aircraft operations, and the move towards the newer wide-bodied aircraft with better pollution control on hydrocarbons and carbon monoxide. The 1980 level of emissions increases slightly to 14,387 pounds in 1990, or 2,625 tons for that year. This increase can be attributed to an increase in stationary source emissions, and a substantial increase in nitrogen oxides due to the projected nearly exclusive use of wide-body aircraft which emit substantial amounts of NO_x. Also, total daily aircraft operations increase somewhat over the 1980 levels.

There are a number of unknown factors which could influence these emission projections for 1980 and 1990. Two factors could result in an overall reduction in potential emission effluents. First, there may be a significant change in the mode of access traffic bringing passengers, visitors, etc. to the PIA area. Private automobile traffic may well not increase in a linear function as was presumed in the preceding projections. However, this is dependent on too many imponderables in order to possibly quantify any numbers. Secondly, the JT9D Pratt and Whitney aircraft engine, its GE equivalent, or some other similar type, used to propell the wide-body airplanes, is a highly efficient engine. This type of efficiency presently results in very little particulate emission, lessor hydrocarbon and carbon monoxide emissions, yet because of its efficiency, it does produce large quantities of nitrogen oxides. It may well be the case that engine modifications or other NO_x emission controls will be available by 1980 or 1990 which could significantly reduce and/or control this particular emission problem. A reduction assumption for NO_x for this type of engine was not assumed in the projections included herein.

These type of total emission factors, emission factors by source and type, do give a perspective as to the relative amounts of pollutants being emitted by various different operations, and in various different areas, depending on the source location. These figures can also indicate trends over time, such as the change from the existing conditions (1973) to projected conditions in 1980 or 1990. However, these emission factors have been utilized in the following section to provide more data, which is even more applicable to air quality and potential air quality problems (or violations). These emission factors (Q Factors) become a main ingredient in the development of the dispersion model which will determine the effect of PIA emissions on the surrounding ambient air quality.

6. PIA Dispersion Model

Air pollution concentration impacts that might result from the expanded operations at PIA have been evaluated by estimating maximum air pollutant concentrations resulting from current and forecasted operations. These maximum concentration estimates were made by estimating the combined impact during a heavy mid-morning traffic peak in conjunction with complete stagnated wind conditions followed by shallow mixing of the fumigation type. This combination of operational and meteorological factors is not an unreasonably rare condition, although it is anticipated that this would most likely result in some of the highest concentrations of air pollutants which could be experienced in conjunction with the airport operation. These meteorological conditions have been estimated to occur one to five times per year, predictably in the months of August to October or November. Due to these factors, and other maximal conditions which will be discussed, the model presented can be considered to represent "worst conditions".

The stagnant or calm wind field is assumed because without horizontal wind flow there is no significant ventilation of the area, and thus no influx of clean air to dilute the accumulating emissions. Under stagnant wind conditions without vertical mixing, some relief can occur because of the fact that the emission characteristics of the airport will tend to be formed above the ground surface. This results from the fact that emissions are either emitted from aircraft aloft as hot combustion gases, or from vehicles, ground operating aircraft, and other sources on the ground. To maximize the effects of those various emission sources which are vertically spread out at both ground level and airborne, meteorological fumigation conditions involving vertical mixing to an altitude of 1,000 feet have been assumed and included in the calculations for the model. These vertical fumigation conditions are diffusion patterns driven by convective currents that mix vertically through the atmosphere without necessarily including any type of horizontal wind activity or mixing. In the case of air pollution situations where contaminants are present above the ground surface, fumigation conditions mix through the lower layers, into the contaminated zone, and bring the pollutants to the ground layer in relatively high concentrations. This process usually occurs only when there is no cloud cover. It is thus the high ground concentrations which the dispersion model presented herein measures.

These assumptions are compatible with the application of a simple "box model" to estimate the resultant ground concentration patterns. In this application of the "box model", the basic assumption is that up to a 3 hour-plus accumulation of effluents can occur in the dispersion volume (or "box" before hoizontal winds begin and the effluent concentrations begin to decrease. This 3 hour-plus period would be anticipated to occur between the hours of 7 a.m. and 11 a.m.

Individual box model volumes were defined for three phases of airport operations: (1) aircraft approach (just prior to touchdown), (2) total ground operations (i.e., all aircraft ground operations such as taxi, landing on runway, takeoff on runway, idle, ground vehicle operations and stationary sources), and (3) aircraft climbout (from liftoff from runway passing through 1000 feet elevation). Table 8 below lists the dimensions of these three boxes and the volumes assigned to each.

Table 8

Box Model Dimensions

APPROACH EMISSIONS VOLUME	CLIMB-OUT EMISSIONS VOLUME	GROUND EMISSIONS VOLUME
Depth: 1,000 ft. (300m)	Depth: 1,000 ft. (300m)	Depth: 1,000 ft. (300m)
Width: 1,000 ft. (300m)	Width: 1,000 ft. (300m)	Width: 5,000 ft. (1500m)
Length: 3.94 mi. (6350m)	Length: 1.502 mi. (2420m)	Length: 13,000 ft. (4000m)
BMV:[1] 300x300x6350= $5.715x10^8$ m^3	BMV: 300x300x2420= $2.178x.0^8$ m^3	BMV: 300x1500x4000= $18x10^8$ m^3

[1] BMV = Box model volume.

It should be noted that the upper limit of each box is 1000 feet. Air Quality Maps 8A and 8B (delineating existing conditions) show the placement of these boxes at PIA under existing condtions. These Maps can be found on pages III-57 and III-58 .

Once the volumes of the three emission boxes were obtained, three hour-plus average emissions for operations applicable to the boxes were obtained. Total emissions for three hours divided by box volume is considered as indicative of maximum concentration reached during a one-hour fumigation cycle following a two hour-plus accumulation period (i.e., a total three hour-plus emission accumulation period). Several assumptions were made in the process of this dispersion calculation procedure. These assumptions follow:

ASSUMPTIONS

1. Box models are applicable to the emission areas.

2. Fumigation volume is defined by the lowest 1,000 feet (300 meters) of the approach and climb-out patterns and the area of the airport terminal and runways.

3. Emissions are initially spread over a width of 1,000 feet (300 meters) during approach and climb-out.

4. Emissions accumulate above the ground in the areas defined by approach, climb-out, and ground operations for two hours-plus before the fumigation process starts and continue through the one-hour fumigation step.

5. After the fumigation starts the maximum concentrations last over the source area for one hour before turbulant diffusion begins to be effective in causing dilution.

6. In the three-hour accumulation and fumigation period, 30% of the total daily aircraft related emissions, 20% of the access traffic emission, 12.5% of the stationary source emissions, and 25% of the total daily ground service vehicle emissions will occur.

7. Emission rates per day below 1,000 feet is one third of the emission rate below 3,000 for aircraft approach and climb-out. Approach glide angles and climb-out angles are constant through the ground to 1,000 feet elevation.

8. During this stagnant (no wind) condition, runway use choice is assumed. For the worst case condition modelled here, the use of only one runway is projected (either South or North runways, but not both together.

9. Use of the crosswind runway is not included in this worst case condition. Its use would only occur during times of relatively high turbulance, therefore, the emissions affluents would be adequately dispersed and would not cause any air quality problem.

The percent of the total emissions caused by all types of ground operations and introduced into the ground operations box model during the three hour-plus concentration and measurement period are listed in Table 9, below:

Table 9

Ground Operation Emissions During Test Period (lbs.)

1973	PARTICULATES	CARBON MONOXIDE	HYDROCARBON	NITROGEN OXIDES	SULFUR DIOXIDE	SULFUR TRIOXIDE
Aircraft	30.45	1251.5	711.6	351.2	--	--
Access Traffic	--	603.4	110.4	66.5	--	--
Utility Building	5.25	0.05	0.7	14.4	--	--
Evaporation Loss	--	--	16.35	--	--	--
Ground Service	1.75	410.5	91.25	37.75	--	--
TOTAL	37.45	2265.45	930.3	469.85	--	--

1980	PARTICULATES	CARBON MONOXIDE	HYDROCARBON	NITROGEN OXIDES	SULFUR DIOXIDE	SULFUR TRIOXIDE
Aircraft	28.1	1200.0	590.4	340.1	--	--
Access Traffic	--	270.7	30.2	57.46	--	--
Utility Building	8.66	0.08	1.13	22.59	59.11	0.75
Evaporation Loss	--	--	23.72	--	--	--
Ground Service	1.78	125.73	20.8	67.4	--	--
TOTAL	38.54	1596.51	666.25	487.55	59.11	0.75

1990	PARTICULATES	CARBON MONOXIDE	HYDROCARBON	NITROGEN OXIDES	SULFUR DIOXIDE	SULFUR TRIOXIDE
Aircraft	27.85	1261.4	420.5	513.4	--	--
Access Traffic	--	67.2	13.06	54.0	--	--
Utility Building	14.75	0.13	1.92	38.5	100.7	1.28
Evaporation Loss	--	--	46.18	--	--	--
Ground Service	2.25	49.38	12.73	86.25	--	--
TOTAL	44.85	1378.11	497.39	710.15	100.7	1.28

Table 10 lists the emissions introduced into the approach and climb-out boxes during this same three hour-plus testing period.

Table 10

Aircraft Emissions Below 1,000 Ft. During Test Period (lbs.)

	APPROACH			CLIMB-OUT		
	1973	1980	1990	1973	1980	1990
Particulates	17.4	15.7	14.1	16.07	19.9	19.3
Carbon Monoxide	59.7	59.4	67.8	80.4	56.4	62.1
Hydrocarbons	15.1	13.8	10.2	10.5	6.5	4.1
Nitrogen Oxides	52.6	50.6	72.3	122.0	121.2	212.1

(Emissions below are access vehicles emissions which would be introduced in the eastern approach and climb-out boxes if 82nd Avenue were relocated)

	APPROACH			CLIMB-OUT		
	1973	1980	1990	1973	1980	1990
Particulates						
Carbon Monoxide	241.4	108.3	26.9	241.4	108.3	26.9
Hydrocarbons	44.2	12.1	5.2	44.2	12.1	5.2
Nitrogen Oxides	26.6	23.0	21.6	26.6	23.0	21.6

(Total aircraft and access emissions for eastern approach and climb-out boxes, Extension Plans II and III)

	APPROACH			CLIMB-OUT		
	1973	1980	1990	1973	1980	1990
Particulates	17.4	15.7	14.1	16.07	19.9	19.3
Carbon Monoxide	301.1	167.7	94.7	321.8	164.7	89.0
Hydrocarbons	59.3	25.9	15.4	54.7	18.6	9.3
Nitrogen Oxides	79.2	73.6	93.9	148.6	144.2	233.7

Those emissions listed above, once introduced into the box model, are diluted by the volume of air in the box yielding box pollutant concentrations. The various constants used to convert input values (emissions in pounds per day) to concentration values are presented in the Technical Appendix. These complex factors combine the tasks of converting pounds per day into pounds per test period, then into micrograms per test period, and finally micrograms per cubic meter of box model air. The resulting pollutant concentration is then superimposed upon the backgmound ambient air concentration levels.

Air pollution concentrations for worst condition situations at PIA were calculated and plotted for existing (1973) conditons, the no extension alternative for the years 1980 and 1990 and extension plans one, two and three for the years 1980 and 1990. Figures 8 through 11 on the following pages illustrate the results of the box model diffusion technique as applied to PIA worst conditions.

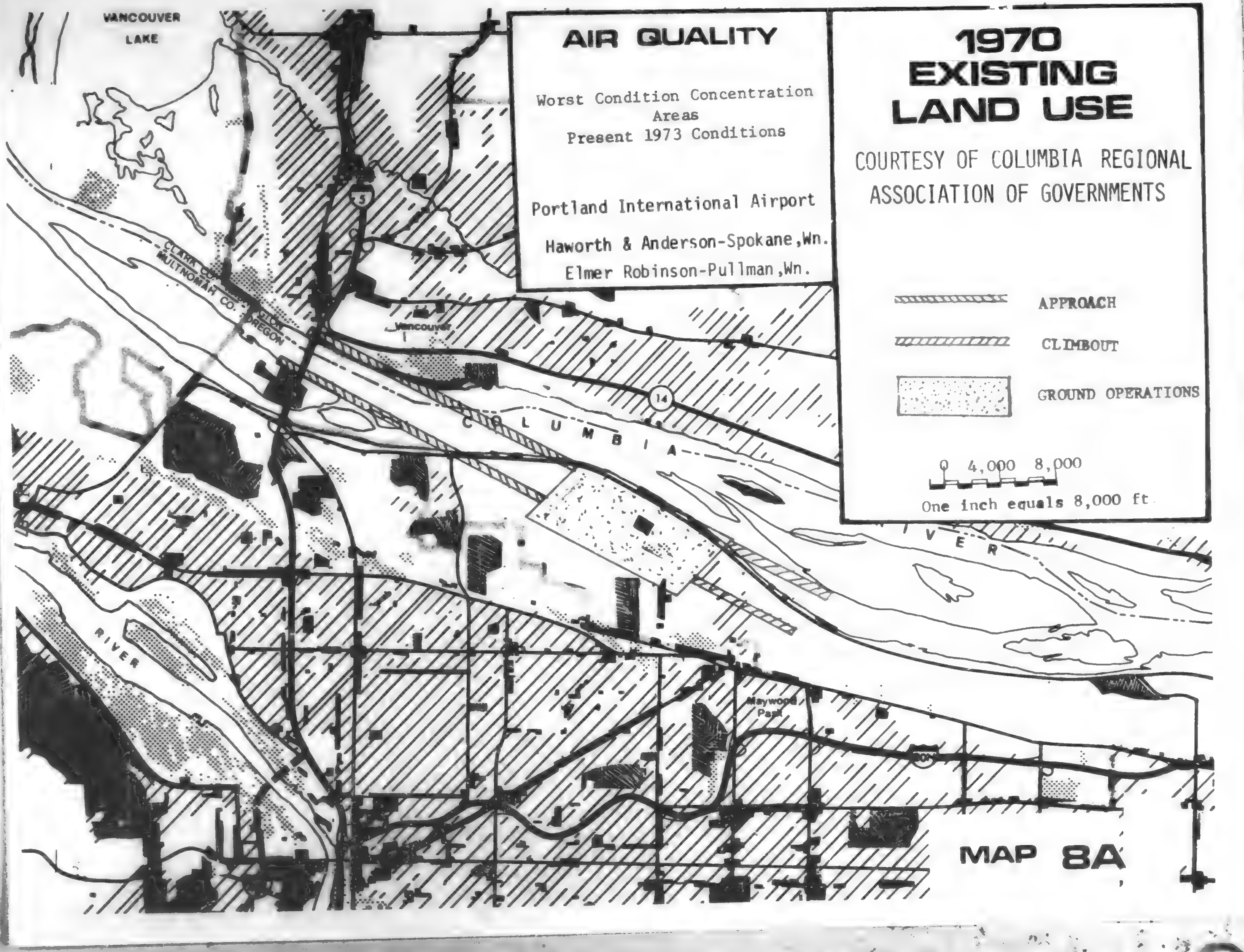
Existing Conditions

Maps 8A and 8B represent the estimated box model concentrations of the various pollutants for the existing (1973) conditions at PIA under assumed worst conditions. The Table 11, on the following page, indicates the concentration levels of those emissions which were analyzed, the Oregon State Air Quality and the Environmental Protection Agency Air Quality Standards. Map 8A, page III-57 illustrates the box model configuration when all aircraft approaches are made from the east, and all climb-outs are made toward the west. This places the approach boxes east of the ground box and the climb-out boxes to the west. Map 8B shows the opposing conditions; approach is made from the west, and climb-out is made toward the east. This 8B box model configuration is the reverse of Map 8A

Pollutant concentrations are the same for box models in Maps 8A and 8B, therefore, Table 11 applies to both configurations equally well. Close inspection of the pollutant concentrations and comparison with the air quality standards indicates a minor problem in the ground box. Hydrocarbon concentrations exceed the air quality standards by about 40 micrograms per cubic meter.[1] It must be remembered that this excess hydrocarbon concentration is superimposed upon whatever background concentration, from sources other than PIA, already exist in the area. Therefore, it must be concluded that under existing operations, some problems presently exist within the ground box under assumed "worst conditions". In addition, it is likely that the assumed worst condition would be accompanied by extensive sunny periods. Such a situation provides excellent condition for the formation of photochemical smog. The reaction time for oxidant formation is much longer than the described three hour-plus stagnation period and it is likely that the potential oxidant production would be over the entire Portland airshed area, with numerous sources contributing to such production, among which sources would be the PIA emissions.

---

[1] Three hour concentration standard of 160 micrograms per cubic meter can be adjusted to a one-hour measurement period concentration by applying conversion factors given ty Turner in EPA publication 999-AP-26, page 38, table 5-1. The one-hour concentration standard for hydrocarbons is 192 micrograms per cubic meter, utilizing this converstion factor.



AIR QUALITY

Worst Condition Concentration
Areas
Present 1973 Conditions

Portland International Airport

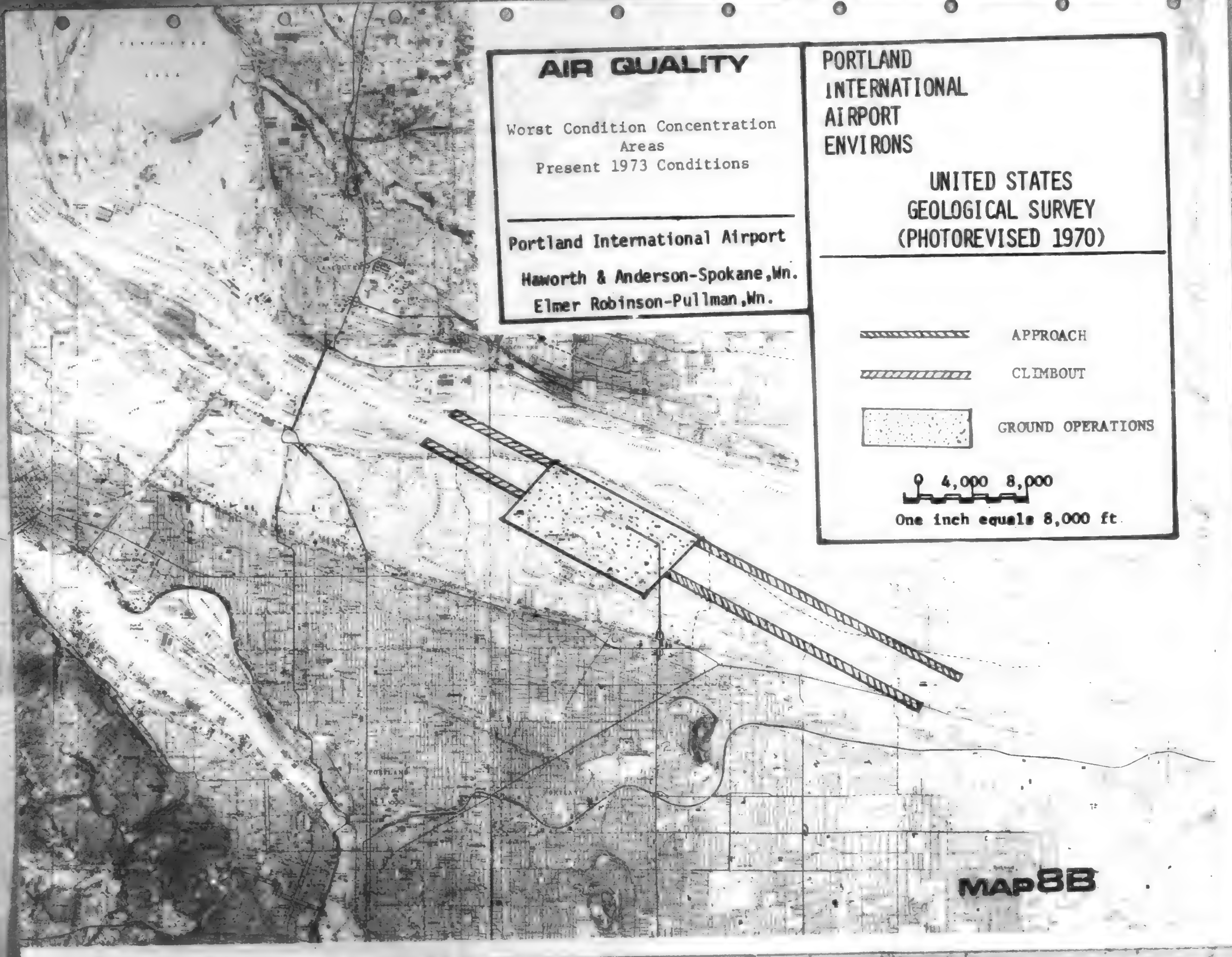
Haworth & Anderson-Spokane, Wn.
Elmer Robinson-Pullman, Wn.

1970 EXISTING LAND USE

COURTESY OF COLUMBIA REGIONAL
ASSOCIATION OF GOVERNMENTS

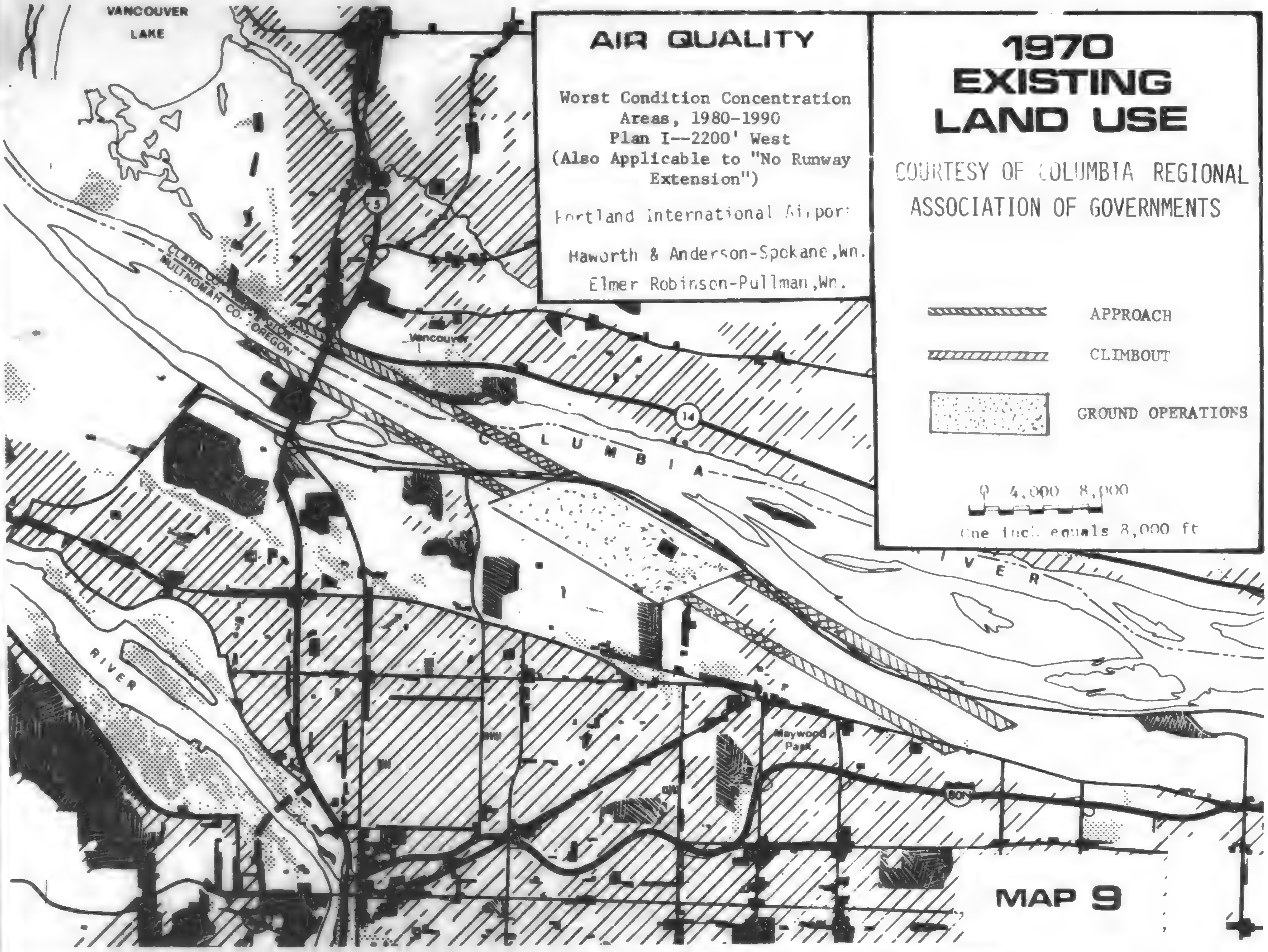
APPROACH
CLIMBOUT
GROUND OPERATIONS
0 4,000 8,000
One inch equals 8,000 ft
VANCOUVER LAKE
CLARK CO.
MULTNOMAH CO.
OREGON
Vancouver
5
14
COLUMBIA RIVER
RIVER
Maywood Park
80N

MAP 8A



AIR QUALITY
Worst Condition Concentration Areas
Present 1973 Conditions
Portland International Airport
Haworth & Anderson-Spokane,Wn.
Elmer Robinson-Pullman,Wn.
PORTLAND
INTERNATIONAL
AIRPORT
ENVIRONS
UNITED STATES
GEOLOGICAL SURVEY
(PHOTOREVISED 1970)
APPROACH
CLIMBOUT
GROUND OPERATIONS
0 4,000 8,000
One inch equals 8,000 ft

MAP 8B



AIR QUALITY

Worst Condition Concentration
Areas, 1980-1990
Plan I--2200' West
(Also Applicable to "No Runway
Extension")

Portland International Airport

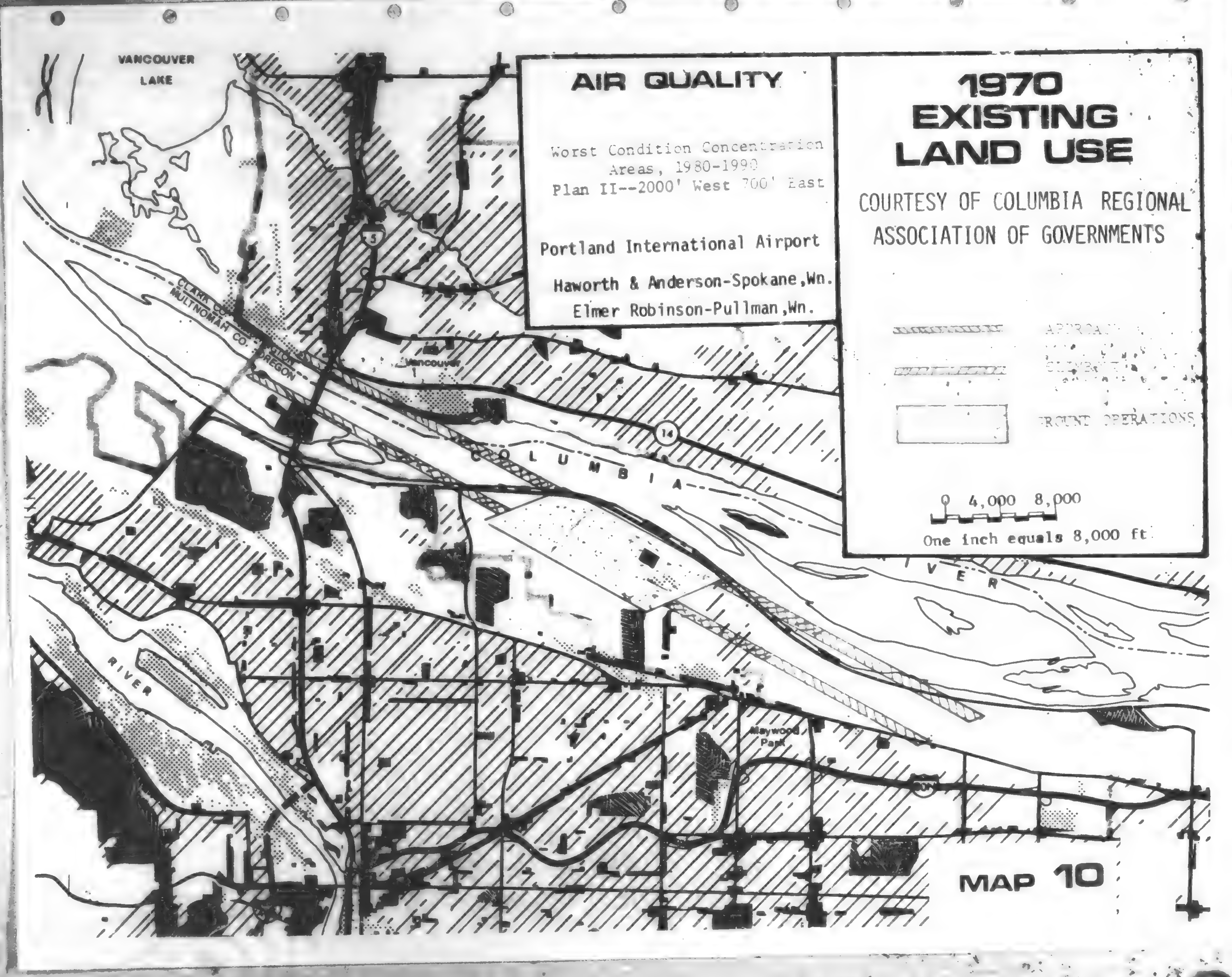
Haworth & Anderson-Spokane, Wn.
Elmer Robinson-Pullman, Wn.

1970
EXISTING
LAND USE

COURTESY OF COLUMBIA REGIONAL
ASSOCIATION OF GOVERNMENTS

APPROACH
CLIMBOUT
GROUND OPERATIONS
0 4,000 8,000
One inch equals 8,000 ft
VANCOUVER LAKE
CLARK CO. WASHINGTON
MULTNOMAH CO. OREGON
Vancouver
5
14
COLUMBIA RIVER
RIVER
Maywood Park
80N

MAP 9



1970 EXISTING LAND USE

COURTESY OF COLUMBIA REGIONAL ASSOCIATION OF GOVERNMENTS

AIR QUALITY

Worst Condition Concentration Areas, 1980-1990
Plan II--2000' West 700' East

Portland International Airport

Haworth & Anderson-Spokane,Wn.
Elmer Robinson-Pullman,Wn.

MAP 10

APPROACH
CLIMBOUT
GROUND OPERATIONS
0 4,000 8,000
One inch equals 8,000 ft
VANCOUVER LAKE
CLARK CO.
MULTNOMAH CO.
WASHINGTON
OREGON
Vancouver
5
14
COLUMBIA RIVER
RIVER
Maywood Park
205

AIR QUALITY

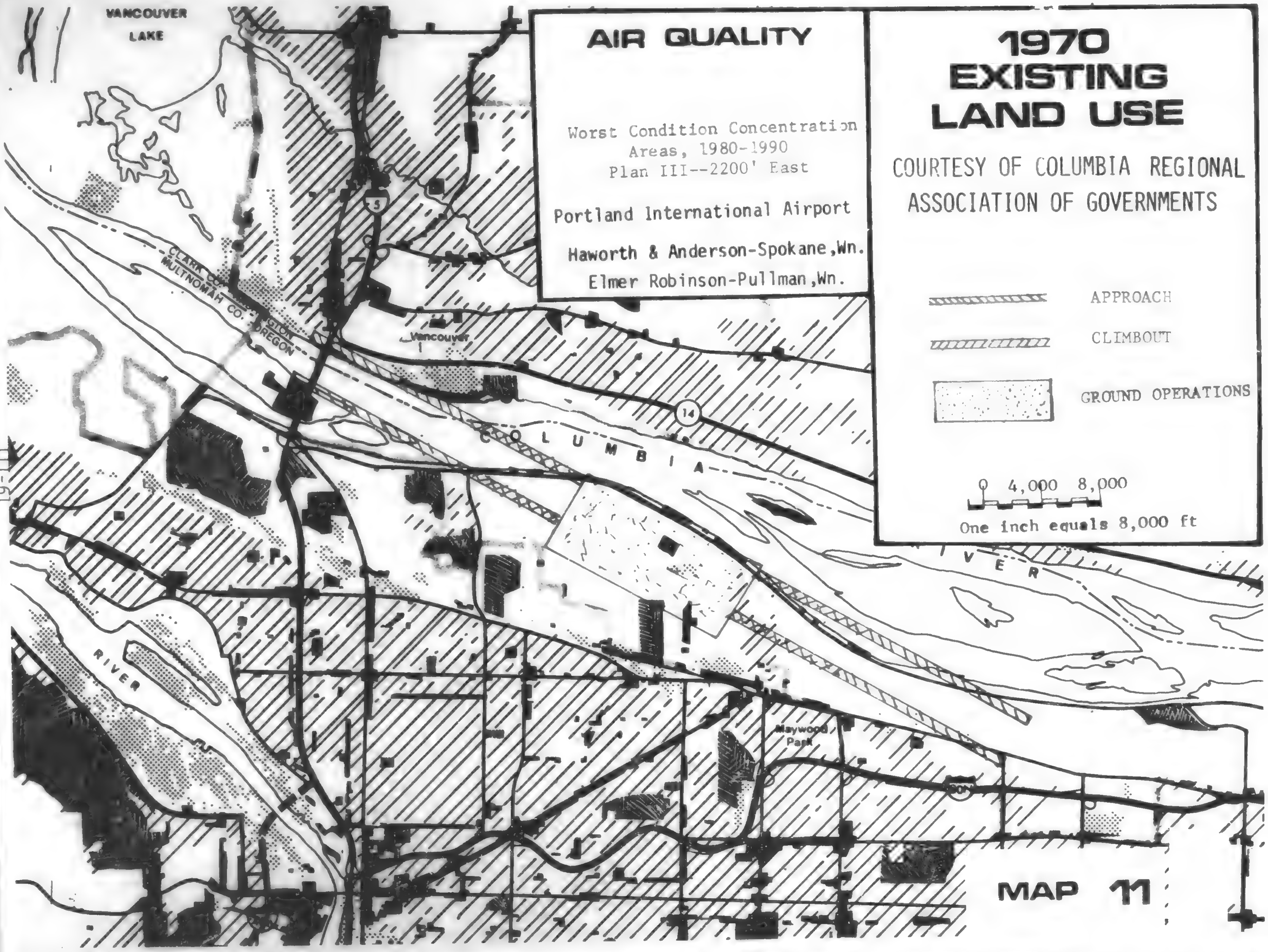
Worst Condition Concentration
Areas, 1980-1990
Plan III--2200' East

Portland International Airport

Haworth & Anderson-Spokane, Wn.
Elmer Robinson-Pullman, Wn.

1970 EXISTING LAND USE

COURTESY OF COLUMBIA REGIONAL
ASSOCIATION OF GOVERNMENTS



APPROACH
CLIMBOUT
GROUND OPERATIONS
0 4,000 8,000
One inch equals 8,000 ft
VANCOUVER LAKE
CLARK CO. WASHINGTON
MULTNOMAH CO. OREGON
Vancouver
5
14
COLUMBIA RIVER
RIVER
Maywood Park
80N

MAP 11

Table 11

Box Model Concentrations for Existing Conditions - 1973
(micrograms/cubic meter)

	APPROACH	CLIMB-OUT	GROUND	AIR QUALITY STANDARDS OREGON	 EPA(Primary)
Particulates	14	35	9	100 (24hr)	260 (24 hr)
Carbon Monoxide	47	166	571	10,000 (3 hr)	10,000 (3 hr)
Hydrocarbons	12	22	234	160 (3 hr)	160 (3 hr)
Nitrogen Oxide	42	254	118	250 (24 hr)	250 (24 hr)
Sulfur Dioxide	--	---	---	1,300 (3 hr)	1,300 (3 hr) 1/
Sulfur Trioxide	--	---	---	---	

1/ EPA Secondary standard, no 3 hr. primary standard.

No Extension Alternative and Extension Alternative Plan I

Map 9 on page III-59 represents the "box" configuration for the no runway extension alternative for the years 1980 and 1990 and also the runway extension alternative Plan I (2200 West) for 1980 and 1990. This basic configuration is the same due to the fact that the westerly end of the ground operations box is nearly the same for both alternatives, and also that neither alternative results in any relocation or rerouting of ground access traffic. Table 12, listed below, presents the emission concentration levels for the various effluents for both of these alternatives.

Table 12

Box Model Concentration for No Extension Alternative and Extension Plan I 1980/1990 (micrograms/cubic meter)

	APPROACH		CLIMB-OUT		GROUND		AIR QUALITY STANDARDS	
	1980	1990	1980	1990	1980	1990	OREGON	EPA(Primary)
Particulates	12	11	41	40	10	11	100 (24 hr)	260 (24 hr)
Carbon Monoxide	47	54	116	129	402	347	10,000 (3 hr)	10,000 (3 hr)
Hydrocarbons	11	8	14	9	168	125	160 (3 hr)	160 (3 hr)
Nitrogen Oxide	40	57	253	442	123	179	250 (24 hr)	250 (24 hr)
Sulfur Dioxide	--	--	---	---	15	25	1,300 (3 hr)	1,300 (3 hr) 1/
Sulfur Trioxide	--	--	---	---	0.2	0.3		

1/ EPA Secondary standard, no 3 hr. primary standard.

It should be noted that in Map 9, the directions of approach and climb-out, both east and west are integrated into the same approach and climb-out boxes. The single hatched lines indicate approach. The double hatched lines indicate the final approach segments and also the full climb-out area through the 1,000 feet elevation.

Analysis of the concentration levels point out that the hydrocarbon concentration in the ground box in 1980 will have dropped to a level of 24 micrograms per cubic meter below the Oregon and EPA Air Quality standards (adjusted to the one-hour measurement as described previously). Again, it should be stressed that this concentration is superimposed on any background hydrocarbon concentrations of a non-PIA derivation which exists in the ambient air in the PIA area. Under assumed worst conditions, the background concentration is likely to be high enough that the total hydrocarbon level may exceed the air quality standards, but significant or serious problems are not anticipated.

An additional potential problem begins to emerge in the climb-out box by the year 1990. Table 12 shows high concentration levels of nitrogen oxides for this year. It is estimated that NO_x could exceed the adjusted standards by 17 micrograms per cubic meter. Even though these concentrations are superimposed on non-PIA background levels, serious problems resulting from the NO_x levels are not anticipated even under assumed worst conditions.

Extension Plans II and III

Extension plans II and III utilize the same basic concentration levels for the various pollutants due to the fact that they both cause the relocation of 82nd Avenue. This relocation presents a much more complex pattern of pollutant concentrations because of the movement of some of the access traffic emissions from the ground "box" and placement of this trafffic (and their consequent emissions) into the east end approach and/or climb-out boxes. It is, therefore, necessary to differentiate between the east end and the west end climb-out and approach box concentration levels. The combination of these concentration levels are presented in Table 13, next page.

The box models for extension plans II and III are presented on maps 10 and 11 on the following pages, III-60 and III-61. There is little difference in their orientation from the other box models except for the fact that extension plan III (2200' east) results in a nearly rectangular configuration. The hydrocarbon problem potential for 1980 is much the same for these alternatives as is that described for the no extension option and the Plan I extension. Ground box concentrations of hydrocarbons will be high but should remain below state and federal standards. It should be noted that the nitrogen oxide problem indicated earlier will be intensified by 1990 over the other alternatives and the easterly oriented climb-out box is expected to exceed even the adjusted Oregon State Air Quality Standards by 62 micrograms per cubic meter. Again the superimposition of this concentration upon any background non-PIA NO_x must be considered for the postulated worst case condition situation. This quite obviously does represent a greater air quality problem potential than the no expansion alternative or extension Plan I.

Table 13

Box Model Concentrations for Extension Plans II and III 1980/1990 (micrograms/cubic meter)

	APPROACH EAST		APPROACH WEST		CLIMB-OUT EAST		CLIMB-OUT WEST		GROUND		AIR QUALITY STANDARDS	
	1980	1990	1980	1990	1980	1990	1980	1990	1980	1990	OREGON	EPA(Primary)
Particulates	12	11	12	11	41	40	41	40	10	11	100 (24 hr)	260 (24 hr)
Carbon Monoxide	133	75	47	54	343	185	116	129	375	340	10,000 (3 hr)	10,000 (3 hr)
Hydrocarbons	21	12	11	8	39	19	14	9	165	123	160 (3 hr)	160 (3 hr)
Nitrogen Oxide	58	75	40	57	301	487	253	442	117	173	250 (24 hr)	250 (24 hr)
Sulfur Dioxide	--	--	--	--	---	---	---	---	15	25	1,300 (3 hr)	1,300 (3 hr) 1/
Sulfur Trioxide	--	--	--	--	---	---	---	---	0.2	0.3	---	---

1/ EPA Secondary standard, no 3 hr. primary standard.

7. Summary of Dispersion Estimates and Air Quality Standards

As was pointed out in the various discussions concerning the alternatives in the previous section (6), there are a few instances under different optional configurations and "worst case" conditions where adverse air quality in terms of allowable standards[1] could be experienced.

Throughout the following summary, and the subsequent conclusions, the reader must keep in perspective the fact that a south runway extension is going to actually cause the contribution of very minimal additional air pollutants. Analysis has shown that the entire airport operations will have, at worst, a minor impact. The Boeing Report has shown that the same number of planes, engines and enplanements (hence, people and ground vehicles, with the possible exception of freight vehicles) will exist, regardless of an extension. The aircraft engines are considered to be under similar thrust conditions during all take off operations. Hence quantities of pollutants produced are virtually the same. The variable is, therefore, the location from which contanimants are released. This, then, becomes a parameter affected by an extension and its configuration. A minor additional locational parameter of contaminant release will be the elevation above ground level, which, due to heavier pay loads may result in longer slower climb-outs. This may impact ground level for slightly longer periods of time.

Under present conditions (1973), the only problem area which can be identified is hydrocarbon emissions associated with all ground operations. This existant problem is a function of groundvehicle operations rather than aircraft operations. Nearly 85% of total hydrocarbon emissions, as measured by air quality concentrations, are attributed to ground source emissions. By 1980 and 1990, when more strict internal combustion engine controls are expected to approach and come within acceptable air quality standards, even under worst case conditions.

In 1980 and 1990, the most significant potential problem is associated with nitrogen oxides (NO_x). Under the alternatives of no runway extension and extension of Plan I (2200' west), the 1990 NO_x predicted air quality concentrations (adjusted to 1-hour standards) are above the allowable limits. This occurs in the climb-out box only, and is totally due to the highly efficient wide-body jet engines used almost exclusively by that time. It should be noted that these projected figures utilize present data concerning these jet engines and that technological changes concerning NO_x have not been programmed. This is consistent with the worst case condition. For extension Plans II and III, the climb-out box problem to the west is the same as for no extension and Plan I. However, the NO_x problem for these extension plans which are oriented towards the east does cause the relocation of 82nd Avenue and a consequent introduction of NO_x from ground access vehicles in the eastern climb-out box, as well as the NO_x from the jet aircraft engines. For both 1980 and 1990 under these configurations, the NO_x concentrations are substantially greater than for those alternatives which keep the access traffic basically confined to the ground area box.

---

[1] For the Oregon State Department of Environmental Quality and U. S. Environmental Protection Agency Air Quality Standards, please refer to the appropriate tables in the preceding section where these standards were presented.

In final perspective, though there are predictably certain potential problems, such as the 1990 NO_x in the climb-out areas, the overall air quality is not significantly affected, even under worst case conditions. A two knot per hour wind would easily dilute these worst case concentrations by a factor of two to one which would then easily bring all the PIA generated concentration of pollutants within acceptable and legal limits. However, one factor mentioned before should be stressed again--that is, these concentration counts presented in this study are those which are only PIA generated and they are added to existing ambient air which, as previously discussed, has unknown concentration levels.

In that emission category where there is recorded data in the PIA environs for ambient air, namely suspended particulates, the data is oriented only to an annual geometric mean and does not differentiate between PIA generated sources and other sources. This existing data does not indicate a present problem as the annual geometric mean is shown to be between 30 and 40 micrograms per cubic meter, while the state standard is 60 micrograms per cubic meter. The Oregon State 1-hour standard is 170 micrograms/m^3 (adjusted) and the EPA standard is 260. The worst case which is predictable for particulates is in 1980 in the climb-out box, and this represents 41 micrograms/m^3, most likely significantly lower than the 1-hour standard even allowing for other background particulates. However, this cannot be accurately presented until better data is available on these existing ambient air levels.

8. Land Use Perspectives

Maps 8A, 8B, 9, 10 and 11 presented the various different box model configurations for the three operational areas which could experience some type of air impaction in worst case conditions. In summary, those were the climb-out, approach, and ground (immediate airport environs) areas. Offsite of the airport proper exist the land uses which may be affected by either the approaching aircraft or aircraft in a climb-out pattern. The approach and climb-out effect on land use, as aircraft pass through the 1,000 feet elevation mark[1], can be noted on the aforementioned maps.

Approaching aircraft from both the east and west do not generally pass over areas of significant land use associated with human activity. Approaching aircraft from the east do pass over the existing sparsely populated lands located immediately to the east of the airport properties, and these lands may be somewhat impacted during worst case conditions. This area may also be impacted during aircraft climbing-out to the east. Approaching craft from the west, assuming no approach turns in the last 3.94 miles of descent and using the south runway will come over Hayden Island. When utilizing the north runway, the approaching aircraft may pass over the most southerly section of the City of Vancouver, near the vicinity of Interstate 5. It should be remembered that approaching aircraft, though, contribute minimally to ambient air pollutant concentrations. Climb-out to the west occurs basically over the Columbia River and does not impact lands of significant human activity.

---

[1] For approaching aircraft, 1,000 feet is penetrated at an average distance of 3.94 miles from touchdown. For aircraft in a climb-out pattern, the distance is 1.5 miles.

Dispersion of contaminants in any direction from the delineated box model configurations will occur in times of winds of 1 knot per hour or more. This dispersion will carry contaminants to areas surrounding the airport in all directions, dependent on wind direction. However, as the contaminants are dispersed by the winds, they are also diffused by the greater volume of air that is horizontally introduced. The greater the distance from the airport or the approach and climb-out boxes, the greater the diffusion. Since diffusion drastically cuts the concentration levels, even when the winds are miniscual, it is projected that there will be no significant impaction of existing lands or land uses which are located adjacent to the "box model" area. This is most likely the case even when these dispersed concentrations are superimposed on the existing air quality concentrations. However, where there does exist air quality problems without PIA taken into consideration, any contaminants introduced to this area coming from PIA, even though greatly diffused, would add to this existing condition.

A box model for approach and climb-out was not developed for the crosswind runway (with a basic north-south orientation) due to the fact that its use would occur in times of relatively strong wind conditions. In this case when it was utilized, dispersion of contaminants would be almost immediate and there would be no projected potential ambient air problem.

9. Methods of Minimizing Adverse Impacts

Ambient Air Quality associated with Portland International Airport, when taken on the whole, does not appear to be significantly impacted by the various activities of or related to the airport. There are cases of existing problems (i. e., ground area hydrocarbon concentrations) under worst case condition situations, and there are potential future problems (i. e., nitrogen oxides in the climb-out areas in 1990) under the same worst case conditions. These worst case conditions, though, are expected to occur at a frequency level of only 1 to 5 times per year.

The worst case condition, as presented in the assumptions at the beginning of this section, presumed the exclusive use of only one runway, such as the south runway. During worst case conditions, the pilots and the airport operations personnel will have a choice as to which runway to use and from which direction landings and takeoffs could be oriented. Lack of wind (a characteristic of worst case conditions) allows this choice. If it is desired to avoid concentration buildup problems in the climb-out and approach areas, aircraft operations could be split between the two runways. This would, in effect, double the volume of air available to dilute emissions, thereby reducing critical concentrations by half. This particular choice is available to PIA regardless of extension alternatives and plans.

Under present conditions, 1973, the hydrocarbon problem in the ground areas is essentially tied to the access traffic and ground service vehicles. Assuming vehicular compliance with existing emission standards, this problem will correct itself by 1980. However, given the fact that these conditions do exist, the various operators of ground service vehicles and fleet access vehicles, may want to consider a temporary measure of conversion of the gas and/or diesel vehicles to some other fuel source, such as propane, to help alleviate this problem. Expanded service of the DART and Tri-Met lines would also be desireable. This expanded service could reduce the use of individual automobiles.

During the construction phases of all extension plans, dust generation (suspended particulates) will probably be the most serious problem. This is a temporary problem which can be expected throughout the projected six months of construction. Such dust control measures as sprinkling with water and coating with oil should be considered. Augmenting these measures could be placement of finer mats, woven fiber cloth, gravel, mulches, quick growing grasses, sod, and bituminous spray.

Conclusion[1] The differentiation in air quality and air quality impaction between no south runway extension and any type of south runway extension is almost non-existent. It may be the case that by extending the south runway for the purpose of allowing larger takeoff weights and increasing state lengths (distance to destination), the climb-out angle will be reduced, resulting in a lengthened climb-out area. Even this factor, if it did occur, would most likely result in an insignificantly measureable effect on the air quality of the area.

It should be noted that there is a slight differentiation in potential air quality impact between the runway extension alternatives. This differentiation is not due to different flight patterns, different numbers of operations, etc., but rather to the fact of whether 82nd Avenue is relocated or not. At the present time, access traffic utilizing 82nd Avenue is more closely oriented to the airport ground operations area and can be considered an integral part of the ground operations. If relocated to the east, which would be the case with extension Plans II and III, the relocation distance is far enough that a certain portion of the access traffic must be considered an integral part of the approach and/or climb-out models rather than the ground operations model. This would result in greater contaminant concentrations in these easterly approach and climb-out areas. There is a concomitant reduction in access vehicle contaminants in the ground operations area, but the increase in contaminant (especially in nitrogen oxides) in the climb-out area is much more significant than is the ground area reduction. In this case, it can be concluded that no runway extension or extension plan I (2200' west) would be preferable to extension plans II (2,000' west, 700' east) or III (2,200' east) if air quality considerations were the only item under scrutiny.

As the westerly airport environs currently exist, the shifting of the climb-out box westerly as in Plan I would not seriously impact any area of human activity and no adverse effect would result to the agricultural activities common to the area. However, if plan I were selected, both the Port and local governments should address land use control measures to minimize any intrusion of human activity into the impact area.

---

[1] This is the opinion of Haworth and Anderson.

D. Noise

A very detailed documentation may be examined in Technical Appendix H. The following is a list of subjects addressed in Technical Appendix I:

- Basis for Computation of NEF Contours for Portland International Airport
  - Aircraft Noise Characteristics
  - Aerodynamic Performance Data
  - Operational Assumptions
  - Aircraft Fleet Mix at Portland International Airport
  - Runway and Flight Track Utilization
  - NEF Contour Computation
- NEF Contours for Portland International Airport
  - NEF Contours
  - Observed Trends
- Analysis of Individual Aircraft Noise Levels
  - Noisiest Aircraft Types
  - Single Event Noise Contours
- Methods to Minimize Adverse Noise Impacts
  - Operational Changes
  - Aeronautical Changes
- Recommended Criteria for Assessing Noise Impact on Various Types of Land Use
  - CNR Land Use Compatibility
  - NEF Land Use Compatibility Analysis
  - Comparison of Current Noise Scales for Airport Environments and Land Use Criteria
- Aircraft Ground Runups - Test Operations
- Airport Noise Environment During Construction Phase
  - Aircraft Noise
  - Construction Equipment Noise
- Terminology for Community Noise
- Crosswind Runway Calculation at Portland International Airport

It is quite possible to very easily move directly from an NEF contour noise analysis directly into the complicated aspects of recommending land use planning for the area surrounding PIA. However, Haworth and Anderson (H & A) has resisted this temptation. There currently exists qualified, suitable local planning agencies whose responsibility is to achieve that objective. H & A feels that a valuable resource, through this EIR, is being provided not only to the Port, but to the community at large. H & A would further like to bring to the attention of the Port and local government the availability of an extremely pertinent HUD document, "Airport Noise Impact, Planning Guidelines for Local Agencies", HUD, November, 1972, TE/NA-472. Its unique value is its lengthy discussions centered around the positive concept of coordinating local land use controls with the existing and expanding impact of major airports.

1. Introduction

These following pages report the study undertaken to assess the relative noise impact of the proposed south runway extension at Portland International Airport. The airport modifications considered in this study were identified in a separate study performed for the Port of Portland by The Boeing Company and consisted of a 2,200 and 2,700 foot extension of the southernmost runway (10R-28L). 1/ These were respectively achieved by a 2,200 foot westerly extension (Plan I) and a 2,700 foot extension (Plan II) achieved by a 2,000 foot westerly extension and a 700 foot easterly extension. Additionally, an examination has been made of the relative impact of a 2,200 foot extension of this runway in the eastern direction. For analysis of noise impact, the 500 foot difference in runway lengths is assumed to have negligible influence on resultant noise exposure contours. These analyses are conducted for the 1980 and 1990 forecast time periods. A baseline analysis of current operations is also included for reference.

The noise impact is evaluated in terms of the composite noise scale called Noise Exposure Forecast (NEF). In addition to a discussion regarding NEF contour generation and the supporting documentation, attention is given herein to evaluation of these contours in terms of land use acceptability and potential noise abatement alternatives. Furthermore, auxiliary airport operations in terms of ground test jet runup operations and noise impact during the construction period are considered. Additional detail may be found in Technical Appendix H.

2. Basis for Computation of NEF Contours for Portland International Airport

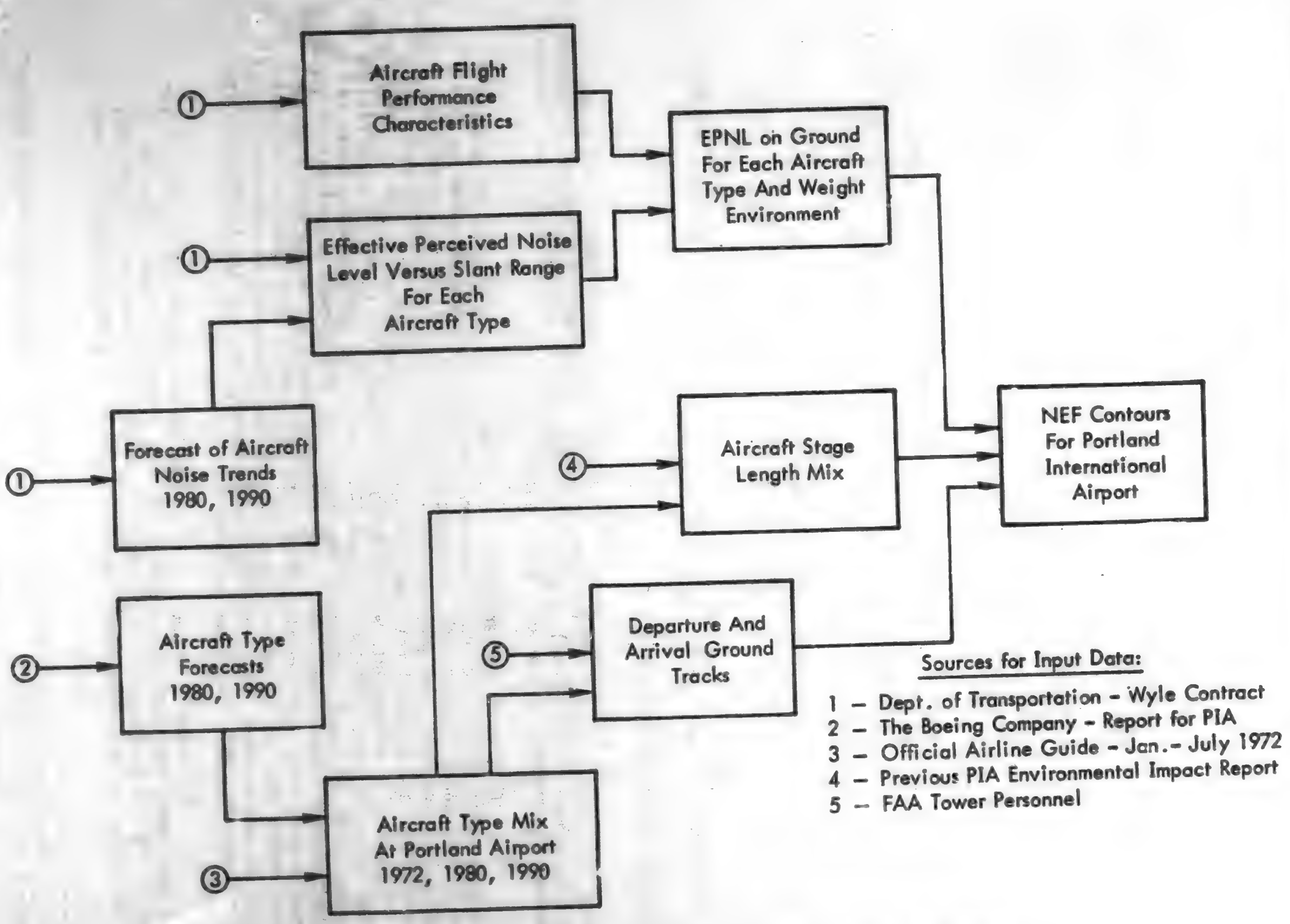
The procedures for computing the noise contours presented in this report are illustrated in Figure 2.1. The basic steps may be summarized as follows:

- Define appropriate aircraft fleet presently operating out of Portland International Airport and, based upon national fleet projections, assume a representative aircraft fleet for the forecast time periods.

- Based upon existing operations and forecasted air carrier demand, predict the number of each aircraft type departing and arriving to meet the assumed passenger capacity in the 1980 and 1990 time periods for constant and expanded levels of airport activity.

- Evaluate current air carrier operations and assumed demand and assign this aircraft traffic to various stage lengths and payload categories for appropriate time periods.

1/ Boeing Aerosystems, "Portland International Airport Study - Final Report of the Demand Forecast and Runway Extension Analysis", Renton, Wash., Sept. 1973.


①
Aircraft Flight Performance Characteristics
①
Effective Perceived Noise Level Versus Slant Range For Each Aircraft Type
EPNL on Ground For Each Aircraft Type And Weight Environment
①
Forecast of Aircraft Noise Trends 1980, 1990
④
Aircraft Stage Length Mix
NEF Contours For Portland International Airport
②
Aircraft Type Forecasts 1980, 1990
⑤
Departure And Arrival Ground Tracks
③
Aircraft Type Mix At Portland Airport 1972, 1980, 1990

Sources for Input Data:

1 – Dept. of Transportation - Wyle Contract
2 – The Boeing Company - Report for PIA
3 – Official Airline Guide - Jan.- July 1972
4 – Previous PIA Environmental Impact Report
5 – FAA Tower Personnel

Figure 2.1. Flowchart of NEF Contour Development for Portland International Airport

- Establish the relative utilization of each runway, and departure and approach paths, to achieve a balanced airport operation and to conform to current air traffic route utilization for the selected alternatives.

- Analyze aircraft flight performance characteristics and determine departure flight profiles for air carrier aircraft under standard weather conditions and for the range of thrust to takeoff weights associated with the variation in aircraft trip lengths for the runway alternatives.

- Analyze current aircraft noise reduction technology and legal constraints and estimate noise output characteristics in terms of EPNL versus slant range for future aircraft operations. (Utilize most recent published data on this subject for present day analysis.)

- Combine these data to determine the maximum noise level on the ground during takeoff and landing for an individual flyby of each type of aircraft to be considered.

The following sections provide an expanded explanation of the foregoing steps required for NEF contour generation:

Aircraft Noise Characteristics

The noise level on the ground from a single aircraft flyby is defined for the purpose of NEF contour generation in terms of the maximum Effective Perceived Noise Level (EPNL) in EPNdB as a function of the minimum slant distance between the aircraft and ground observation point.

EPNL noise characteristics for each aircraft type in the present fleet at standard weather conditions were computed from data acquired by Wyle during work under a Department of Transportation contract. 1/ For operations during 1980 and 1990, the assumption was made that acoustic retrofit would be required for all aircraft not complying with levels specified in FAR 36, Appendix C. Accordingly, adjustments were made to 737, DC-9, 727, DC-8, 707, and 747-100 noise characteristics for the 1980 and 1990 runs. The corresponding noise reduction to be achieved is based on the results of the extensive analysis on noise reduction with treated nacelles by the Boeing Company. 2/ Noise levels of the 3-engine wide-body turbofan aircraft (DC-10 and L-1011) must comply with these noise regulations before these aircraft enter the fleet, and no additional noise reduction was assumed. The resulting noise reductions, applied to the baseline noise level data are summarized in Table 2.1.

The effects of the bluffs on the north side of the Columbia River were considered for landings on Runway 20, the crosswind runway. (See Map 12, page III-78) The bluffs effectively move the community closer to the aircraft flight path, thereby effectively increasing the noise exposure on the ground.

1/ Department of Transportation, "Airport Noise Reduction Forecast Program", Contract No. DOT-OS-20088.

2/ V.L. Blumenthal, R.E. Russell, J.M. Streckenbach, The Boeing Company, "Summary Noise Reduction Research and Development", D6-60146, January, 1972.

Table 2.1

Approximate Noise Reduction from Assumed Retrofit Configurations at FAR 36 Measurement Locations in EPNdB

Aircraft Type	Takeoff	Approach
707-320B/DC-8-61	6	15
727-200/DC-9-32	2	6
737-200	6	9
747-100	7	7

Aerodynamic Performance Data

Aerodynamic performance parameters were computed by Wyle personnel based in part on manufacturer supplied data. Takeoff profiles for each aircraft model over a range of weights were calculated assuming a windless sea level, 59°F day.

Approach thrusts and speeds were computed for each aircraft type at a typical landing weight. Flap settings were chosen on the basis of discussions with airline operations officials.

Operational Assumptions

Standard instrument departure and ATA departure procedures were followed for all flights with the exceptions that in 1972, several flights per day were allowed to make premature north turns off Runways 10L and 10R. Over each individual approach track, it has been assumed that all aircraft, regardless of type, followthe same path, i.e., all aircraft fly at the same pattern altitudes and make altitude transitions at the same places. All final approaches (including VFR) are made along a 3 degree glide slope. In accordance with ATA procedures, transitions from approach to landing flap settings are made at an altitude of 1,000 feet. A landing speed of 1.3 V_s + 10 knots[1/] is assumed while aircraft are on the glide slope. After touchdown, thrust is increased to approximately 75 percent maximum to simulate noise generation during thrust reversal.

Aircraft Fleet Mix at Portland International Airport

For NEF noise contour generation, a description of airport traffic must include the following elements: arrival and departure frequencies for each of the aircraft types, day/night traffic distribution, runway utilization, flight track assignments and departure stage lengths.

For current operations, the principal source of traffic distribution data was the Official Airline Guide (OAG) from which scheduled departures were

---

[1/] 1.3 V_s + 10 knots: V_s is the stall speed of the particular plane.

averaged between January and July 1972. The entire fleet was then ratioed so that operations equalled actual 1972 total operations (scheduled plus charter plus cargo) (see Table 2.2). The military fleet was as used in the previous study for the Port of Portland, 1/ but was also adjusted to more accurately portray actual total 1972 operations. The day/night departure distribution by aircraft types for 1972, 1980, and 1990 is shown in Table 2.3. 1980 and 1990 scheduled air carrier and all cargo traffic volumes were taken from the Boeing Report. Cargo flight operations were assumed to occur 50 percent during the daytime period and 50 percent at night. For 1980, the cargo fleet was assumed to consist of 50 percent DC-8-63 and 50 percent DC-10/747 type aircraft and that for 1990, all cargo equipment would be DC-10 variety aircraft. The Port of Portland supplied all necessary information concerning military operations. It is assumed that F-4 military aircraft will replace the presently used F-10 by 1980 and that these operations will remain constant at 15,000 flights per year through 1990.

Table 2.2

Operations Summary Table
Annual Movements

	1972	1980	1990
Scheduled Aircarrier*	79,890	94,130	86,301
All Cargo *	1,364**	1,310	3,050
Military	18,435	15,000	15,000

*The Boeing Report
**Includes charter operations

Distribution of aircraft operations by stage lengths and corresponding gross weights were calculated based upon current city pair statistics. For the forecast time periods, the stage length mix for each aircraft type was derived from the previous study performed for the Port of Portland. 1/ It was assumed that these stage length distributions would be unchanged by the proposed 2,200 to 2,700 foot extension of the South runway; that is, the distribution mix would remain unaffected. However, an extended runway configuration will allow increased takeoff weights of certain aircraft using the South runway. Thus, it was assumed that for the extended runway cases, a percentage of these aircraft (namely, DC-10, DC-10 stretch, 747, 747 stretch, DC-8-63 (freighter) and 707-320B) would operate at new maximum allowable weights compatible with the longer runway configuration.

Runway and Flight Track Utilization

Discussions with FAA Air Traffic Control and Port of Portland personnel provided the basis for runway usage and flight track pattern definitions employed for the noise contour analysis. The basic runway utilization percentages

---

1/ Bolt Beranek & Newman, Inc., "Study of the Noise Impact of the Proposed Expansion of Portland International Airport", June, 1972.

Table 2.3 *

Portland International Airport Daily Departures

	1972		1980		1990	
	Day	Night	Day	Night	Day	Night
707-320B	7	2	25	2	–	–
720	8	1	–	–	–	–
720B	1	–	–	–	–	–
727	39	–	35	2	35	2
737	9	–	36	1	44	1
747	–	–	4	3	15	2
DC-8-50/60	8	1	2	1	–	–
DC-9	15	1	7	–	–	–
DC-10/L-1011	–	–	2	2	29	7
Business Jets	6	–	10	1	13	2
F-102	21	2	–	–	–	–
F-4	–	–	16	2	16	2
T-33	2	–	2	–	2	–

* The projected operations in Table 2.2 are based on a demand analysis in which they are Portland's share of the total aircraft annual movement (domestic). These are contained in the Boeing Report, page 46. Table 2.3 was based on Boeing's fleet mix forecast and scheduled passenger flight departure breakdown on pages 111 and 112 of their report.

---

shown in Table 2.4, and as reported in a previous study, have been utilized for current operations with the concurrence of the Port Authority. For the forecasted time periods of 1980 and 1990, these basic runway utilization percentages have again been followed; however, certain aircraft types at increased weights have been shifted to the 11,000 or 11,500 foot extended south runway as per the analysis performed by the Boeing Company. These flights were assigned to the south runway regardless of wind direction, thus resulting in a transfer of some traffic from both the north and crosswind runways.

For the cases of the unmodified runway configurations for 1980 and 1990, the same runway utilization factors have been carried over from 1972.

Military operations have been assumed distributed as shown in Table 2.4 for current operations. However, for both the extended and unmodified runway configurations after 1973, it was assumed that all military operations would occur on the South runway.

Table 2.4

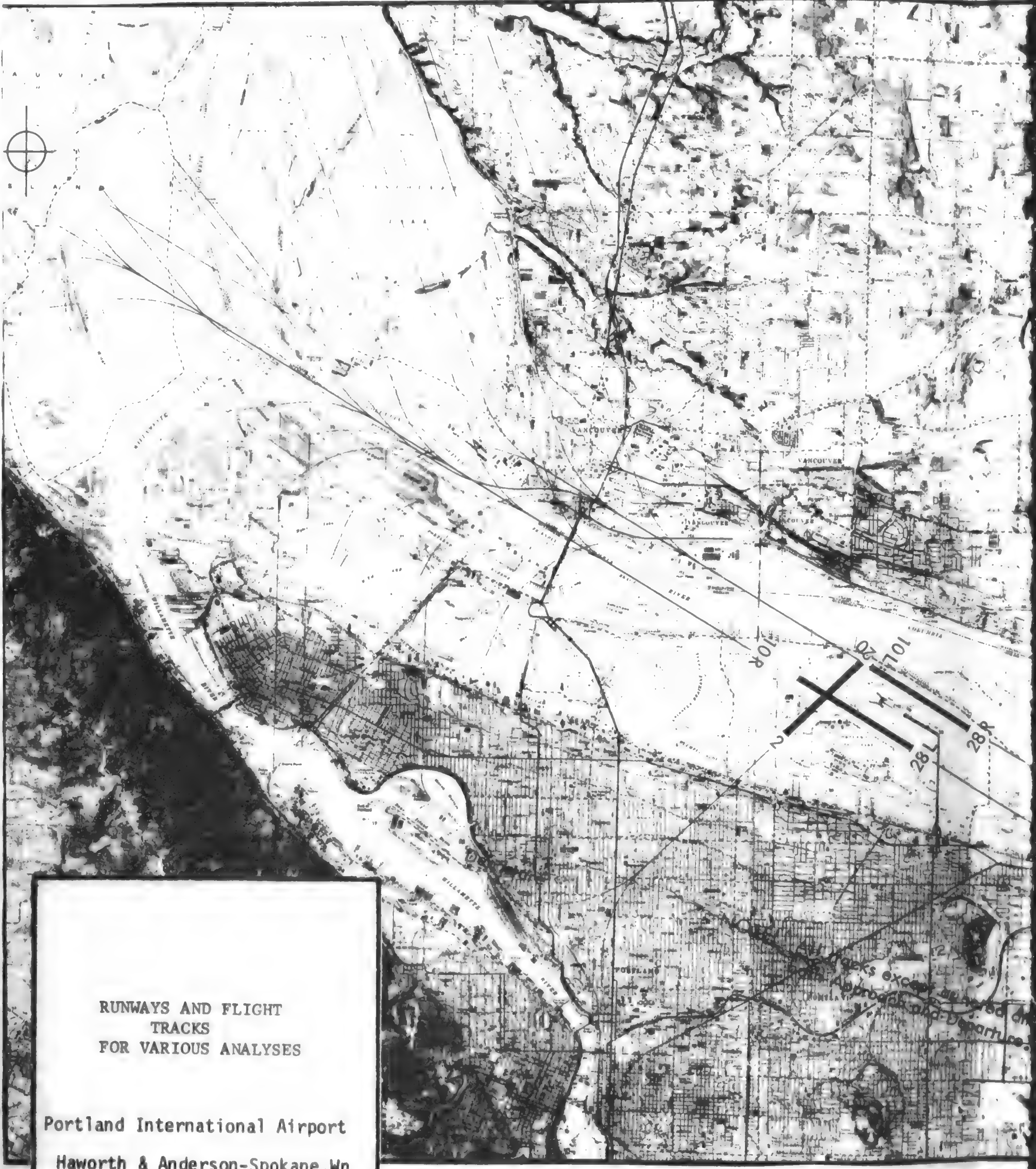
Current Runway Utilization,
Portland International Airport[1]

Runway	Basic Runway Utilization in Percent for Current Operations			
	Civil		Military Jet	
	Takeoff	Landing	Takeoff	Landing
10L	44.0	5.0	0.0	0.0
10R	5.0	44.0	60.0	60.0
28L	44.0	5.0		
28R	5.0	44.0	40.0	40.0
2	0.0	0.0	0.0	0.0
20	2.0	2.0	0.0	0.0

A simplified illustration of the flight tracks utilized for this analysis is presented in Map 12. For current operations, usage of these tracks was assigned based upon actual destination and origins as determined from the Official Airline Guide (OAG). These same tracks were utilized for the 1980 and 1990 unmodified runway configurations (i.e., the same destination and origin mix was carried over). For the extended runway analysis, the same basic track layout was utilized; however, approach patterns from the west to Runway 10R were displaced by the amount of the runway extension. Additionally, due to the increased usage of the south runway by the heavier aircraft types, the approach and departure tracks into and out of this runway received higher utilization percentages.

---

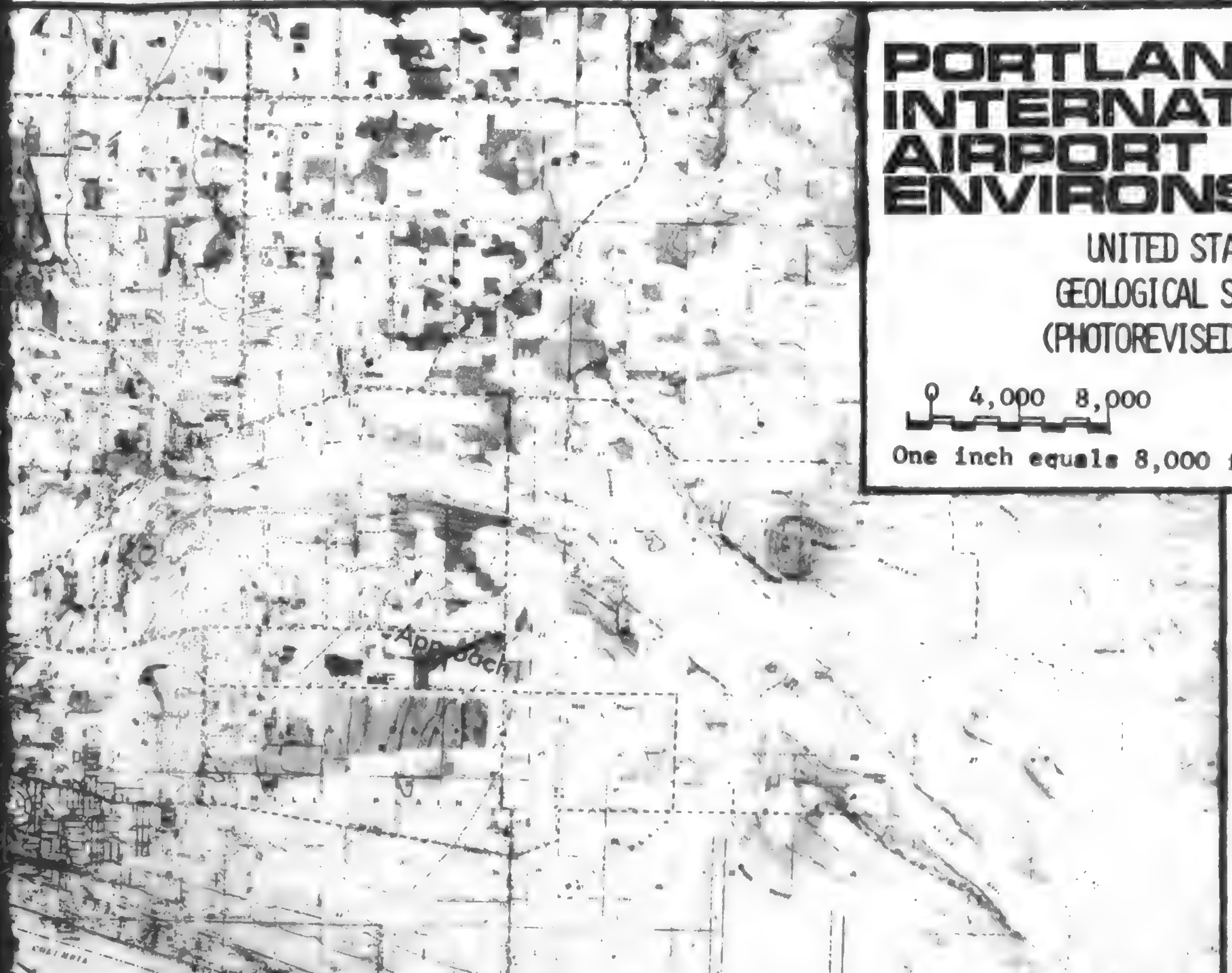
[1] Bolt Beranek & Newman, Inc., "Study of the Noise Impact of the Proposed Expansion of Portland International Airport", June, 1972.


VANCOUVER
RIVER
10R
10L
20
2
28L
28R
PORTLAND

RUNWAYS AND FLIGHT
TRACKS
FOR VARIOUS ANALYSES

Portland International Airport

Haworth & Anderson-Spokane, Wn.


Approach
28
28L
10
Except as noted are used for
Departures

PORTLAND INTERNATIONAL AIRPORT ENVIRONS

UNITED STATES
GEOLOGICAL SURVEY
(PHOTOREVISED 1970)

0 4,000 8,000
N

One inch equals 8,000 ft.

ENSION ENVIRONMENTAL IMPACT REPORT
ATIONAL AIRPORT - PORT OF PORTLAND

MAP 12

NEF Contour Computation

The final contours were computed utilizing the following equations:

$$NEF_{ij} = EPNL_{ij} + 10 \log N_{F_{ij}} - 88$$

where:

NEF_{ij} = Noise Exposure Forecast for i_{th} aircraft and j_{th} flight profile

$EPNL_{ij}$ = Effective perceived noise level for i_{th} aircraft and j_{th} flight profile

$N_{F_{ij}}$ = Weighted number of aircraft of type i on flight profile j

$= N_{D_{ij}} + 16.7 N_{N_{ij}}$

where:

$N_{D_{ij}}$ = Number of aircraft during daytime (0700-2200)

$N_{N_{ij}}$ = Number of aircraft during nighttime (2200-0700)

Finally,

$$NEF = 10 \log \sum_i \sum_j \log^{-1} \frac{NEF_{ij}}{10}$$

The last equation represents the summation (on an energy basis) of the NEF contributions at a given point for each aircraft type and flight profile.

3. NEF Contours for Portland International Airport

Introduction

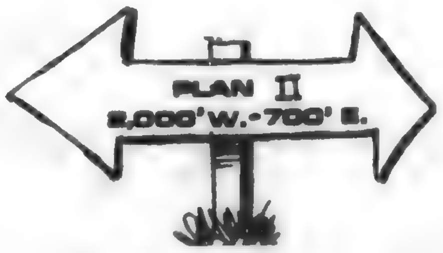
NEF contours presented in this report provide an objective evaluation of the proposed airport extension by considering the forecasted noise exposure for the various alternate courses of action through the year 1990. NEF contours for current levels of airport operation (using 1972 passenger movement data obtained from 1972 Official Airline Guide) are also presented as a reference baseline.

The noise contours represent the estimated noise exposure resulting from current and projected operations of Portland International Airport based upon the aircraft and airport operations data discussed in Section 2 of this, the Wyle Report. The NEF contours for present operations are shown on Maps 13 and 14, pages III-81, and III-82. These are respectively shown on a U.S.G.S. Map and an existing land use map. The NEF contours for 1980 and 1990 were constructed for the existing airport configuration and the modified configuration of Plan I (2,200 feet westward) and of Plan II (2,000 feet westward and 700 feet eastward), both extensions of the south runway (Runway 10R-28L). The difference of 500 feet is considered negligible from a noise exposure analysis. Approximate contours for the 2,200 foot eastward extension option, Plan III, were prepared manually. All others were prepared by computer calculation. These predicted contours are presented on Maps 15-19, pages III-83 through III-87.

A significant observation can be made concerning the relative magnitude of the noise created by present and projected operations of Portland International Airport. Due primarily to shift in the U.S. aircraft fleet to the quieter wide body commercial aircraft type and the gradual disappearance of conventional 4 engine turbojet and turbofan aircrafts, the extent of the noise impact would steadily diminish, without any change in runway length, in spite of slightly increased levels of airport activity.

PLAN I
2,200' WEST

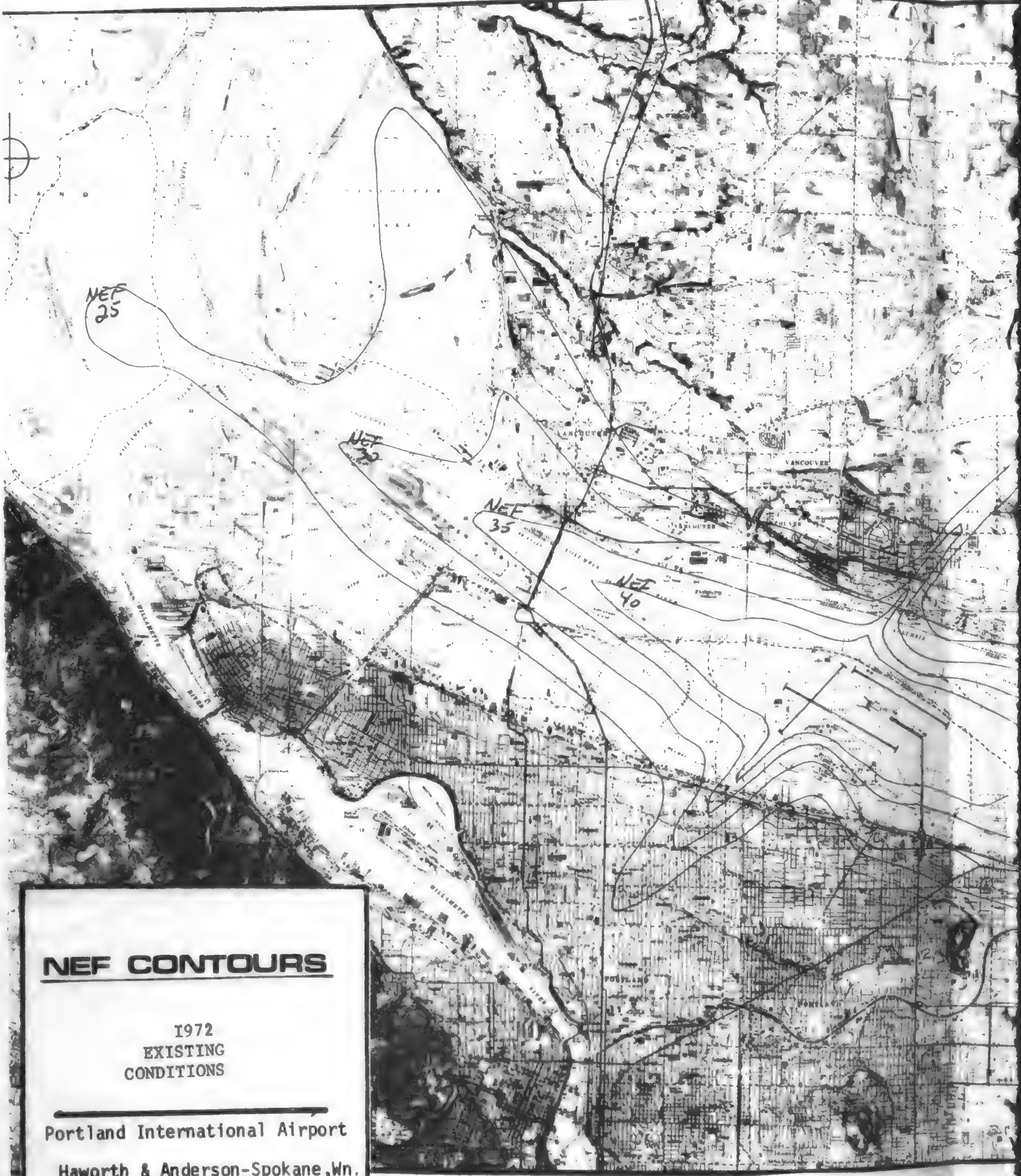
When comparing the contours resulting from the modified and unchanged runway configurations, (Maps 15-19, pages III-83 through III-87) one may observe a slight reduction in the northernmost lobes of the noise contours for the departure tracks. This occurs primarily due to traffic being shifted to the extended southern runway. By virtue of the 2,200 or 2,700 foot extension, this runway will allow the increased capability of larger payloads. It is also apparent that for a westward runway extension, if standard landing procedures are maintained (as has been assumed in this analysis), the straight segments of the approach noise contours to the west will be slightly extended. However, the "displaced threshold" noise abatement approach discussed in Section 5.0 of this report may be incorporated if this extension produces a significant increase in impacted land. For the eastward extension alternative, (Map 17, page III-85) this situation will be reversed, with landing influence now more predominant to the east.



4. Analysis of Individual Aircraft Noise Levels

Introduction

In order to provide further insight into the nature of the noise environment around Portland International Airport for existing and projected


NEF 25
NEF 30
NEF 35
NEF 40
VANCOUVER

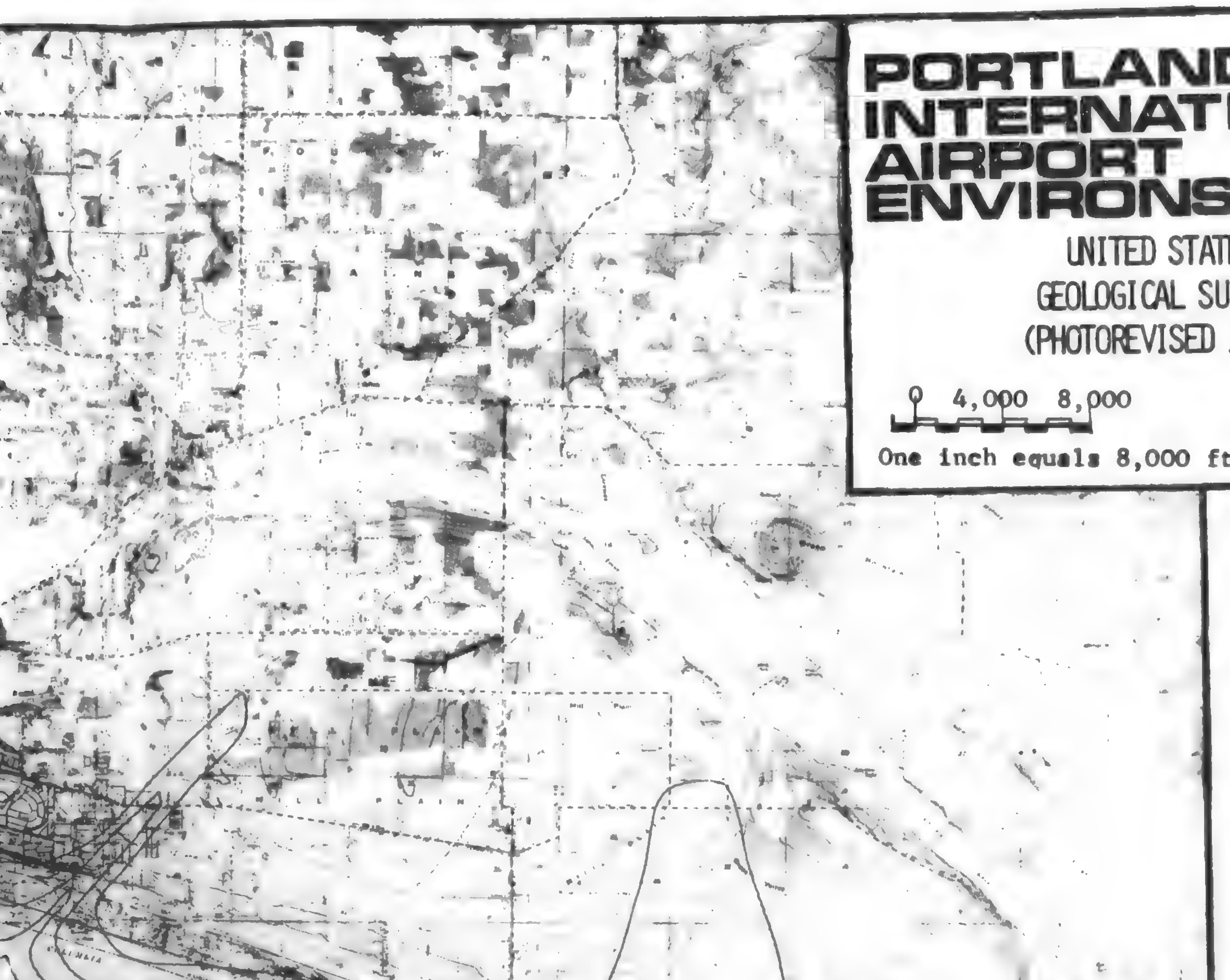
NEF CONTOURS

1972
EXISTING
CONDITIONS

Portland International Airport

Haworth & Anderson-Spokane,Wn.
Wyle Labs-El Segundo,Calif.

SOUTH RUNWAY EXTENSION ENVIRONM
PORTLAND INTERNATIONAL AIRPORT


NEF 40
NEF 35
NEF 30
NEF 25

PORTLAND INTERNATIONAL AIRPORT ENVIRONS

UNITED STATES
GEOLOGICAL SURVEY
(PHOTOREVISED 1970)

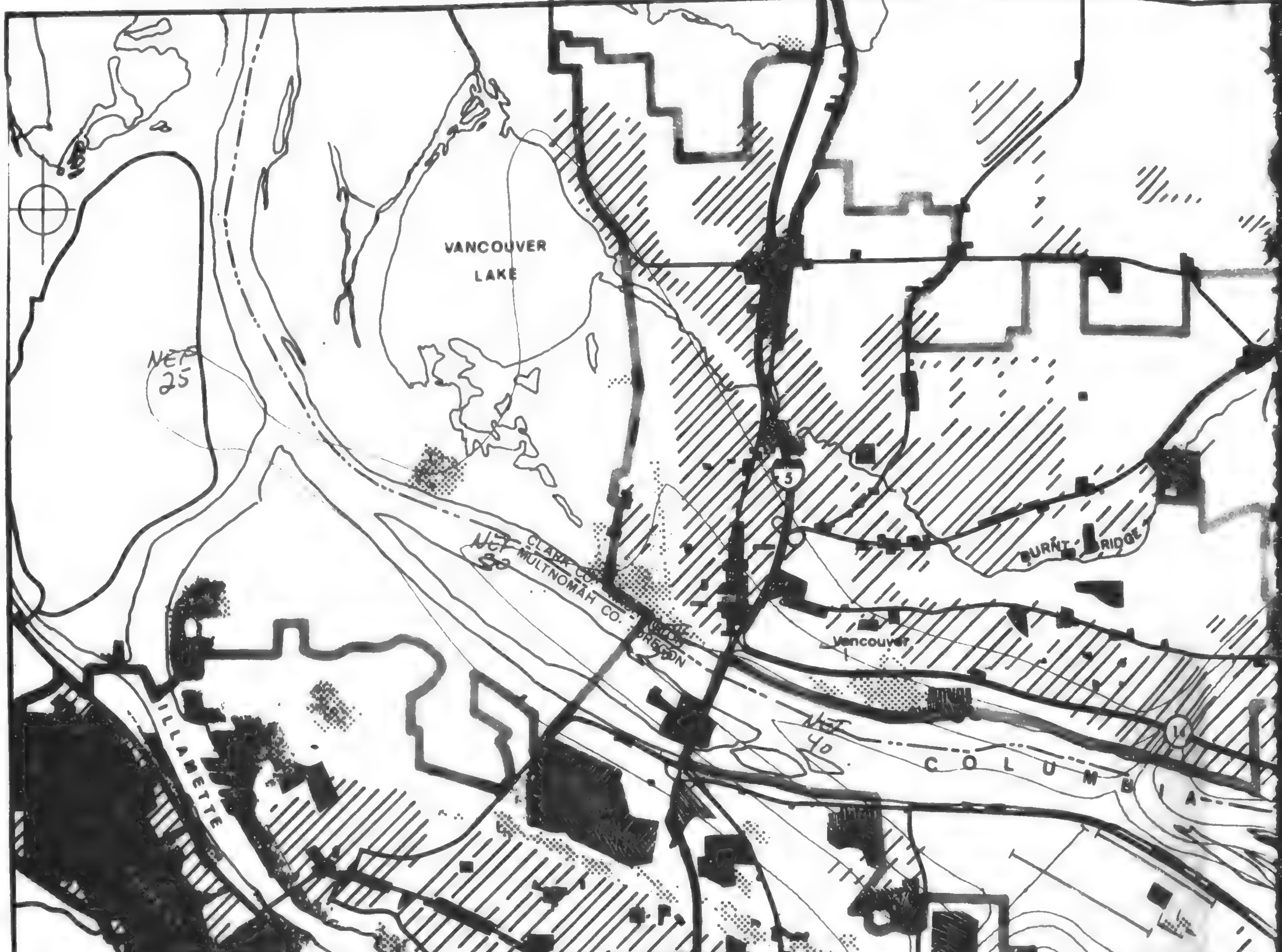
0 4,000 8,000

One inch equals 8,000 ft.

N

XTENSION ENVIRONMENTAL IMPACT REPORT
RNATIONAL AIRPORT - PORT OF PORTLAND

MAP 13

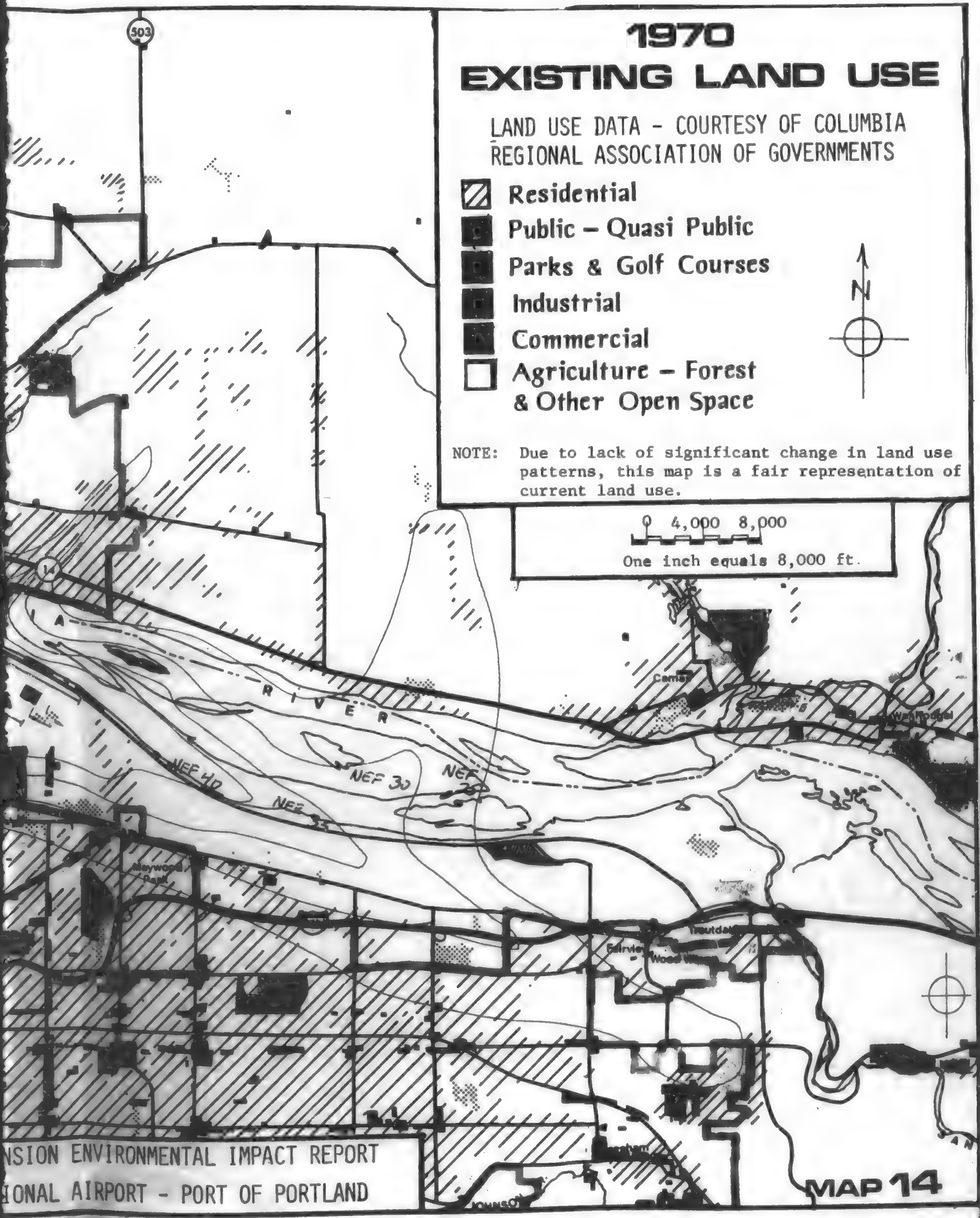

VANCOUVER LAKE
NEF 25
NEF 30
CLARK CO.
MULTNOMAH CO.
WASHINGTON
OREGON
Vancouver
NEF 40
COLUMBIA
BURNT BRIDGE
WILLAMETTE
RIVER
5
14

NEF CONTOURS

1972
EXISTING
CONDITIONS

Portland International Airport

Haworth & Anderson-Spokane, Wn.
Wyle Labs-El Segundo, Calif.



1970 EXISTING LAND USE

LAND USE DATA - COURTESY OF COLUMBIA REGIONAL ASSOCIATION OF GOVERNMENTS

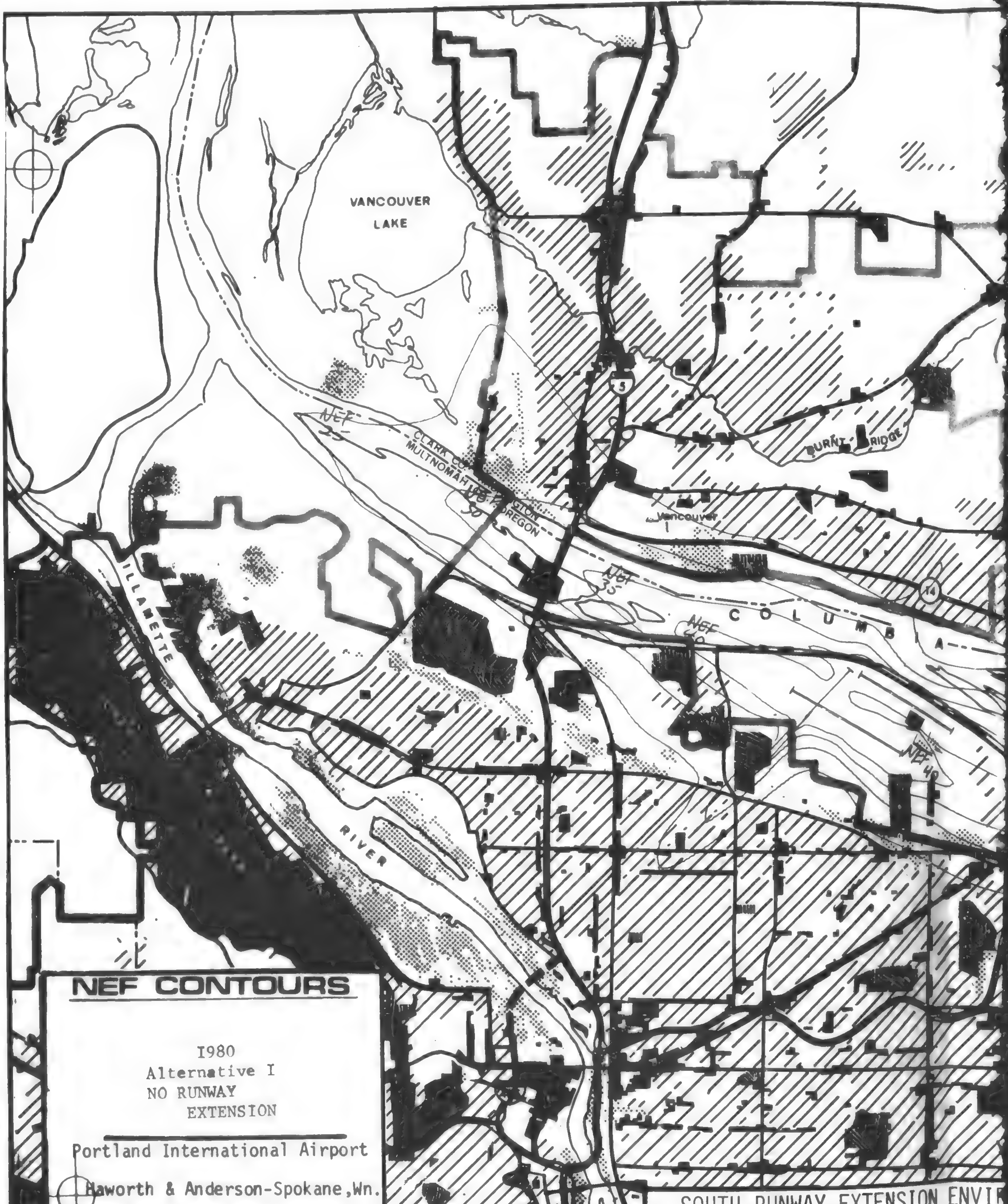
NOTE: Due to lack of significant change in land use patterns, this map is a fair representation of current land use.

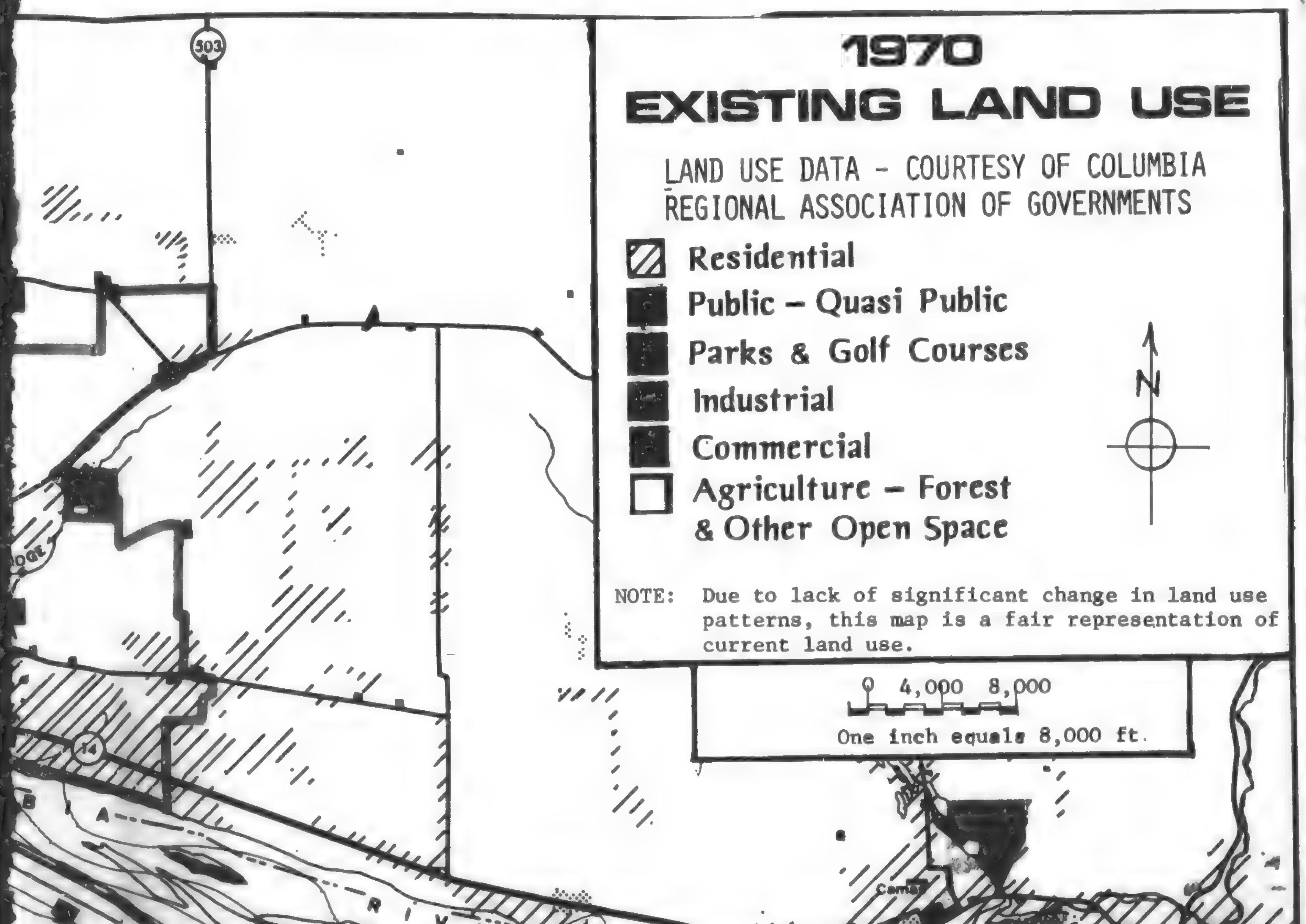
▨ Residential
■ Public – Quasi Public
■ Parks & Golf Courses
■ Industrial
■ Commercial
☐ Agriculture – Forest & Other Open Space
N
0 4,000 8,000
One inch equals 8,000 ft.
503
14
RIVER
NEF 40
NEF 30
NEF 35
NEF
Camas
Troutdale
Fairview
Wood Village
Maywood Park
Johnson

NSION ENVIRONMENTAL IMPACT REPORT

IONAL AIRPORT - PORT OF PORTLAND

MAP 14


VANCOUVER
LAKE
NEF 25
CLARK CO.
MULTNOMAH CO.
WASHINGTON
OREGON
NEF 30
Vancouver
NEF 35
COLUMBIA
NEF 30
NEF 40
BURNT BRIDGE
WILLAMETTE
RIVER
5
14
NEF CONTOURS
1980
Alternative I
NO RUNWAY
EXTENSION
Portland International Airport
Haworth & Anderson-Spokane,Wn.
Wyle Labs-El Segundo,Calif.
SOUTH RUNWAY EXTENSION ENVIR
PORTLAND INTERNATIONAL AIRPO



1970
EXISTING LAND USE

LAND USE DATA - COURTESY OF COLUMBIA REGIONAL ASSOCIATION OF GOVERNMENTS

- ▨ Residential
- ■ Public – Quasi Public
- ■ Parks & Golf Courses
- ■ Industrial
- ■ Commercial
- ☐ Agriculture – Forest & Other Open Space

NOTE: Due to lack of significant change in land use patterns, this map is a fair representation of current land use.

0 4,000 8,000

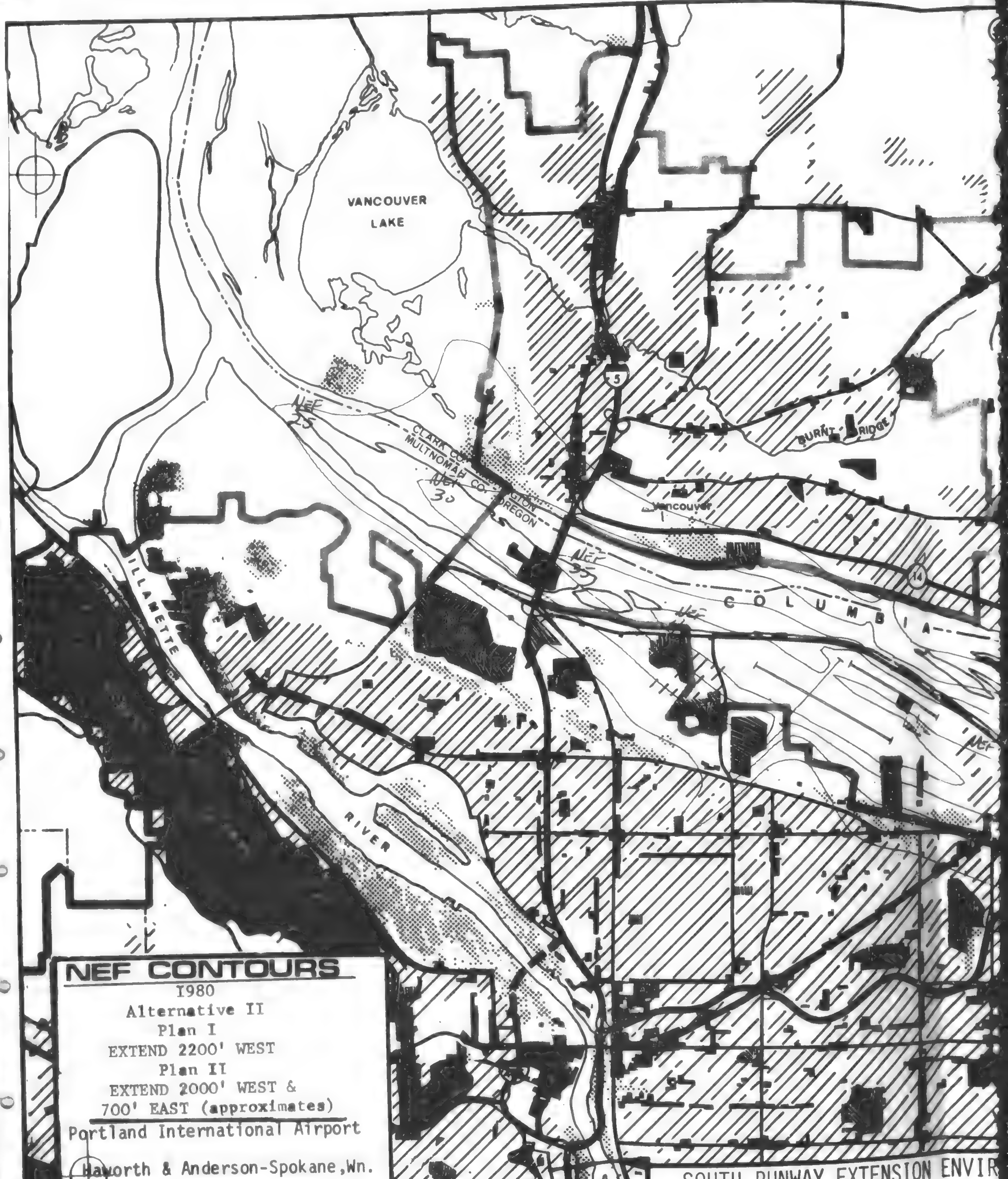
One inch equals 8,000 ft.

ENSION ENVIRONMENTAL IMPACT REPORT

TIONAL AIRPORT - PORT OF PORTLAND

MAP 15

N
503
14
B
A
RIVER
NEF 40
NEF 35
NEF 30
Camas
Troutdale
Fairview
Wood Village
JOHNSO

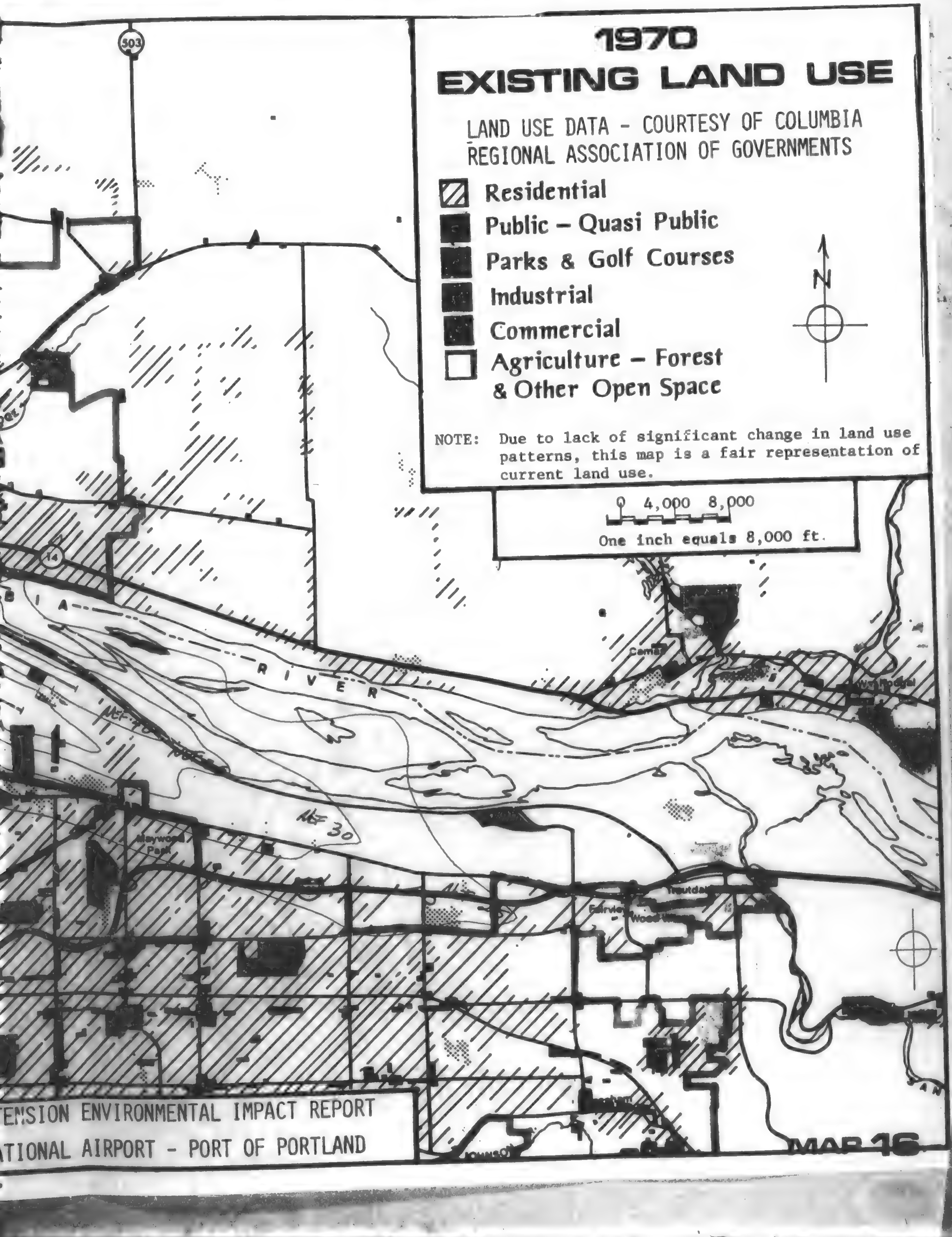

VANCOUVER LAKE
NEF 25
CLARK CO. WASHINGTON
MULTNOMAH CO. OREGON
NEF 30
NEF 35
5
BURNT RIDGE
Vancouver
14
COLUMBIA
NEF
WILLAMETTE
RIVER

NEF CONTOURS

1980
Alternative II
Plan I
EXTEND 2200' WEST
Plan II
EXTEND 2000' WEST &
700' EAST (approximates)
Portland International Airport

Haworth & Anderson-Spokane,Wn.
Wyle Labs-El Segundo,Calif.

SOUTH RUNWAY EXTENSION ENVIR
PORTLAND INTERNATIONAL AIRPO



1970 EXISTING LAND USE

LAND USE DATA - COURTESY OF COLUMBIA REGIONAL ASSOCIATION OF GOVERNMENTS

▨ Residential
■ Public – Quasi Public
■ Parks & Golf Courses
■ Industrial
■ Commercial
☐ Agriculture – Forest & Other Open Space

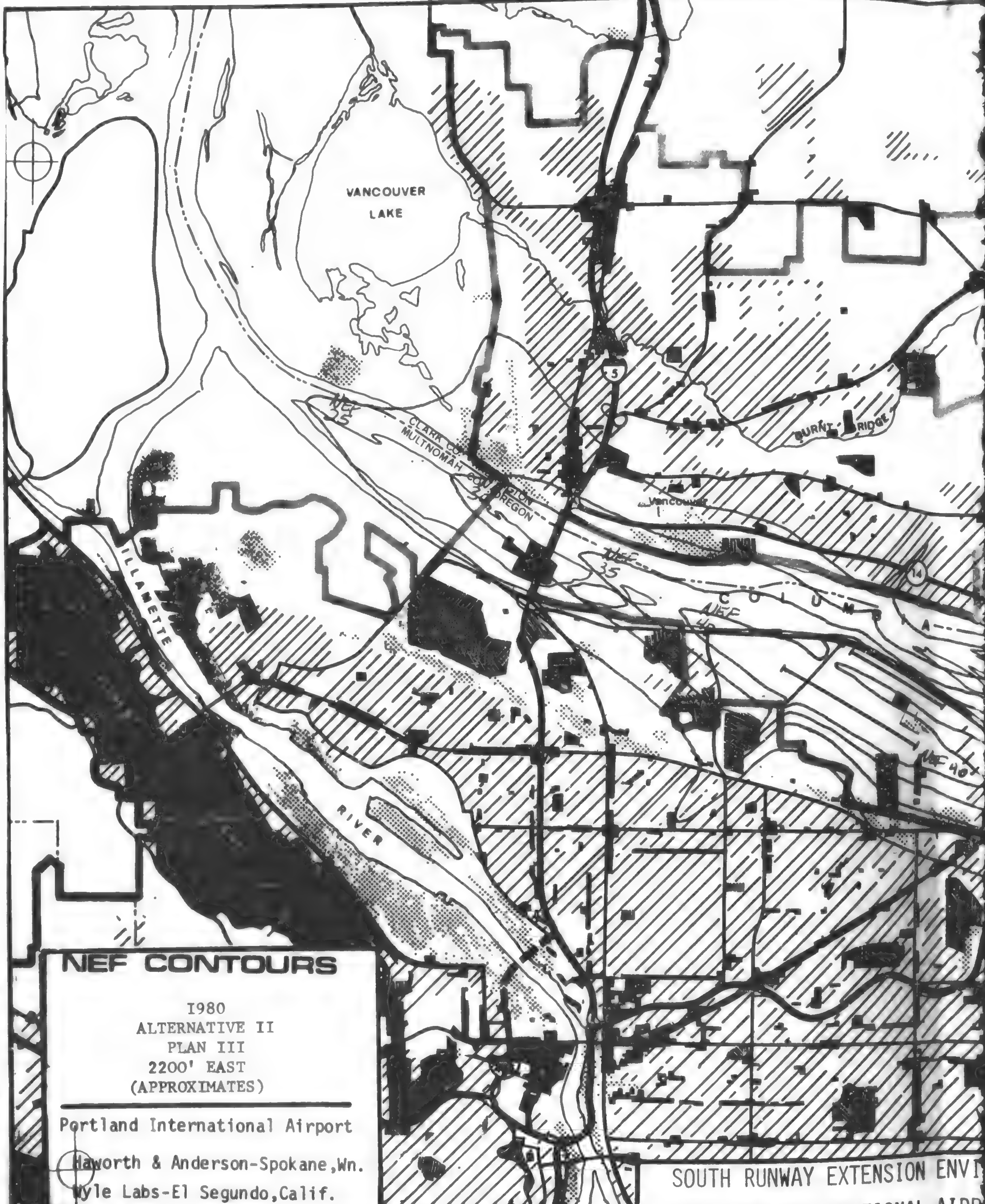
NOTE: Due to lack of significant change in land use patterns, this map is a fair representation of current land use.

0 4,000 8,000
One inch equals 8,000 ft.

N
503
14
B I A
R I V E R
Camas
Washougal
Maywood Park
MF 30
Troutdale
Fairview
Wood Village
Gresham

TENSION ENVIRONMENTAL IMPACT REPORT
ATIONAL AIRPORT - PORT OF PORTLAND

MAP 16


VANCOUVER LAKE
NEF 35
CLARK CO.
MULTNOMAH CO.
WASHINGTON
OREGON
Vancouver
NEF 35
NEF 40
NEF 40
COLUMBIA
BURNT RIDGE
5
14
WILLAMETTE
RIVER

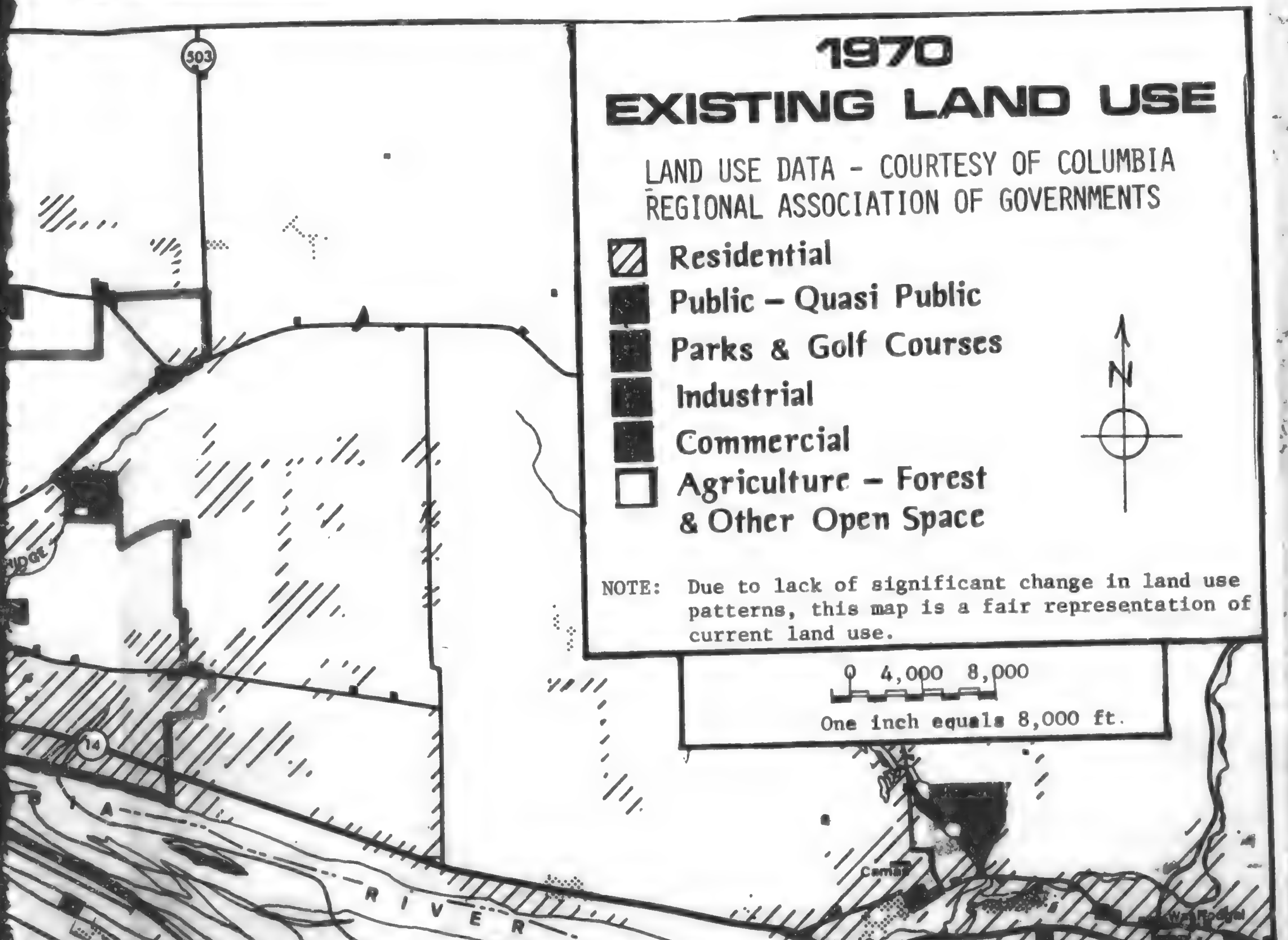
NEF CONTOURS

1980
ALTERNATIVE II
PLAN III
2200' EAST
(APPROXIMATES)

Portland International Airport

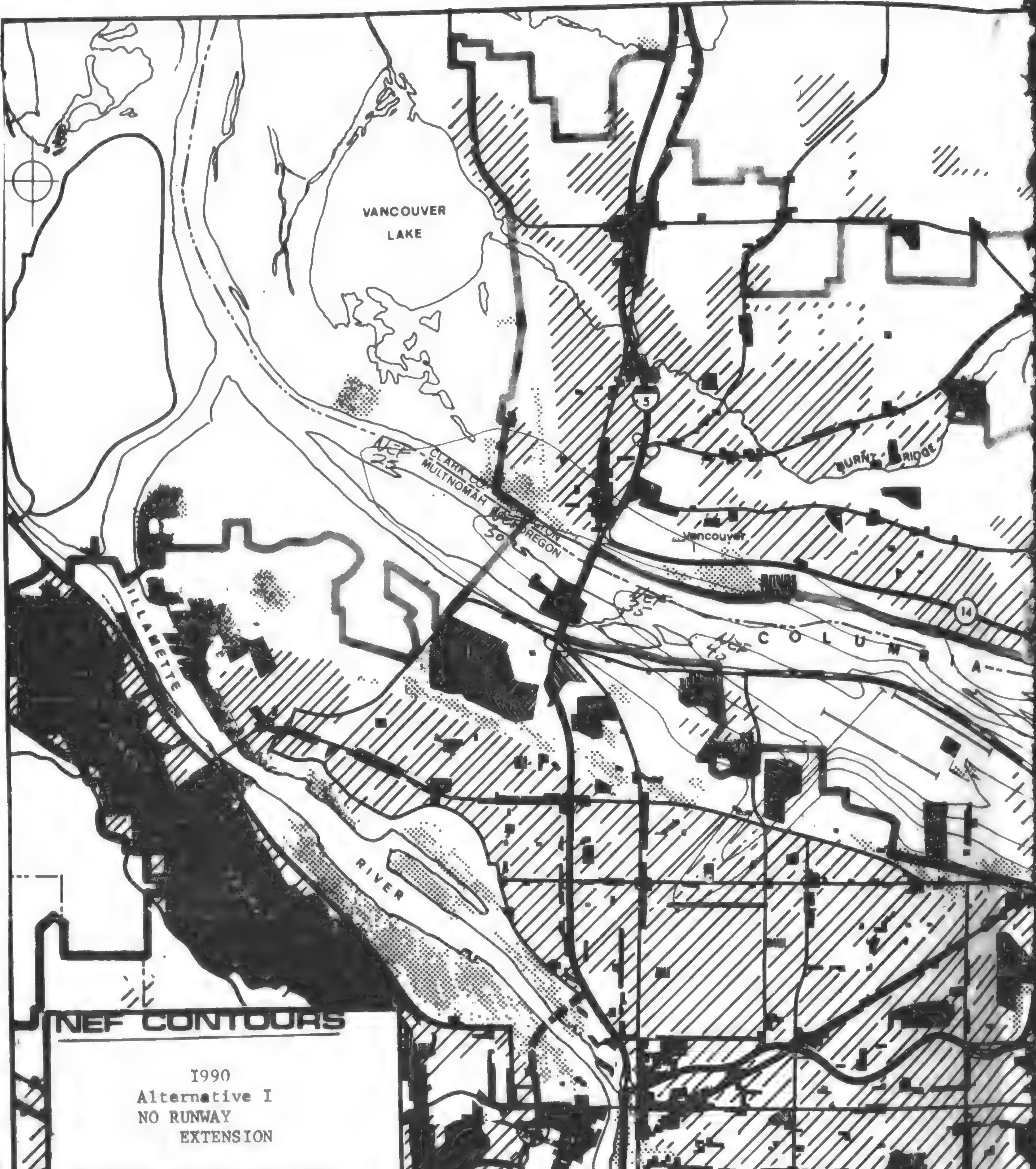
Haworth & Anderson-Spokane, Wn.
Wyle Labs-El Segundo, Calif.

SOUTH RUNWAY EXTENSION ENVI
PORTLAND INTERNATIONAL AIRP


1970
EXISTING LAND USE
LAND USE DATA - COURTESY OF COLUMBIA REGIONAL ASSOCIATION OF GOVERNMENTS
▨ Residential
■ Public – Quasi Public
■ Parks & Golf Courses
■ Industrial
■ Commercial
☐ Agriculture – Forest & Other Open Space
NOTE: Due to lack of significant change in land use patterns, this map is a fair representation of current land use.
N
0 4,000 8,000
One inch equals 8,000 ft.
503
14
RIVER
NEF 40
NEF 35
NEF 30
Camas
Troutdale
Fairview
Wood Village
Maywood Park
Gresham

XTENSION ENVIRONMENTAL IMPACT REPORT
NATIONAL AIRPORT - PORT OF PORTLAND

MAP 17


VANCOUVER
LAKE
CLARK CO. WASHINGTON
MULTNOMAH CO. OREGON
NEF 25
30
NEF 35
NEF 40
Vancouver
5
14
COLUMBIA
BURNT BRIDGE
WILLAMETTE
RIVER

NEF CONTOURS

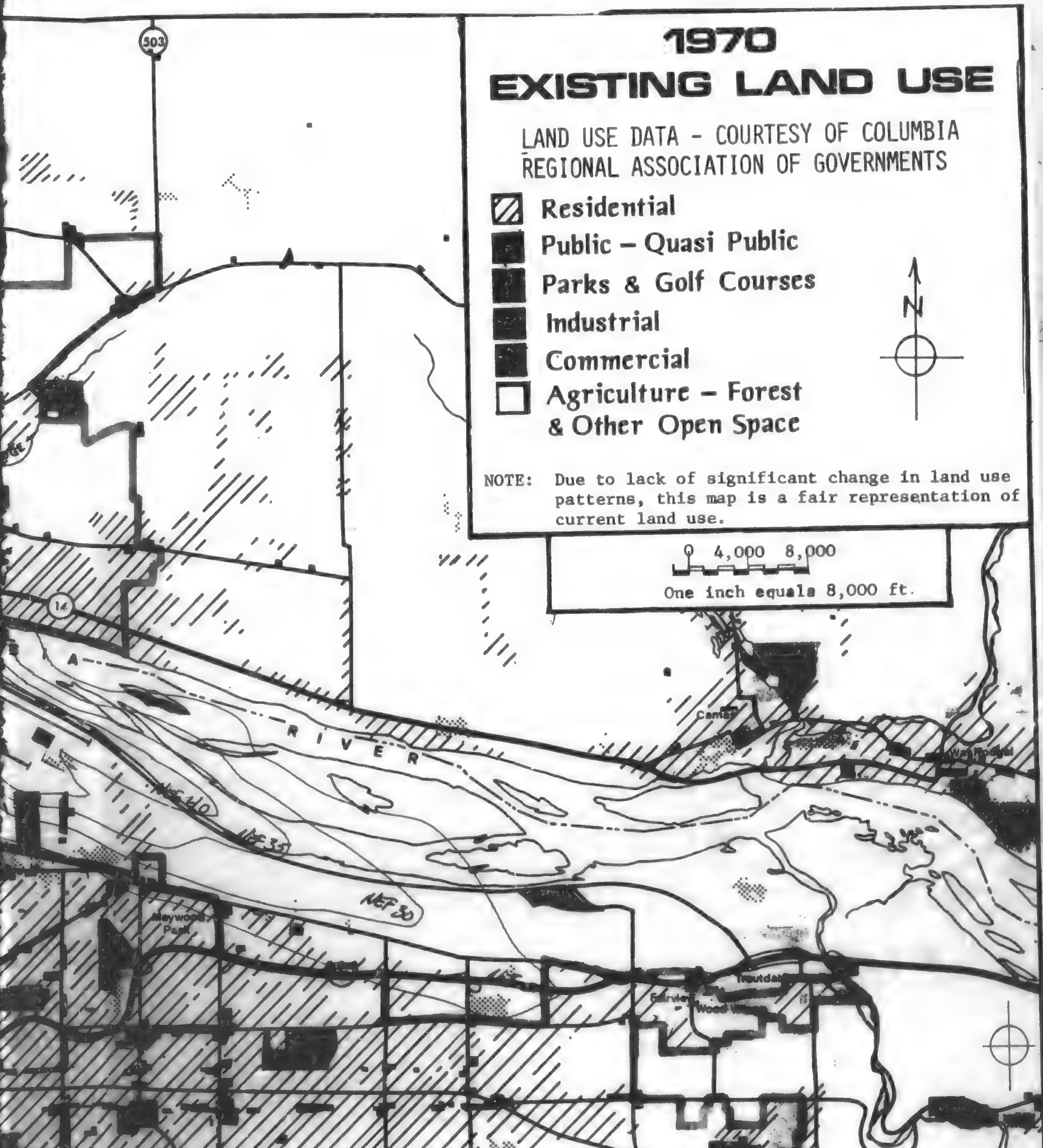
1990
Alternative I
NO RUNWAY
EXTENSION

Portland International Airport

Haworth & Anderson-Spokane,Wn.

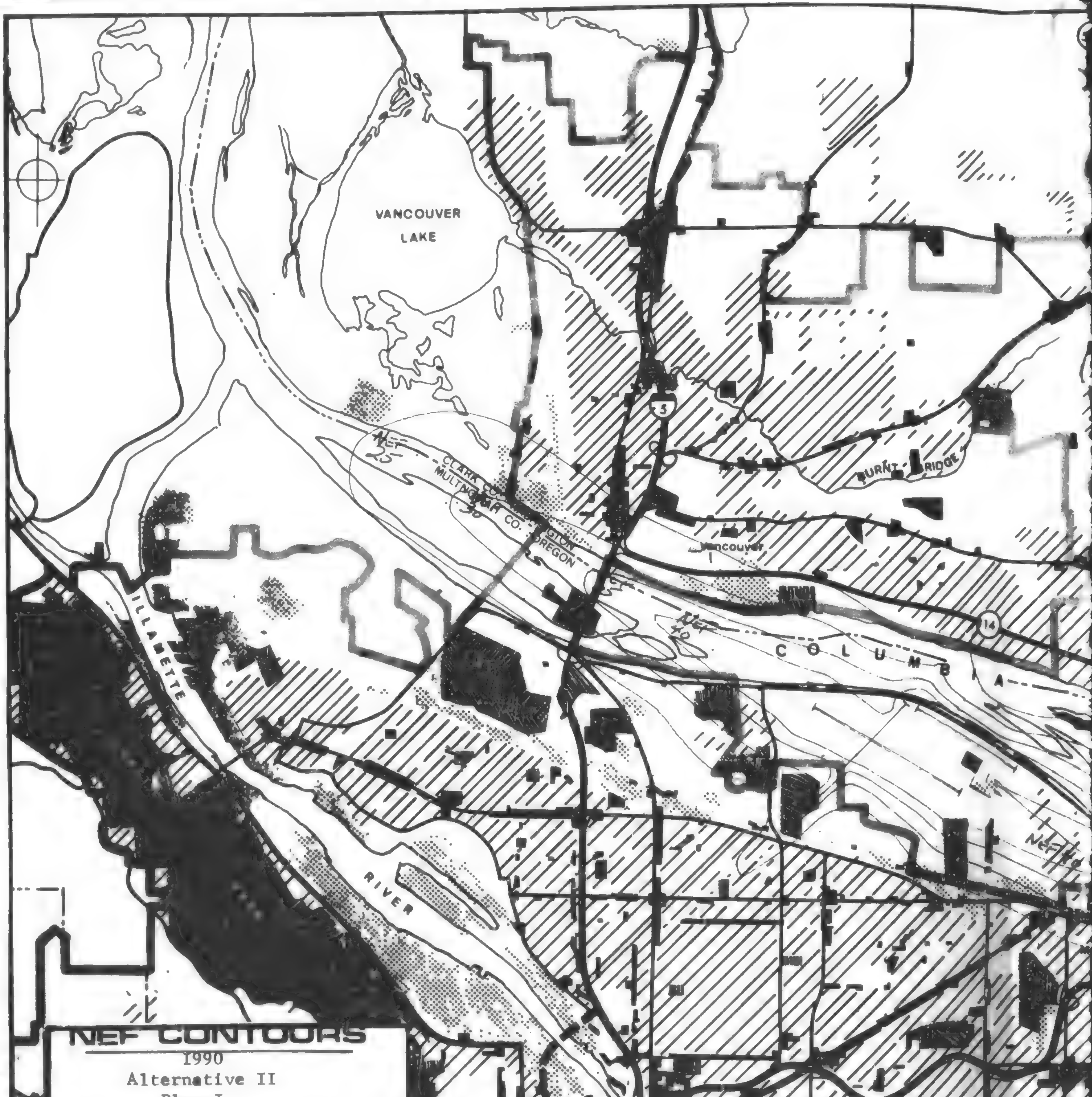
Wyle Labs-El Segundo,Calif.

SOUTH RUNWAY EXTENSION ENVI
PORTLAND INTERNATIONAL AIRP


1970
EXISTING LAND USE
LAND USE DATA - COURTESY OF COLUMBIA REGIONAL ASSOCIATION OF GOVERNMENTS
▨ Residential
■ Public – Quasi Public
■ Parks & Golf Courses
■ Industrial
■ Commercial
☐ Agriculture – Forest & Other Open Space
N
0 4,000 8,000
One inch equals 8,000 ft.
503
14
RIVER
NEF 40
NEF 35
NEF 30
Camas
Washougal
Maywood Park
Troutdale
Fairview
Wood Village
Gresham
JOHNSON
MAP 18

NOTE: Due to lack of significant change in land use patterns, this map is a fair representation of current land use.

ENSION ENVIRONMENTAL IMPACT REPORT
TIONAL AIRPORT - PORT OF PORTLAND

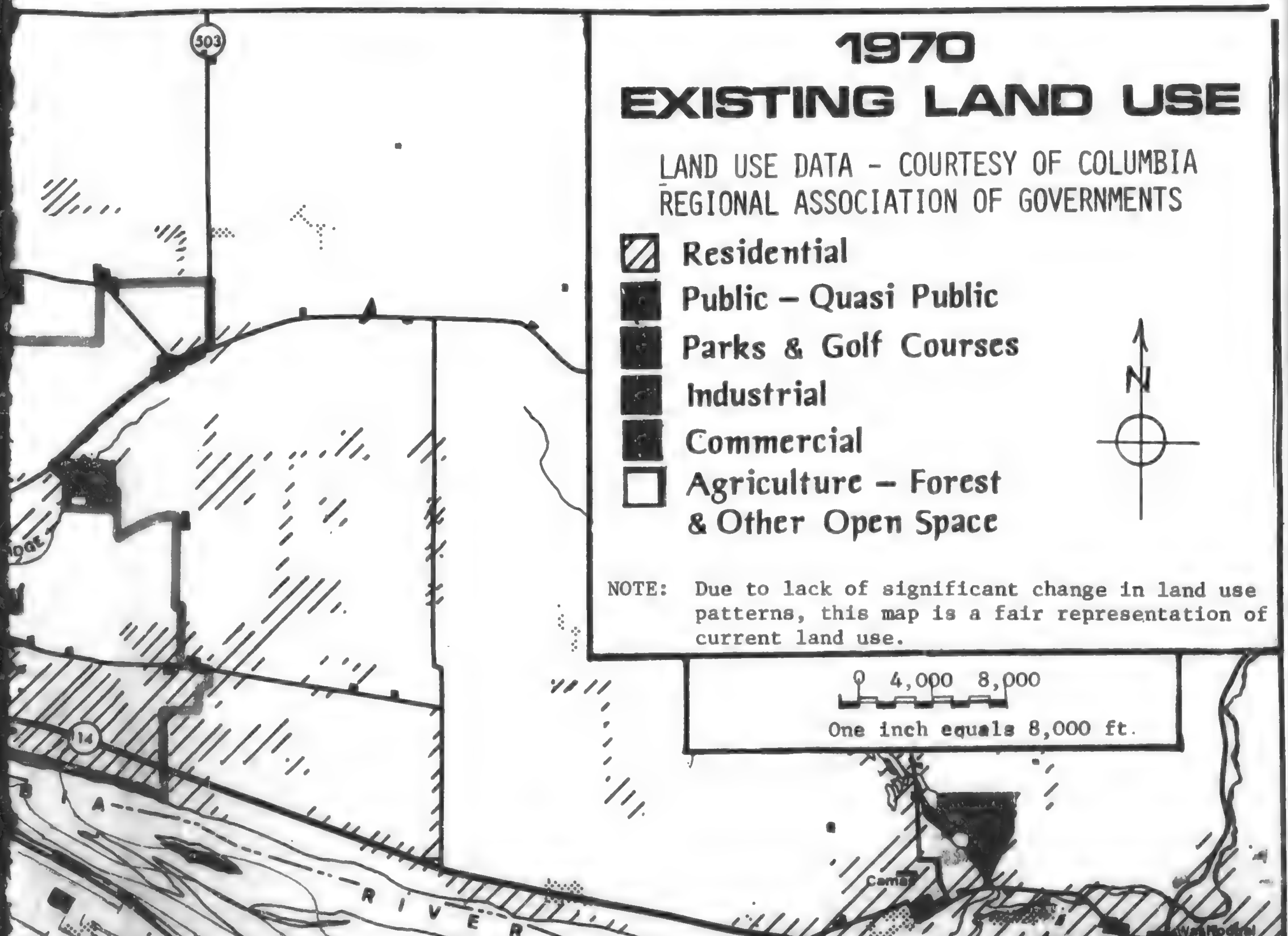

VANCOUVER LAKE
CLARK CO. WASHINGTON
MULTNOMAH CO. OREGON
NEF 25
30
Vancouver
NEF 40
14
5
C O L U M B I A
BURNT BRIDGE
WILLAMETTE
RIVER
NEF

NEF CONTOURS

1990
Alternative II
Plan I
EXT[illegible] 2200 W[illegible]
Plan II
EXTEND 2000' WEST &
700 EAST (approximates)
Portland International Airport

Haworth & Anderson-Spokane,Wn.
Wyle Labs-El Segundo,Calif.

SOUTH RUNWAY EXTENSION ENVIRON
PORTLAND INTERNATIONAL AIRPORT



1970 EXISTING LAND USE

LAND USE DATA - COURTESY OF COLUMBIA REGIONAL ASSOCIATION OF GOVERNMENTS

- ▨ Residential
- ■ Public – Quasi Public
- ■ Parks & Golf Courses
- ■ Industrial
- ■ Commercial
- ☐ Agriculture – Forest & Other Open Space

NOTE: Due to lack of significant change in land use patterns, this map is a fair representation of current land use.

0 4,000 8,000

One inch equals 8,000 ft.

503
114
N
A
RIVER
Camas
Washougal
NEF 40
NEF 35
NEF 30
Maywood Park
Fairview
Wood Village
Troutdale
Gresham
JOHNSON

ENSION ENVIRONMENTAL IMPACT REPORT
TIONAL AIRPORT - PORT OF PORTLAND

MAP 19

operations, Perceived Noise Contours (expressed in PNdB), have been prepared to define maximum noise levels of a flyby for the noisiest aircraft type operating in the years of interest. Perceived noise level represents a sound pressure level weighted so as to correspond to the subjective impression of the "noisiness" of a sound. (For jet aircraft noise, the maximum perceived noise level of a flyby will be approximately 12 dB higher than the maximum A-weighted noise level of the same event.) 110PNdB contours are contained in Technical Appendix H for 1972 and for 1980 and 1990 for both extended and nonextended south runway configurations.

Noisiest Aircraft Types

In 1972, the 707-320B/DC-8-61 type aircraft were deemed noisiest in the Portland air carrier fleet. This aircraft type is also expected to be operating in 1980. However, by 1980 acoustic retrofit will reduce its noise output (see Table 2.1). By 1990, the noisiest aircraft expected to be operating at Portland is a growth version of the Boeing 747. For our study, this airplane was configured as a stretched fuselage, 850,000 pound maximum gross weight version of the 747. The engines chosen were representative of four 50,000 pound thrust JT9D engines.

It should also be noted that, with Plan I or Plan II, perceived noise level contours will extend this amount further west if standard landing procedures are maintained.

5. Methods to Minimize Adverse Noise Impacts

Introduction

Adverse noise impact, as a result of any proposed runway extension, is only significant from aircraft operations. As discussed in Section 8, the noise environment generated during construction is not expected to be significant compared to the airport noise environment.

Methods for reduction of the airport noise impact are analyzed and discussed in a previous report. [1] The methods considered and the conclusions reached in that report may be summarized as follows:

Operational Changes

Two Segment Approach. The estimated noise reductions of 10 to 12 dB at 5 nautical miles from threshold are reasonable based on actual test data from recent studies. [2] This is an approach prodecure wherein a plane descends on a steeper gradient before assuming its approach glide slope. The result is that offensive noise levels do not affect ground level situations nearly so quickly. Figure 5.1 schematically shows this concept.

---

[1] Bolt Beranek & Newman, Inc. "Study of the Noise Impact of the Proposed Expansion of Portland International Airport", June, 1972.

[2] Department of Transportation, "Airport Noise Reduction Forecast Program", Contract No. DOT-OS-20088.

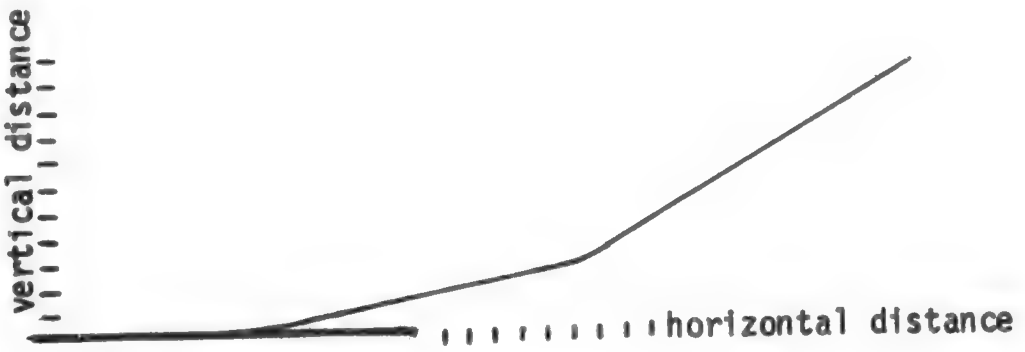


Figure 5.1 Schematic Diagram of Two Segment Approach Profile

Reduced Thrust Landing. Some noise reduction is possible with optimum scheduling of flap setting and engine power but is likely to be less than 3 dB instead of 5 dB as indicated in the BBN study. 1/

Displaced Threshold Approach. Although not discussed in the BBN, this potential technique is included here for continuity. A displaced threshold approach involves landing at some point inboard of the end of the runway. Hence, if the normal landing threshold were moved inboard for any of the extended runway configuration, theoretically no increase in noise impact due to landing operations will result from the runway extension. There are obvious safety drawbacks inherent in limiting the amount of runway available for landing; thus it can be expected that some objections to this approach will arise. This technique would be feasible on a compromise basis wherein lighter aircraft could be required to use it.

Noise Abatement Takeoff. The general trend in noise reduction possible with power cutback is correctly portrayed in the BBN study. 1/ However, customized power cutback procedures, unique to Portland International Airport, are unlikely to be adopted by the airlines. Rather, some variation of the current industry standard ATA takeoff procedure employing some degree of power cutback is more likely to be adopted. 2/ The amount of reduction in noise impact achievable would depend on the standard cutback profile employed.

Noise Monitoring. As discussed in the BBN study noise monitoring cannot, of course, provide direct reduction of aircraft noise. However, effective utilization of noise exposure data around the airport can provide the airport proprietor with useful quantitative data to guide his operational policies and procedures which he may be empowered to employ to minimize noise impact in adjacent communities. It can also provide him with a factual basis for cooperative action by the airlines to minimize noise impact in sensitive community areas.

Aeronautical Changes

The most probable changes to aircraft design which can substantially reduce their noise levels are:

1/ Bolt Beranek & Newman, Inc. "Study of the Noise Impact of the Proposed Expansion of Portland International Airport", June, 1972.

2/ These procedures, simplistically, involve a fairly steep takeoff climb under nearly full thrust conditions to a specified altitude and then a reduction of the ascent angle and a cutback of engines. This results in keeping noise associated with maximum engine thrusts close to the airport, and flyover of adjacent land under considerably less than full thrust.

- Retrofitting existing older aircraft with acoustically treated nacelles to minimize fan noise.

- Retrofitting existing turbofan engines with modified front end fans (e.g., refan) to minimize fan noise.

- Conversion of the older aircraft fleet to the newer designs incorporating high bypass engines.

These are longer term solutions to airport noise which are being motivated by existing or proposed federal legislation or aircraft certification rules. The estimated influence of this trend towards quieter aircraft, discussed in the BBN study has been accounted for in the expected future aircraft mix as outlined in Section 2 of this report.

6. Recommended Criteria for Assessing Noise Impact on Various Types of Land Use

NEF Land Use Compatibility Analysis

Based upon recent studies, land-use planning around civil airports has been carried out with the use of a composite noise scale called the Noise Exposure Forecast (NEF). 1/ This scale utilizes a measure called Effective Perceived Noise Level (EPNL) to describe the noisiness of each aircraft flyby. The description of aircraft noise by EPNL accounts for the subjective effect of maximum noise level and duration of each flyby and the added annoyance due to presence of any discrete tone-like components in the noise. As described in Section 2, NEF Contour Computation, the NEF value accounts for this single event level and time of day weighted value for the number of flights.

Continuing applications of this type of composite noise scale has been necessary in a wide variety of land use situations extending well beyond just residential land. Figure 6.1 (this report) illustrates resulting NEF criteria for such situations. Note that there is more than one level of compatibility indicated for several specific types of land use. These various levels depend on the degree of exterior to interior noise control provided in the buildings involved (see Table 6.1). The highest NEF level indicated for each land use by the code A (or D) is the maximum desirable NEF level for existing or conventional construction which does not incorporate any special noise insulation requirements. Higher levels, indicated by the bands marked B or C in Figure 6.1 are allowed only under the special conditions defined in Table 6.1.

Thus as indicated in Figure 6.1, an NEF limit of 30 is recommended as the maximum value for compatible land use for conventional residential-single family and two-family homes and mobile homes. Other composite noise scales utilized for land-use planning by the Federal Aviation Administration (FAA) and the Department of Housing and Urban Development (HUD) incorporate a criterion level for residential land use which is consistent with the NEF 30 value indicated in Figure 6.1.

1/ Bolt Beranek & Newman, Inc. "Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances", Contract No. 68-04-0047. NTID.300.1, December, 1971.

LAND USE COMPATIBILITY GUIDELINES FOR NEW DEVELOPMENT AND REDEVELOPMENT IN AN AIRCRAFT NOISE ENVIRONMENT

Land Use Category	Noise Sensitivity Code[1]
1. Residential—Single and Two Family Homes, Mobile Homes	1
2. School Classrooms, Libraries, Churches, Hospitals, Nursing Homes, et cetera	1
3. Auditoriums, Concert Halls, Outdoor Amphitheaters, Music Shells	1
4. Residential—Multiple Family Apartments, Dormitories, Group Quarters, Orphanages, Retirement Homes, et cetera	2
5. Transient Lodging—Hotels, Motels	3
6. Playgrounds, Neighborhood Parks	3
7. Sports Arenas, Out-of-door Spectator Sports	3
8. Office Buildings, Personal, Business and Professional Services	3
Commercial—Retail, Movie Theaters, Restaurants	3
Manufacturing—Noise Sensitive	3
Communications—Noise Sensitive	3
9. Golf Courses, Riding Stables, Water-Based Recreational Areas, Cemeteries	4
Livestock Farming, Animal Breeding	4
10. Commercial—Wholesale & Some Retail, Industrial/Manufacturing, Transportation, Communications & Utilities	5
11. Agriculture (Except Livestock Farming) Mining, Fishing	5

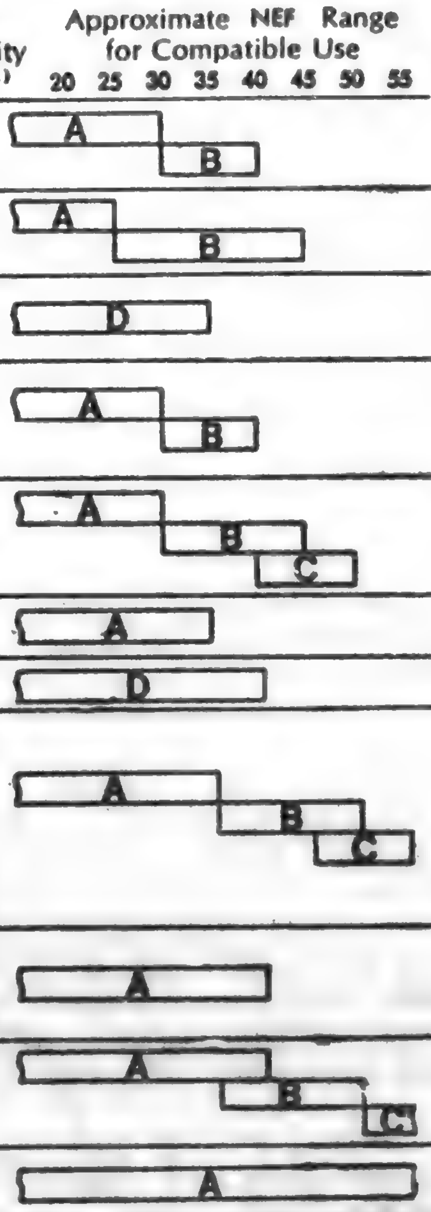


Figure 6.1 Land Use Compatibility Guide for New Development
(See Table 6.1, page III-92)

Table 6.1

LAND USE CODING/CONSTRUCTION TYPE DESCRIPTORS

(For Figure 6.1)

A. Specified land use is satisfactory, based on the assumption that any buildings involved are of normal construction, without any special noise insulation requirements.

B. New development or construction should be permitted only on condition that a detailed analysis of requirements for building noise reduction performance be made and indicated noise insulation and air supply features be included in the design and construction.

C. New development or construction should be undertaken only if (1) it is directly related to airport activities or services, and (2) special noise insulation and air supply features are included in the design and construction.

D. A detailed analysis of the noise environment, considering noise from all urban and transportation sources should be made, and needed noise insulation features and/or special requirements for sound reinforcement systems should be included in the basic design.

(Construction Type Descriptor B corresponds to a reduction of noise level (exterior to interior) of approximately 35 decibels on the A-scale; and Construction Type Descriptor C to a reduction of noise level (exterior to interior) of approximately 45 decibels on the A-scale. However, performance requirements for other than dwellings will be based on the following internal sound level criteria.)

For construction type categories B, C, and D, required noise reduction performance shall be based on meeting internal noise criteria defined by the City of Inglewood for the building type and planned usage. Validation of performance shall be based on measured values of typical aircraft noise levels or corresponding engineering calculations.

7. Aircraft Ground Runups - Test Operations

Presently, Hughes Air West is the only operator at Portland International Airport with maintenance facilities; hence, only the Air West fleet was considered for ground runups. As this is a minor maintenance facility, the frequency of ground runup testing is quite limited. Discussions with the resident maintenance foreman indicated that typically only one such test per week is performed with a maximum duration of 1/2 hour. This is conducted on an "as required" basis; thus may occur at any time during the day or night. In addition to the testing, a warmup run of no more than 5 minutes is made daily at 5:00 a.m.

The military operations at PIA currently practice ground runups on a regular basis. The military do, however, utilize noise suppression equipment to minimize any noticeable impact.

8. Airport Noise Environment During Construction Phase

Aircraft Noise

For a portion of the construction phase of the runway extension program, it is assumed that the south runway will be closed to all aircraft operations. This situation will probably exist for a period of approximately 2 months. Air traffic would be routed to the north runway with the net result of a widening in the sideline noise contours over the immediate length of the north runway. This increased width would be approximately equivalent to a 3 dB increase in noise levels over the length of the runway. Thus, the existing NEF 25 contour would become the 28, the 30 would become the 33, etc. On the other hand, the noise contours adjacent to the south runway could be expected to collapse in the reverse direction. Furthermore, due to the distance between the runways, a net decrease in noise contour values of 5 dB would not be unreasonable; hence, over the length of the south runway, the 35 dB contour would become the 30, the 30 would become the 25, etc. Beyond either end of the runways, it is expected that these modified noise contours will gradually fair into the present noise contour pattern. This would result if existing flight track utilization percentages are maintained. It is assumed that noise impact resulting from crosswind runway utilization will be unchanged.

Construction Equipment Noise

Typical noise levels emitted by construction equipment have been summarized in Table 8.1. 1/ Detailed evaluation of construction equipment noise is undeterminable. 2/ Therefore, for estimation of potential noise impact resulting from runway construction operations a nominal noise level of 95 dBA at 50 feet has been assumed to emanate from the construction zone con-

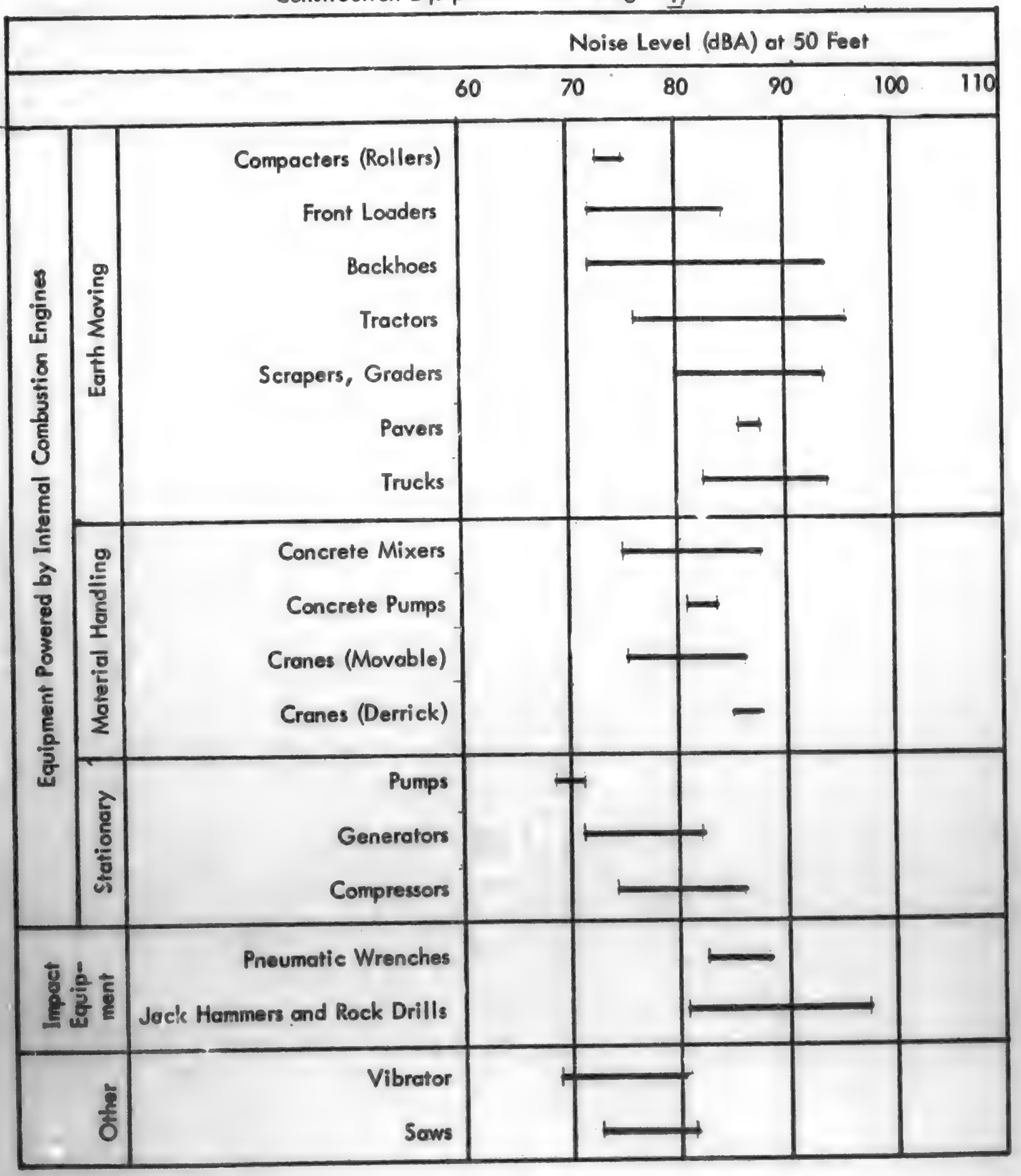
---

1/ Bolt Beranek & Newman, Inc., "Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances", Contract No. 68-04-0047, NTID. 300.1, December, 1971.

2/ Exact pieces of equipment and respective time of use were not available due to a lack of contractual commitments.

Table 8.1

Construction Equipment Noise Ranges 1/



1/ Bolt Beranek & Newman, Inc. "Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances", Contract No. 68-04-0047, NTID.300.1, December, 1971.

tinuously for 8 hours per day. Relating these noise levels to the NEF scale yields an approximate NEF value of 20 at the nearest residential land (approximately 2,000 feet from the construction zone). This value assumes a conservative high level and duration and minimizes the effects of air absorption and excess ground sound attenuation factors. Thus, it is concluded that construction equipment noise for the runway extension project will produce no significant increase in the noise impact of the immediate area over existing airport operations.

9. Existing Conditions

The foregoing sections dealt with existing PIA conditions. Among other items, it summarized runway utilizations, fleet mix and stage lengths, PNL for the loudest aircraft and NEF contours for the current situation (Map 13 and 14, pages III-81 and III-82).

Other Noise Methodologies

NEF contours are not the only method to examine and quantify noise impact. There are approximately ten aircraft noise evaluation systems being used throughout the world. In addition to NEF, there are three others, CNR, CNEL, and db(A) being used in the United States. It is appropriate to not only relate background data on the NEF system but to discuss its compatibility with other methodologies.

Composite Noise Rating (CNR) has been in use since the early 1960's. The essence of the CNR system is the expression of aircraft noise in terms of perceived noise level (PNL) in perceived decibels (PNdB) at any given distance from the noise source. PNdB contours are drawn to correspond to flight paths and profiles. The PNdB lines are then converted to CNR by applying corrections for the number of operations, etc

The Noise Exposure Forecast (NEF) system is a refinement of the CNR system which uses EPNL (Effective Perceived Noise Level) rather than PNL as the basic noise contours. Major advances over CNR include tone correction, duration correction and computerization.

The State of California uses a system called the Community Noise Equivalent Level (CNEL). This system, based on actual monitoring, uses decibels (db) as the basic measure. It, like CNR and NEF, includes such elements as noise level of separate events, the number of noise events in some specified time period and normalizing constants.

The db(A) system is used by the U.S. Department of Housing and Urban Development (HUD) for purposes of the FHA Mortgage Insurance Program. HUD also uses CNR or NEF. Use of db(A) (decibels on the A scale) requires simple on-scene measurement. Such measurements are then expressed by the amount of exposure.

CNR has been the most widely used system although it is now being replaced by NEF. NEF is a better system although properly constructed CNR contours can be used. An examination of Table 9.1 gives a scalar comparison of the system. 1/

1/ Department of Housing and Urban Development, "Aircraft Noise Impact, Planning Guideline for Local Agencies", November, 1972.

Table 9.1

COMPARISON OF RATING SCALES AND LAND USE INTERPRETATIONS FOR A NUMBER OF AIRCRAFT NOISE ENVIRONMENT DESCRIPTORS[1]

NEF	CNR	FRANCE	$\bar{Q}$ GERMANY	NNI U.K.	CNEL CALIFORNIA
45 Serious noise problems. No building activity without analysis. 40 Reaction may include vigorous complaints. No construction of homes, schools, churches, etc. without careful analysis. 35 30 Some noise complaints are possible 25	120 Repeated vigorous complaints and concerted group action expected. 115 110 Individuals may complain, perhaps vigorously. Group action is possible. 105 100 95 Some complaints may occur. Noise may interfere with some activities.	100 All building prohibited except those of airport 95 Residential subject to adequate insulation 90 New residential to be avoided 85 80 No building restrictions 75	90 85 No residential building 80 Residential only if urgent 75 Insulation indicated. 70 65 60 No restrictions, but no new hospitals near boundary to next highest zone. 55	60 55 "Annoyance becomes intolerable" daytime 50 45 40 35 "Annoyance becomes intolerable" nighttime 30 25	75 70 Not to be exceeded outside specified limits by 1985. 65 60 Satisfactory for residential use.

---

[1] Relationships are approximate and will vary with different number of flights, different mix of aircraft and different scheduling.

As mentioned earlier, HUD uses CNR and NEF in the process of evaluating mortgage insurance applications. For HUD's purposes, CNR and NEF maps usually have only two noise contour lines: CNR 100 or NEF 30 and CNR 115 or NEF 40. These lines create three zones. CNR Zone 3 or NEF Zone C is within the CNR 115 or NEF 40 line. CNR Zone 2 or NEF B is between CNR 100 and CNR 115 or NEF 30 and NEF 40. Areas outside CNR 100 or NEF 30 are considered as CNR Zone 1 or NEF Zone A. Use of these zones has generally focused on residential acceptability which is based on levels of anticipated community response. HUD's use of this system denies mortgage insurance in CNR Zone 3 or NEF Zone C and considers CNR Zone 2 or NEF B as normally unacceptable. 1/ (See Technical Appendix H, pages H-44 through H-46).

To summarize in terms of NEF:

Zone Category	NEF Rating	Disposition in HUD
A	less than 30	Acceptable
B	30 to 40	Discretionary
C	more than 40	Unacceptable

For the purpose of CNR-NEF comparisons, the following is useful:

CNR	NEF
115	40
107.5	35
100	30
92.5	25

Existing Land Use

Maps 13 and 14, pages III-81 and III-82, represent the present noise effect of PIA operations on the existing surrounding environs, and on its inherent land use. The base land use map was obtained through the Columbia Regional Association of Governments (CRAG). It was established that the CRAG map is an acceptable representation of current land use patterns. 2/

Comparing Maps 13 and 14 with Figure 6.1 and Table 6.1 of the Wyle Report, indicates that the major existing problem is residential land lying within that area enclosed by the NEF 30 contour. This occurs most noticeably off both ends of the crosswind runway and to lesser degrees on the flight paths over Washington as planes turn northward over western Vancouver. It also occurs less noticeably south of Sandy Blvd. (extended) between N.E. 122nd and N.E. 148th and on Hayden and Tomahawk Islands.

1/ Most of the last six paragraphs are credited to Mr. Gary D. Vest's, "Protecting Airports and Their Neighbors Through the Environmental Land Use Planning Process", March 21, 1973.

2/ The staff of Haworth and Anderson had numerous interviews with the staffs of CRAG, Portland City Planning Commission, Multnomah County Planning Commission, and Regional Planning Council of Clark County.

The most severely impacted housing occupying sizeable acreages and located well inside of the NEF 30 contour lies approximately due east and west of the airport, respectively in the area north of Maywood Park/Parkrose and east of PIA (defined for the purposes of this EIR as being centered around N.E. Holman and N.E. 105th) and in the Columbia Edgewater Golf Club area. Much of these areas lie within the NEF 35 and 40 contours; areas generally considered suitable only for recreation, commercial and agricultural purposes.

With the exception of the above described areas and special noise sensitive structures to be discussed later, PIA's noise "foot prints" are remarkable in that they do not severely impact large areas of land uses, associated with frequent human activity.

Special Noise Sensitive Land Uses

Although not graphically displayable at 1" - 8,000', the existing NEF contours were compared to quasi-public and public land uses as shown on a 1970 photo--revised United States Geological Survey (USGS) Map. The following table (page III-100) is a partial inventory of such special land uses.[1] The list was developed by reading the map right-to-left for those land uses in Oregon, and left-to-right for those in Washington. The land uses listed were taken from the area bounded by the NEF 25 contour surrounding PIA as developed under existing conditions. Columns were added to indicate the location of the particular land use with respect to either the NEF 40-30 area or the NEF 30-25 area under existing conditions. Using the same NEF contour areas, further columns were added to indicate the projected circumstances (either "no project" or Plan I) under which the land uses could be influenced by noise for the years 1980 and 1990.

While the NEF 40 noise level is generally high enough to make at least a serious to critical impact on most human activities, there appear to be no noise sensitive special land uses within the NEF 40 contour.

The area represented between the NEF 40 and the NEF 30 contour is generally subject to a noise level that, except for driving and manual or repetitive work, will cause at least a moderate to serious impact on human activity. The noise level existing between NEF 30 and NEF 25 contours is generally such that there is at least a moderate impact on human activity. The following is a summary total of the special land uses inventoried, and the projected circumstances under which they may be influenced by noise.

	Existing Conditions		1980				1990			
			No Project		Plan I		No Project		Plan I	
	NEF 40-30	NEF 30-25	NEF 40-30	NEF 30-25	NEF 40-30	NEF 30-25	NEF 40-30	NEF 30-25	NEF 40-30	NEF 30-25
Schools	5	32	2	11	2	11	4	7	2	11
Hospitals		5		1		1				1
Churches	3	32	1	15	1	15		14		9
Cemetaries	1		1		1		1		1	
Misc.	3			3		3		3		3

---

[1] General standards for NEF effect on human activities is obtained from HUD's Aircraft Noise Impact. (See Technical Appendix H, pages H-47 to H-51)

	Conditions		No Project		Plan I		No Project		Plan I	
	NEF 40-30	NEF 30-25	NEF 40-30	NEF 30-25	NEF 40-30	NEF 30-25	NEF 40-30	NEF 30-25	NEF 40-30	NEF 30-25
Oregon:										
North Gresham Sch.		x								
Reynolds High Sch.		x								
East Rockwood Sch.		x								
North Rockwood Sch.		x								
Wilkes Sch.		x		x		x		x		x
Wynne Watts Sch.		x								
Powell Grove Cemetary	x		x		x				x	
Lewis Juvenile Hosp.		x								
Thompson Sch.		x								
Mary Crest High Sch.		x								
Parkrose High Sch.		x		x		x		x		x
Parkrose Jr. High Sch.		x		x		x		x		x
Freemont Jr. High Sch.		x		x		x		x		x
Prescott Sch.		x				x				x
Rita Sch.		x				x				x
Parkrose Hosp.		x		x		x				x
Parkrose Sch.		x		x		x				x
Sacajawea Sch.		x								
Concordia Coll.	x			x		x	x			x
Faubion Sch.	x		x				x			x
Kennedy Sch.		x								
Vernon Sch.		x		x				x		
St. Andrews Sch.		x								
Columbia Sch.	x		x		x		x		x	
Churches	2	22	1	10	1	10		10		5
Columbia View Sch.	X			X		X		X		X
Parkrose Sumnar Sch		X		X		X		X		X
Washington:										
Fruit Valley Sch.		x		x		x				
Lakeshore Sch.		x								
Franklin Sch.		x								
St. James Sch.		x								
Lincoln Sch.		x								
Vancouver Mem. Hosp.		x								
Shumway Jr. High Sch.		x								
Hough Sch.	x			x		x		x		x
Vancouver Courthouse	x			x		x		x		x
Vancouver City Hall	x			x		x		x		x
Barnes Gen. Hosp.		x								
Hudson Bay High Sch.		x								
Clark Coll.		x								
Ft. Vancouver Nat. Hist. Site	x			x		x		x		x
Wash. Sch. for the Blind		x								
Harney Sch.		x								
Wash. Sch. for the Deaf		x								
Columbia View Hosp.		x								
St. Joseph Sch.		x								
Ellsworth Sch.		x								
Churches	1	10		5		5		4		4

dential area south of Sandy Blvd. (extended).

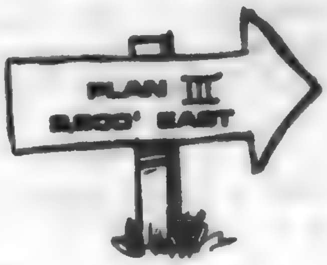
- The NEF 25 contour at the south end of the crosswind runway has drawn inward indicating less impact and reflecting a shift of planes to the south runway.
- All contours lengthen slightly, to the west, but do not broaden. They impact, with very minor exceptions, nothing but river
- The northernmost lobes have reduced also, easing impact in Washington.
- There is a slight lengthening of NEF 40 toward Parkrose indicating increasing impact on residences.

Evaluation of Maps 18 and 19, pages III-86 and III-87, indicates further implications for 1990.

- The contours for both project and no project are very similar on their northern side.
- The southeast portions of the contours shift southward, with the NEF 25 and 30 contours picking up slightly more residential land. This impacts very few residences.
- Another result of the extension and its subsequent increased utilization is the lengthening of the NEF 40 contour to include the residences extending slightly east of the site of the proposed I-205 Bridge.
- To the west, the contour extensions affect very little of the existing land use patterns, except to include approximately the eastern 1/3 of Tomahawk Island with NEF 40. Existing housing around the Columbia Edgewater Golf Club experiences noise in the NEF 35 range.
- The south end of the crosswind runway has significant impact pressure removed from it by the extension project and the subsequent shift in runway utilization.

Plan III

The only NEF comparison to be made is for the design year of 1980. Using Maps 15 and 17, pages III-83 and III-85, the following is evident.



- The contours hold very similar on their northern side for project or no project situations.
- The 2,200 foot easterly shift is evident in that the eastern end of all contours lengthens when compared to both 1980 no extension and to both Plans I and II.

- The contours, as in Plans I and II, generally shift southeastward encompassing slightly more residential with the NEF 30 and 25 contours than either of the other plans or the no project alternative.

- The Parkrose area (note previous definition) is penetrated by the NEF 40 contour, more so than with either Plan I or II.

- The relief to the south end of the crosswind runway's contours is identical to either Plan I or Plan II.

By 1990, this Plan (III) would, based on westerly 1990 NEF contours, elongate on the runway centerlines, particularly the south runway centerline. Consequences of this would be a deeper penetration of and greater impact on the residential area slightly east of the proposed I-205 Bridge than similar contours for either Plan I or II. It is also obvious that residences immediately south of Sandy Blvd. (extended) and east of N.E. 122nd would be more severely impacted than by Plan I or II or the no project alternative.

Impact on Future Land Use Plans

Visits to various local governments[1/] and discussions with their local planning agencies brought out the fact that land use planning in the PIA environs is in a state of flux. None of the agencies had (future) Land Use Plans to distribute. Any adopted plans were permanently mounted wall maps and all still showed the recently abandoned PIA expansion plans. The often mentioned South Shore Study is being restudied.

The numerous meetings with the CRAG's staff yielded the most helpful information to the Port's environmental consultants. At the CRAG, it was learned that although there is no adopted Regional Comprehensive Plan, an estimated three year time period (ending approximately in the fall of 1976) will be required to complete the necessary studies prior to any adoption of a Plan by the CRAG's General Assembly. The CRAG's Executive Board and General Assembly have expressed concern that if the present rate of scattered development in the metropolitan area continues, it could render the Regional Plan obsolete before it is completed.

Accordingly, the CRAG staff at the request of the CRAG Executive Board, developed, and the General Assembly and its related local governments are considering, an Interim Development Policy. The objective of this policy is to guide local governments in designating the location of development in the Portland-Vancouver area during the next three to five years.

Since PIA's impact affects nearly all of the jurisdictions of the CRAG's associated governments, and PIA is in turn affected by their actions, it is reasonable to assume mutual interest and a desire to cooperate. PIA is one of the major influences in the metropolitan area, and as such, its decisions affect many things and many people, both directly and indirectly. Equally true is the fact that land use decisions which do not consider the existing and future impact of PIA are irresponsible decisions. This certainly is not to imply that

---

1/ Visits by the staff of Haworth and Anderson as previously described.

local governments can be or should feel intimidated by PIA. However, to whatever extent human activities are permitted by local government decisions (including the Port's own decisions) to be adversely affected by PIA, the decisions must bear some criticism.

It is hoped that the data generated by this environmental study may be of use in shaping the CRAG's Regional Comprehensive Plan. A PIA impact, regardless of any runway extension, has been presented and discussed. The local and regional impact of a south runway extension has been discussed. They are not insignificant in either case, but on the other hand, they do not appear to be regionally adverse. [1]

In a letter [2] dated October 9, 1973, to Haworth and Anderson, Mr. Lyle Balderson, Area Development Director, CRAG, stated the following:

> "As you know, the Portland Internationl Airport has been designated as the only major airport for the CRAG region and this is reflected not only in our Interim Regional Land Use Plan and the airport plan for the region, but in the three land use concepts currently being developed for the new regional plan. It seems very reasonable, therefore, that we keep as many options as possible open while we determine the basic land uses for the area adjacent to the airport site. This would include land uses that may have impact on landing patterns as well as those which may be incompatible from a noise standpoint.
>
> "To keep some of these options open, we have initiated the Interim Regional Policy which is designed to allow us some breathing room while we are completing the Regional Comprehensive Plan; our need for such a policy related quite closely to the airport situation.
>
> "We at CRAG realize that we cannot hold up the decision-making process forever, and, in fact, even a short period of time is onerous to some people and/or firms. The elected officials of CRAG are very aware of this fact. They feel the need to complete the regional plan as soon as possible so these decisions will not be delayed too long.
>
> "I hope this gives you some feeling for our concerns at the regional level . . ."

Mr. Balderson's letter refers to ". . .three land use concepts currently being developed for the region. . ." These concepts are in response to policy direction of the CRAG Executive Board. It is tentatively planned that within the next year, one or a combination of these concepts will be adopted as the land use element for the Regional Comprehensive Plan. This land use element will then become the framework within which local governments will do their planning.

The Port's environmental consultant has examined these draft concepts and makes the following general observations based on NEF contours.

---

[1] It is the recommendation of Haworth and Anderson that all background data related to and generated by this EIR be made immediately available for public and local government use.

[2] This letter and the one which generated it are appended to this EIR in Appendix C.

The three concepts are referred to by CRAG as (1) Concentration, (2) Dispersion, and (3) Combination; and the following observation is offered after examining these "Advanced Copy Sketch Plans" in light of the NEF contours presented in this EIR. The only area of potential conflict exists in all three plans and can be singularly discussed.

This area of concern is on Hayden and Tomahawk Islands. Regardless of any or no runway extension (through 1990), portions of Tomahawk Island and Hayden Island fall between NEF 30 and NEF 35 contours. Also the northeast portion of Tomahawk Island lies within the NEF 40 contour.

This has two implications. The first is that these areas will fall under NEF Zone Category B and C and therefore HUD may make, at best, discretionary judgments on mortgage insurance for housing in the area. The second implication is that, where any of the uses included in Land Use Categories 1 through 8 (Figure 6.1, Page III-91), are to be considered and/or permitted, a condition for development should be that a detailed analysis of requirements for building noise reduction performance be made and indicated noise insulation and air supply features be included in the design and construction.

11. Change Due to Construction

Wyle Labs, on pages III-93 through III-95 of this report, has adequately addressed noise during the construction period. They examined aircraft noise during construction, explaining that for six months most traffic will be shifted to the north runway. This results in a slight shifting of NEF contours northward in the immediate vicinity of the airport. The extreme end of the contours remains as indicated on Maps 13 and 14, pages III-81 and III-82. Noise is correspondingly eased on the south side of PIA.

The construction noise is estimated to have a nominal effect on residential land, the nearest of which is over 1/3 of a mile away.

12. Methods of Minimizing Adverse Impact

Due to the distance separating construction from unrelated human activities and the consequential low level of noise associated with these activities, it is not necessary to dwell on noise abatement procedures for construction related noise.

Wyle Laboratories has also addressed aircraft noise abatement procedures--both operational and aeronautical. In this report on pages III-88 through III-90 and again in Technical Appendix H beginning on page H-29, they suggested numerous procedures most suitable for PIA. Included in the brief appendix to this EIR is an additional section which presents numerous other options in abatement procedures. (See Appendix D in this report)

Conclusion[1]

The future will bring about an overall improvement in the existing conditions at PIA. Technological advances and various noise abatement procedures will in themselves greatly reduce noise impact if no extension is constructed. (Maps 15 and 18 compared to Maps 13 or 14)

---

[1] This is the opinion of Haworth and Anderson.

If any extension is constructed there will be a similarly significant improvement in the noise impact nearly comparable to that of the no project alternative in the analysis years of 1980 and 1990 (Maps 16, 17 and 19 compared to Maps 15 and 18). There is an approximately equal trade-off in areas gained or lost to NEF 25 and 30 contours when examining a no project alternative to any of the project alternatives in 1980 and 1990.

There is, however, one major way in which project contours vary from no project contours. The inner most contours, NEF 40 and NEF 35, do noticeably extend themselves, although they do not widen. This difference has a two fold impact.

(1) There results an increased easterly impact on the housing east of the proposed I-205 bridge. The area is currently about 25% impacted by NEF 40 (See Maps 13 and 14). With the no extension project it would no longer be substantially impacted by this contour in either 1980 or 1990 (See Maps 15 and 18). With all of the extension plans (by 1980), this forementioned housing also is not yet enclosed by NEF 40 (See Maps 16 and 17). However, by 1990 (See Map 19), the residences are at least impacted as much as they currently are (See Maps 12 and 13), but less noticeably by Plan I, the 2,200 foot westerly extension, than by the others, particularly Plan III.

(2) There results an increased westerly impact on the eastern (slightly northern) part of Tomahawk Island. This (approximately 1/3 of the island) area is currently included by the NEF 40 contour (See Maps 13 and 14). With the no extension plan, it no longer remains impacted by this contour (Maps 15 and 18). However, with extension Plans I and II (Map 19), approximately the same amount of area which is currently affected by the NEF 40 contour, is so affected by 1990.

In view of the fact that land use control measures can be implemented by local governments on portions of Tomahawk Island, which is not a place of common human activity, and further more, because the housing east of the proposed I-205 bridge is an existing established area, the 2,200 foot westerly extension has the most to recommend it over the other plans. With the exception of the described effect on the housing just easterly from PIA, and a 1990 effect on Tomahawk Island, the westerly Plan I has little to recommend against it in favor of a no project alternative.

E. Pesticides and Herbicides

The Port of Portland currently uses the following chemicals as exhibited in Table 3. Applied as they are during the least rainy months of the year, the frequency of chemical impact or ground and/or surface water is held to a minimum. This rate of chemical use has remained fairly constant and has apparently had no deleterious effect on the quality of the water in the Columbia Slough. 1/

TABLE 3

Location of Application and Chemical Used *	Quantity Used
NON-LANDSCAPED AREAS (fields, fence rows, etc.)	
LV BRUSH KILLER 245T	60 gal./yr.
R-11 SPREADER/ACTIVATOR	15 gal./yr.
SIMAZINE PRINSET 80W	300 #/yr.
LANDSCAPED AREAS (hand held application)	
SYSTEMIC INSECTICIDE META-SYSTOX-R	72 ox./yr
ORNAMENTAL WEEDER	25 #/yr.
LAWN TURF WEED KILLER	5 gal./yr.
TETRADANE	64 oz./yr.
CYTHION 5E	96 oz./yr.
ALDRIN 5G	5 #/yr.
DORMANT SPRAY	4 gal./yr.
CASARON G4	50 #/yr.

* All of the chemicals listed are ground-based spray applied on a regular basis throughout the growing season from approximately the end of March to the middle of October.

Source: Portland International Airport records.

The paving of any runway extension and any net increase in street paving associated with Plans II and III will decrease the actual amount of land to which any of the above chemicals need be applied. Therefore continued use of these chemicals on a reduced amount of land will not adversely affect the environment in PIA's surrounding area.

There have been no reports of any animal kills attributable to

---

1/ At no place in the critical analysis of the Slough water quality, "Status of Water Quality in Columbia Slough, Oregon" (Technical Appendix E), was there any mention of high chemical levels attributable to PIA's use of herbicides and/or pesticides.

application of the above listed herbicides and pesticides. Extension of current application policies suggest none in the future.

Periodic sampling of the Slough water by DEQ will be sufficient monitoring of the effect of PIA's herbicide and/or pesticide runoff. Port staff will have to remain alert to the fact that some small animal kills may result from chemical application and the judgement will have to be made as to the wisdom of continued use. However, the chance of this happening is very remote based on past history.

F. Aesthetics

1. Existing Conditions

An examination of the aesthetic considerations of the existing site is somewhat restricted by the limited scope and technical nature of the proposed project options. The Slough and its surrounding area is extremely flat by definition. Hence, anything constructed which raises the level of the landscape is going to have a visual impact.

Generally the lack of public access to the west end of the runways makes aesthetics in this location a moot point, although long vistas exist from Marine Drive. The west end is currently farm land with access only by service vehicles and the tenant farmers. Consequently, the limited impression one has of that situation is a very pastoral one. However, the recently completed filling and grading for 2,200 feet west may be considered a noticeable change to this (generally unseen) landscape.

Concerning the east end of the south runway, the existing situation is more complex. To the west of 82nd Avenue the 1,000 foot military overrun and the localizer navaid stretch almost to the roadbed. Hence, this embankment is a matter of existing conditions. The lack of vegetation covering this embankment is equally an existing situation. The guard rails and "door-handle-level" lighting for the roadway are existing and unimpressive. These conditions--the embankment, the guard rails and the lighting--and the sharp turn as one turns west toward the terminal, all detract from what could otherwise be a dramatic approach to the terminal and control tower complex which dominates the landscape. Furthermore, the unlandscaped borrow source to the east of 82nd Avenue as one passes N.E. Lombard Street is very offensive to the approaching or leaving airport user, as well as to that person moving in either direction on N.E. Lombard Street.

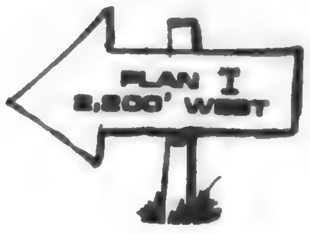
2. Changes Associated with the Alternatives and Options

Alternative I - no project

In the event that no south runway extension project actually develops, the existing embankments will probably remain and they should be seeded in an acceptable manner, graded out or hauled away and reseeded. Local grasses or other ground cover should be used. However, FAA regulations will have to be adhered to and attention should be given to the concept of not creating bird nesting and/or feeding areas close to the runway. Particular attention should be given to the borrow source immediately north of N.E. Lombard Street, which will require grading and seeding.

Alternative II - project

Plan I



The very large fill and its associated grading has been or is almost accomplished. The temporary relocation of the navaids has taken place also. The primary vantage point from which to observe this particular site is from Marine Drive from a distance ranging from 1,700 to 2,400 feet. The change in landscape is not radical from this distance and will be even less after the fill is graded down to runway level and the side banks seeded.

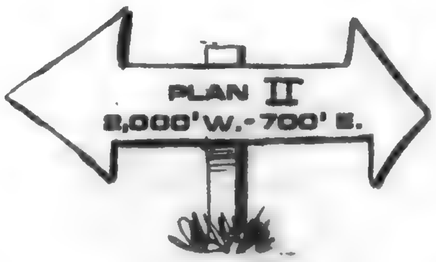
However, the relocation of the 3,000 feet of approach light towers will be extended considerably closer to the point of intersecting the roadbed. Whether one considers these visually offensive or not, they will nonetheless, be more distracting to auto drivers, particularly the drowsy or drinking driver. The lights, when in use, do have a type of hypnotic power to attract attention.

The removal of the borrow source being used (as described earlier in this EIR) was an alteration to the landscape. Concern and care should be given to the final landscaping of that borrow area once all the fill required is taken from it.

Plan II

Since this plan involves only a 200 foot less westerly extension than Plan I, most of the comments above are equally appropriate for this situation.

A 700 foot easterly extension to the south runway and a subsequent 1,000 foot military overrun will just reach 82nd Avenue, thus requiring its relocation as earlier described. There should, however, occur the proper attention to the landscaping needs of the embankments and the borrow sources, specifically seeding with mowing grasses.



The relocation of 82nd Avenue will produce the most significant alteration of the visual impressions associated with the project alternative. Instead of the existing 82nd Avenue approach impresssions as previously described, the approach will give only a brief view of the extreme east end of the runway and any landings or take-offs associated with it. The roadway will curve to the northeast away from the terminal complex and other activities before curving around to the west approximately on a long "centerline" approach to the dominant architectural features of the terminal and control tower. The opportunities for making this a very average approach or a very dramitic one are equally present for the designers. However, the very large supply of stockpiled sand currently existing north of N.E. Lombard will be more than ever a dominant feature of the landscape and should be treated accordingly.

Plan III

None of the changes associated with the west end of the runway and Plan I will be a part of the plan considered here. One exception would be the seeding of the westerly embankment and the finish grading and landscaping of the borrow source.

PLAN III
2,200' EAST

Plan III involves an extension to the east approximately 1,500 feet longer than Plan II and will consequently provide even more of a dominant visual addition to the environment of the functioning airport for the approaching airport user. This strengthens the need for care and consideration when contemplating finish landscaping and ultimate visual impressions. Otherwise similar opportunities for a more pronounced dramatic approach exist.

3. Methods to Minimize Adverse Impacts

The primary work contemplated under any of these options is finish grading, installation of lights and other navaids, paving, seeding, and landscaping of 82nd Avenue.

The finish grading, paving and installation of the navaids are not matters in which design flexibility exists. Concerning the runways themselves, the only room for measures designed to improve the aesthetics of the embankments is the landscaping, specifically that of seeding. The use of as many native types of groundcover as practical should be an objective associated with the projects. The delicate line must be drawn between plantings that are aesthetically pleasing and those which do not encourage birds to roost, nest or feed in the area. Seeding for grasses suited to mowing is most common.

The design of 82nd Avenue presents the opportunity for more design considerations. Landscaping certainly can play a major role in this case. It may be useful in shaping vistas and in directing attention to dominant features of the landscape and surrounding area. By working with floral patterns, flowering trees and shrubs, conifers and deciduous trees and fall leaves a very handsome airport approach could result. If street lighting is necessary, above average design considerations can be given to lighting and other street "furniture".

G. Energy Use

PIA will experience a continual increase in energy consumption throughout the coming years. It is, however, next to impossible to distinguish energy consumption increase due specifically to any of the options of the project alternative. The Boeing Report did not specifically address itself to increased operations due to the extension versus increased operations which will occur as general economic development occurs in the region. Therefore, only the gross energy consumption expected by 1980 and 1990 and that currently being experienced can be examined.

Concerning the consumption of commercial jet fuel, an average of 169,927 gallons per day were used in 1972. It is estimated in the economics section of this EIR that the daily average during 1980 and 1990 will be respectively 310,854 gallons and 628,112 gallons.

In the category of general aviation, the daily average during 1973 for gasoline and jet fuel respectively is 1777 gallons and 2623 gallons. Based on consumption growth rates of 36.6% and 11.3% respectively from 1973 to 1980 and from 1980 to 1990, the following will be the consumption.

TABLE 5

Estimated General Aviation Fuel Consumption in Gallons/Day - PIA

Type	1980	1990
Gasoline	2427	2701
Jet	3583	3987

There is unfortunately not sufficient data available to calculate military fuel consumption. At any rate, projections of military traffic and hence consumption is tenuous due to the nature of military operations.

The ground service and support vehicles have a current consumption of about 900 gallons per day, approximately 80% of which is gas and about 20% of which is diesel. Using enplanement growth rates as projected in the Boeing report of 59.4% from 1973 to 1980 and 70.7% from 1980 to 1990 and the 80% - 20% gas-diesel fuel split, the following projections for ground service vehicles fuel consumption is obtained.

TABLE 6

Estimated Ground Service Fuel Consumption Projection in Gallons/Day - PIA

Type	1980	1990
Gasoline	1147	1958
Diesel	287	491
Total	1434	2448

Access vehicle trips[2] at PIA are estimates and projected to be as follows in Table 7. Using 2.15 miles per average trip, Table 8 shows the estimated vehicle miles per day by mode. Giving the benefit of doubt to future technology, it is assumed that the miles per gallon attainable will at least hold constant for the future.

TABLE 7[1]

Estimated Access Vehicle Trips per Day - PIA

Mode	1973	1980	1990
Car	11,865	18,913	32,284
Bus	158	252	430
Truck	392	625	1,067

TABLE 8

Estimated Vehicle Miles per Day by Mode - PIA

Type	1973	1980	1990
Car	25,509.75	40,662.95	69,410.6
Bus	339.7	541.8	924.5
Truck	842.8	1,343.75	2,294.0

Table 9 indicates the miles per gallon factor and the resulting daily fuel consumption for 1973, 1980 and 1990.

TABLE 9

Estimated Daily Fuel Consumption by Mode - PIA

Type	1973		1980		1990	
	Mi/gal	Gallons	Mi/gal	Gallons	Mi/gal	Gallons
Car	13	1962.3	13	3128.0	13	5339.3
Bus	5	67.9	5.5	98.5	5.75	160.78
Truck	6	140.5	6.5	206.7	6.75	339.9
Total	-	2170.7	-	3433.2	-	5839.98

---

[1] 1973 bus trips from schedules; truck traffic estimated from factor of truck trips per employee person - trips in Air Pollution Methodology for Airports, page 92; car traffic estimated by subtracting above bus and truck traffic from known 1971 total trips on 82nd Avenue and enplanement growth rates (See earlier discussion of ground service and support vehicles). 1980 and 1990 figures extrapolated with enplanement growth rates.

[2] Access vehicle trips is defined and dealth with in the air quality section. It is equivalent to hte one way trip from Columbia Blvd. to the terminal via 82nd Avenue by any vehicle--truck, bus, taxi, etc.

The terminal requires the use of fuel all year round both to cool and to heat, depending on the season. For 1973, PIA officials estimated that 350,000 gallons of fuel oil will be consumed, or about 959 gallons per day. With the completion of the new utility building, PIA will have both natural gas and fuel oil capabilities. PIA staff project the following demand for fuel, based on current consumption and projected traffic. Averaging the natural-gas-to-gallons equivalent and the gallons-of-fuel-oil daily figures, it is therefore estimated that PIA will use a daily equivalent of 1470 gallons and 2509 gallons respectively in 1980 and 1990.

TABLE 10

Estimated Terminal Complex Fuel Consumption - PIA

Type	1980	1990
Natural gas (6 mos/yr)	216,000 cu.ft./day	368,712 cu.ft./day
(Natural gas equivalent gallons of fuel oil)	1440 gals./day	2458 gals./day
Fuel Oil (6 mos/yr)	1500 gals./day	2560 gals./day

PIA staff reports that approximately 14.5 million kilowatt-hours of electricity will be used during 1973, with a low of 970,000 kilowatt-hours used in April and a high of 1,400,000 used in July. Using the ratio of enplanement described earlier, Table 11 projects the 1980 and 1990 total electricity demand at PIA.

TABLE 11

Estimated Electricity Demand - PIA

	1980	1990
Per year	23.1 million kilowatt-hours	39.4 million kilowatt-hours
Per month	1.93 million kilowatt-hours	3.29 million kilowatt-hours

Unavailability of current natural gas consumption and rental car fuel flow make it impossible to examine energy useage with respect to these categories.

PIA will be a major user of energy in the years to come, but as earlier stated, it is incalculable how much of this is attributable to the runway extension. The number of planes and passengers is anticipated by the Port and its consultants to be unaffected by the extension--only the payloads and flight distances may be affected. Therefore, the net changes in energy consumption due to any project option will not be significant. It is also felt that the trend will turn in favor of mass transit as a viable alternative to the automobile. The passenger car fuel consumption should, therefore, be conservative.

H. Economics

The following sections are hereafter referred to as the Economic Report. An expanded and detailed documentation may be found in Technical Appendix I.

The Economic Report does not deal in detail with the optional Plan III. Plan III, like Plans I and II, will result in an identical effect on the economy of the region. Since its total construction cost is estimated by the Port to fall between that of Plans I and II, the temporary economic impact due to construction will fall in between that of the first two options. The same is true in regards to the financial feasibility analysis, i.e., it will take less to amortize Plan III's cost than for Plan II, and more than for Plan I.

Included as Appendix E to this document is a detailed analysis of Travel Time Penalties Associated with Portland Business Air Travel. This particular analysis is representative of existing business hour air time losses between PIA and 15 major destinations within the United States due to the lack of non-stop service. All of these destinations are presently served non-stop either by SEA-TAC or San Francisco. This data should be utilized for information concerning existing conditions only. The alternative of runway extension or no runway extension does not impact this particular problem. It may be the case that other increased utilization of Portland International due to the potential runway extension may encourage route changes in the future which may cut down business travel time losses to these outlined points, but this can only be hypothesized at the present time.

1. Summary of Results

Introduction

Commercial aviation activity at Portland International Airport is an important part of the economic activity in the metropolitan area and in the state. Only part of this activity takes place at the airport itself. A considerable portion of it takes place elsewhere.

Some of the economic activity away from the airport is generated through purchases by the airlines, tenants, government agencies, and Port of Portland from suppliers of goods and services. Other economic activity is generated by the spending of payroll of employees who work at Portland International Airport. And finally, there is a substantial volume of jobs, payroll, and production which is related to the presence of commercial aviation, although not directly generated by it. These relate to the categories of conventions, tourists, business travel, and air cargo shipments.

Hotels and other service establishments which cater to the needs of visitors to the Portland area are intimately related to the availability of commercial air passenger transportation. Business is also generated by the availability of air cargo service for perishable products and specialized high value equipment.

Existing Impact

In 1972, employment at Portland International Airport related to commercial aviation was 1,532 persons. The payroll of these employees was approximately $16 million and they produced an output of goods and services valued at over $34 million.

The service activities related to passenger travel for conventions, business persons, and tourists, plus air cargo services and business dependent on air cargo generated over 13,000 jobs in the local economy, over $73 million in payroll, and $254 million in output.

Through the purchases of supplies and the spending of payroll income of the above economic activities related to commercial air transportation, an additional 40,700 jobs were generated throughout the economy of the state and particularly in the Portland Metropolitan Area. Additional payroll of 395 million dollars came from these indirectly generated jobs and a value of output of approximately $727 million was produced.

Projected Impact

In the future, these activities will certainly expand. Employment will not expand nearly as drastically as payroll or value of output because of increases in the productivity of the workers.

At Portland International Airport employment is expected to remain approximately at 1500 persons. However, payroll will increase in 1980 to $39 million. The value of goods and services produced at the airport will be $80 million in 1980 and $128 million in 1990.

The service activities previously mentioned--hotels, restaurants, auto rentals, retail stores, and air cargo related business will experience a considerable increase in employment reaching more than 17,000 in 1980 and more than 22,000 in 1990. Payrolls will jump to $100 million in 1980 and to $174 million in 1990.

The employment generated by these activities will expand significantly throughout the local economy and the state. In 1972 there was a total of 41,000 additional jobs, in 1980 there will be 49,000 and in 1990, 81,000 more jobs. Payroll in these indirectly related jobs will grow to $745 million in 1980 and to $1.3 billion in 1990.

It is shown that an extended runway creates the atmosphere in which additional and new industry and business may find it desirable to locate in the Portland area. This would create an additional tax revenue for the local government with jurisdiction.

The production value in the area and the state economy of all the airport related activities will grow from $726 million in 1972 to $1.326 billion in 1980 and $2.308 billion in 1990.

Temporary Construction Impact

It is projected that the expenditure for runway extension will result in the generation of employment, payroll and value of output both directly as a consequence of the expenditure for construction and indirectly due to the chain of supply relations and the generation of household expenditures from payroll income.

The estimated added employment during this construction time will range from 276 to 495, depending on the runway alternative chosen. The direct payroll will range from $1,780,000 to $3,200,000, also dependent on the alternative selected.

The indirect impact will result in employment ranging from 495 to 840, payroll from $4,570,000 to $8,260,000 and a value of output to the economy ranging from $15,290,000 to $27,620,000, again, dependent on the alternative selected.

Air Cargo Loss to Sea-Tac

It is estimated that a total of 21,000 pounds per day, or 150,000 pounds per week, of air cargo is presently being shipped to Sea-Tac Airport, and is consequently a loss to the PIA operation. This estimate should be considered conservative as no accurate figures were available for fresh or frozen sea food, agricultural, and nursery products presently trucked to Sea-Tac. This is a typical example of an inadequacy resulting from PIA's limited runway capability.

Financial Feasibility

The variables affecting the financial feasibility of the runway extensions are (1) the cost of the particular extension, (2) the share of that cost which comes from Port self-generated funds - i.e., net operating revenues and landing fees - as opposed to federal grants which may be received, and (3) the division of future international flights into scheduled regular passenger service and charter service. A rate of 16.5 percent Port matching funds versus 83.5% FAA matching funds is anticipated.

If the westerly runway extension is chosen, the estimated total cost will be $4,000,000. The Port's 16.5 percent share would be $660,000. Total international passenger operation necessary to generate $4,000,000 (amortized) from 1975 to 1990 is estimated to be 15,385. The number of operations under charter configuration would need to be 11,429 to amortize the $4,000,000. At the 16.5 percent level, the number of scheduled international passenger operations needed to amortize the $660,000 would be 2,610, representing a needed growth of 10% per year, and charter operations of 1,917, representing a needed growth of 7% per year, over the 1975 to 1990 period.

If a more costly option is chosen (i.e., 2,000 feet west, 700 feet east), the total cost would be $7,558,000, and the Port's share would be $1,247,000. To amortize the total cost of this option, a total of 29,069 additional scheduled passenger operations would be needed, or a growth rate of 33% per year from 1975 to 1990. Charter operations would have to increase 30% per year to reach the necessary 21,594 operations. If the Port's share is analyzed by itself, a growth of 16% per year of scheduled international passenger "ops" would be necessary to reach a total of 4,796, or 13% for international charter ops to reach 3,563 by 1990.

It should be noted that PIA would not have to have both maximum of scheduled international passenger flights and charter flights, but that a combination of such, and other factors such as lower lobe domestic cargo, reducing individual requirements, could result in the same net revenue to properly amortize the respective costs.

Finally, the federal share of funds can be assumed to be "amortized" by the more indirect effects of increased operations revenue and other total revenue effects on the community and surrounding areas. (Refer to those sections dealing with the indirect projected impacts.

2. Method of Analysis of Economic Impact

The economic analysis of this section is concerned with the employment, payroll, and value of output generated in the impact area of the airport. The concern here is with the economic impact of the commercial aviation activity only--that generated by the movement of passengers and cargoes. Military aviation and general aviation are not included.

The total economic activity associated with the commercial aviation activity at PIA can be divided into five basic categories:

a. Airport operation impacts, including suppliers
b. Functionally associated activities
c. Geographically associated activities
d. Indirectly related suppliers
e. Payroll generated expenditures

The categories of economic activity range from the commercial operations and support activities of the government agencies at the airport--direct aviation impacts--through the remainder of the categories which are progressively less intimately associated with the primary output of movement of passengers and cargo. The last category, payroll generated expenditures, is related only through the dollars of payroll which generate household spending on consumer goods and services. The categories of spending by consumers are not related to commercial aviation as a determinant. The five categories will be described in detail as the analysis proceeds.

The first three categories of economic activity are referred to here as direct economic impacts. Data are gathered for these by direct survey for the basic data and estimated when necessary. All categories of direct impacts will be described from the standpoint of employment, payroll generated, and value of output. The value of output data for each direct impact is utilized for further calculation of the indirect effect of the airports economic activity. Geographically associated activities are ultimately subsumed under functionally associated activities in the analysis.

The basic method of analysis is to determine the amount of direct employment, payroll and value of output for the first three categories of the five basic ones described. This direct economic activity initiates a chain of additional economic activity through relations with suppliers and through the respending of payroll income of employees. The indirectly related suppliers (category 4) are the chain of supply reactions throughout the local economy. The total effect of the direct economic activities purchase of supplies from local producing industries can be determined in a similar way through the technique of economic base analysis. The input-output technique and economic base technique are fully integratable with each other and will be used together in the analysis.

a. Airport Operations Impacts

The economic activity at the airport which is of concern here is that of (1) the airlines, providing the transportation service, (2) the government agencies concerned with supervision and inspection, such as the FAA and Customs, (3) the concessionaires providing services utilized by airlines, passengers, and cargoes, and (4) the Port of Portland, the management agency of the airport. These four categories of PIA operations will be surveyed in greater detail to determine the employment, payroll, and the dollar value of output.

The only supplier to be surveyed directly under this heading is commercial jet aviation fuel. The major suppliers to the airport and commercial airlines are tenants located at PIA and their impact on the local economy is covered in the previous section.

b. Functionally Related Activities

This is the category of economic activity which is complementary to air transportation services. Among the most important of these are the services of travel agents, transportation services to and from the airport, hotel and motel accommodations for businessmen and tourists, and air freight forwarders. The economic impact of the industries which use air cargo services will be ascertained.

c. Geographically Associated Activities

This category of economic activity is one in which industries find certain strong advantages to being located in proximity to the airport. These economic activities are naturally complementary to air transport services like the ones above but have the additional requirement of geographical proximity to PIA. Examples of this type of economic activity are auto parking lots, auto rental agencies, hotels and motels. In assessing their total impact, these will be subsumed under functionally associated activities.

d. Indirectly Related Suppliers

These industries cannot be specified as to type. They provide the inputs into the production processes of the airport, its tenants, and suppliers. The relationship of these industries to commerical aviation is described through the use of an Input-Output model of the Oregon economy.[1]

e. Payroll Generated Impacts

The range of consumer goods purchased and the particular industries from which they are purchased are not detailed. They will encompass the whole range of consumer purchases and be reflected in the level of economic activity generated in the same way as the indirectly related suppliers, through the use of the Input-Output model of the Oregon economy.

3. Present Impact of PIA Commercial Airline Operation on Local Economy---1972

Airport Operations Impact

There are four categories of employment affected by commercial aviation which are considered under the heading of direct airport operation. Table 1 summarizes the economic impact of these.

Table 1 [2]

Economic Impacts of PIA Activities

CATEGORY	EMPLOYMENT	PAYROLL	OUTPUT VALUE
1. Airlines	760	$10,457,512	$11,908,440
2. Tenants and concessionaires	485	$ 2,876,350	$14,420,650
3. Federal government	183	$ 1,410,271	$ 4,562,507
4. Port of Portland	104	$ 1,278,526	$ 3,221,128
TOTAL	1,532	$16,020,000	$34,113,000

---

[1] Donald A. Watson and Robert Allen, Oregon Economic and Trade Structure, Bureau of Business and Economic Research, University of Oregon, Eugene, 1969.

[2] 1. Calculation of payroll for airlines: Average salary, LAX, 1970, $12,073. Source: Waldo & Edwards, Los Angeles International Airport--Economic Impact Study, Nov., 1971, p. 42. Adjusted to 1972 by increase in compensation per man hour, total private non farm sector, 1970 index = 140.3. (source: U.S. Dept. of Labor, Manpower Report of the President, 1973, Table G-2, p. 242.) 1972 average salary is $13,760 times 760 employees = $10,457,600.

The other major item in this category is commercial jet fuel purchased by commercial airlines. For 1972, this is estimated to be 62,023,903 gallons.[1] Gross sales of commercial aviation fuel is thus estimated to be $17,366,691.[2]

All on-site PIA expenditures and output have now been surveyed. The survey is comprehensive within the limits of data availability.

Output value calculated by multiplying output per employee in 1972 in Miscellaneous Transportation Services, $15,660 by number of airline employees, 760 (source: output per employee U.S. Bureau of Census, Enterprise Statistics, 1967) adjusted for increase in productivity 1967-1972, output per man-hour, private non farm 1972 = 112.1, 1967 = 100, from Monthly Labor Review, August, 1973, Table 33.

2. Tenants and concessionaires payroll calculated by taking total payroll for each category of economic activity by SIC code and dividing by total number of employees giving earnings per employee. Source of data: U.S. Bureau of Census, Enterprise Statistics, 1967, Part 1--Washington, D.C., 1972. Adjustment of earnings to 1972 level by application of index of compension per man hour private non farm economy, index = 140.4, 1967 + 100, (source: U.S. Dept. of Labor, Manpower Report of the President, 1973, Table G-2, p. 242.) 1972 earnings per employee multiplied by number of employees of each tenant or concessionaire.

Output value calculated by multiplying output per employee in 1972 for each category of business activity by number of employees in each activity. (Source: output per employee, same as above, productivity increase adjustment, same as above, total output value sum of output values for individual activities.

3. Government payroll calculated by multiplying the June, 1972, average weekly earnings for Federal government employees, other agencies (source: U.S. Dept. of Labor, Employment and Earnings, vol. 19, no. 6, Dec., 1972, p. 86) by the number of employees: $148.20/wk. times 52 wk. times 183 employees.

Output value calculated by dividing payroll by direct value added coefficient for value added by household sector, (source: Donald A. Watson, An Input Output Model for State Manpower Projections, U. of Oregon, Eugene, 1970, Table 1, p. 34,) direct value added coefficient for Federal Government Enterprise = .3091.

4. Port of Portland payroll from Port of Portland records, projected total for 1972-73 fiscal year.

Calculated as in 3 above, direct value added coefficient for State and Local Government Enterprise = .3969.

---

[1] Data on commerical jet fuel, in gallons, from Lockheed Air Terminal for September through December 1972, inflated to full year by multiplication of ration of total commercial operation for 1972 to commercial operations for September through December, 1972.

[2] Source: telephone conversation with official of Standard Oil of California, Marketing Dept., September 1, 1973.

Functionally Related Activities

These are economic activities which are complementary to commercial airline activity. This list includes (1) transportation services for passengers to and from the airport by bus and taxi; (2) travellers' lodgings, services and purchases for the categories of (a) conventioneers, (b) businessmen, and (c) tourists; (3) travel agents' services; (4) air freight forwarders and customs house services for cargo; (5) the portion of economic activity of industries which depend to some extent on the availability of air cargo service for the shipment of their products. The employment, payroll and total output of these economic activities for 1972 are determined below:

(1) Bus and taxi service: Dart Bus Service of Portland provided bus service to and from the airport in 1972 for 162,985 passengers. The economic impact of the Dart Bus Service is summarized in Table 2 below.

Table 2[1/]

Bus Service

Employment	17
Payroll	$141,457
Value of Output	$285,224

Passengers to and from the airport who used taxi service in 1972 are estimated to number 89,990. The following employment, earnings and value of output were generated by the use of taxis by PIA passengers in 1972.

Table 3[2/]

Taxi Service

Employment	22.5
Payroll	$247,472
Value of Output	$494,945

[1/] Number of passengers, Port of Portland, internal records, telephone, Rae Osmond, Port staff, September 11, 1973.

Annual average earnings for employees is $8,321. (Source: Dept. of Labor, Employment and Earnings vol. 19, no. 2, p. 88. Earnings are average weekly for SIC category 411-Local and suburban transportation, $160.02 per week times 52. Payroll equals 17 x $8,321 = $141,457.

Value of output is fare $1.75 per passenger times number of passengers, 162,985. $1.75 x 162,985 = $285,224

[2/] Taxi Users: Estimation by using actual count of taxi users for 1968 = 81,165. Source: Port of Portland, Multimode Transportation Terminal, Data

(2) Travellers' lodging, services and purchases

(a) Convention attendance: The availability of air passenger transportation coupled with the city's hotel and banquet facilities make Portland's convention business a major source of employment, payroll, and total output. In 1972, Portland had 178,860 delegates to 308 conventions, as listed by the Portland Chamber of Commerce's Convention Bureau. Of the total number of guests, it is estimated that 43% arrived by air.

The estimated expenditure per day per delegate for 1972 is $45.15.[1] The economic impact of spending by convention delegates on the various services and products such as hotels, restaurants, retail stores, et cetera, is presented in Table 4.

Table 4[2]

Economic Impact of Conventions

Business Activity	Employment	Payroll	Value of Output
Hotels	361	$1,633,566	$4,615,812
Retail stores	69	369,800	2,533,658
Restaurants	140	515,412	1,686,691
Beverages	12	70,131	887,560
Night Clubs	66	263,489	1,224,535
Transportation and Sightseeing	31	244,057	493,546
Car, gas oil service	15	83,773	370,160
Miscellaneous	62	423,533	1,156,912
TOTALS	756	$3,602,000	$12,980,000

Base - Part 1, 1970, and inflating to 1972 by ratio of 1972 passengers to 1968 passengers. Source: Port of Portland, PIA, Aviation Activity Reports, 1973 and 1969 The average fare is taken to be $5.50 which is the charge from PIA to downtown. The time for this trip is approximately 30 minutes. Telephone conversation, Broadway Cab Co. Assuming a 40 hour week, the time required for the number of trips generated the equivalent of 22.5 jobs in 1972. Taxi drivers receive 50% of metered revenue. Telephone conversation, Teamsters Union, Local 281. Payroll equals number of trips times charge times .50; 89,990 x $5.50 x .5 = $247,472. Value of output equals number of trips times charge, 89,990 x $5.50 = $494,945.

[1] Convention delegate expenditure: The Portland Chamber of Commerce Convention Bureau surveyed delegate spending in 1966. The daily expenditure was then $33.16. An adjustment of this figure upward by the increase in the Consumer Price Index from 1968 to 1972 of 1.361 raises this figure to $45.15.

[2] Data Sources: The Portland Chamber of Commerce's 1966 survey of convention

The data are presented with the specific business activities listed in the table above. The same business activities are used for business travel and tourist travel but only summary totals of employment, payroll, and value of output will be presented for these latter.

It is very likely that the total number of persons attending conventions exceeds by a considerable number the delegates. Speakers at these meetings and family members accompanying delegates have not been accounted for. The estimate is regarded as a conservative one.

This may also be viewed from the alternative perspective--that the presence of hotel and convention facilities generates the commercial air travel to Portland. They are functionally associated activities. It cannot be stated that one generates the other. Neither would take place without the presence of the other.

(b) Business travel to Portland: The estimated number of persons travelling to Portland for business purposes during 1972 was 872,763. The average length of stay for business purposes is taken as 2 days. The expenditure per day for 1972 for business travellers is taken to be $45.15 per day. The categories included in these expenditures are hotels, restaurants, retail stores, and other services. (The expenditure for business travel, $45.15, is the same per day as that utilized for convention delegates.) Employment, payroll, and value of output is presented in the table below.

Table 5[1]

Economic Impact of Business Travel

Employment	2,298
Payroll	$10,956,000
Value of Output	$39,405,000

---

delegate expenditure covered the items listed above. The data was presented as cents per dollar spent in these categories based upon the 1966 spending per delegate. The 1966 dollar values were converted to 1972 dollars. The amount of employment was calculated by dividing each category of output by value of output per employee. Payroll was calculated as the ratio of payroll to output. Data Source for each category of SIC code indicated in footnote 1 of p. III-120.

[1] The Data source here is the same as that cited for Table 4, this section.

(c) Tourist expenditure: Tourist expenditure in the Portland area as it depends on the availability of air passenger transportation is analyzed in a manner similar to convention expenditure and business travel expenditures. From studies of other cities, the percentage of inbound air travelers who come to Portland for tourist purposes is taken to be 20.2%. The total number of tourists for 1972 is estimated at 267,979. The average length of stay is taken to be 11 days. Tourist expenditure per day for 1972 is taken to be $45.15 based upon the Portland Chamber of Commerce's Convention Bureau data. Table 6 summarizes the economic impact of tourists.

Table 6[1]

Tourism Economic Impact

Employment	7,751
Payroll	$36,947,000
Value of Output	$133,100,000

(3) Services of travel agencies: Travel agencies provide a service which is functionally integrated with air passenger service. A summary of the economic activity of travel agencies as it relates to air travel is made here.

Forty-eight firms were included in the travel agency survey.[3] Table 7 summarizes their economic impact.

Table 7[2]

Travel Agencies Economic Impact

Employment	229
Payroll	$1,774,979
Value of Output	$3,383,017

---

[1] The Data source here is the same as that cited for Table 4, this section.

[2] *Ibid*.

[3] Travel Agencies taken from Pacific Northwest Bell, *Portland, 1973, Telephone Directory*, classified section "Travel Agencies and Bureaus", pp. 1130-1134. Number of employees taken from *Contacts Influential, Commerce and Industry Directory, Portland*, 1973. Payroll per employee was calculated from *Enterprise Statistics, 1967* and increased by an index of compensation per man hour to the 1972 level. Bureau of Census, *Enterprise Statistics*, 1967, Part I--General Report on Industrial Organization, 1972, table 1-1. Department of Labor, *Monthly Labor Review*, July 1973, Table 33. Payroll per employee was thus determined to be $7,751 per year. Total payroll for the 229 employees was $1,774,979 in 1972. Value

(4) Air freight forwarders and customs house services for air cargo: Services related to the air transportation of cargo are also generated by the Portland International Airport. This section indicates the economic impact on the Portland area economy. A later section will cover the users of these services.

Only those firms with locations outside of the airport were included in this survey as airport tenants are covered in a previous section. There were 15 of these firms. Employment, payroll and value of output were estimated. The economic impact of air cargo services is presented in Table 8.

Table 8[1]

Economic Impact of Air Cargo Services

Employment	185
Payroll	$1,438,375
Value of Output	$2,898,765

(5) Air cargo users: A portion of employment, payroll, and value of output of industries in the airport impact area which use air cargo service, comprises part of the economic impact of PIA. This section of the analysis surveys this impact.

Only manufacturing industries have been covered in the survey here. This is due to problems of data availability. It is recognized that agricultural, animal, and horticultural products possibly represent a significant portion of air cargo shipments from PIA. These categories require further study. Due to this fact these industry group figures should be considered conservative.

---

of output per employee in 1972 was $14,733 for travel agencies. Basic data from Enterprise Statistics, 1967, above, adjusted by increase in output per man hour to 1972 from Monthly Labor Review, above. The total value of output for travel agencies in the local economy in 1972 was $3,383,017.

[1] Payroll per employee was determined by the adjustment of industry statistics for miscellaneous transportation services from Enterprise Statistics, 1967, by the compensation per man hour index for the private non farm economy. Payroll per employee was $7,775 for 1972. Total payroll in the Portland area for air cargo services is estimated as $1,438,375 for 1972. Value of output per employee for 1967 was taken from Enterprise Statistics, 1967 and adjusted for yearly productivity increases to 1972. Value of output per employee was determined on this basis to be $15,669. Total area output in air cargo services in 1972 was thus determined to be $2,898,765.

Table 9 [1]

Industry Group	Proportion of Total U.S. Tonnage Shipped by Air, 1967[2]	Portland SMSA Employment, 1972	Portland SMSA Employment Dependent on Air Transportation, 1972[4]
Textiles and Leather	0.1	2,500	3
Apparel	0.8	3,500	28
Rubber & Plastics	0.3	1,000	3
Fabricated Metals	0.2	7,000	14
Machinery, except electrical	0.5	7,400	37
Machinery, electrical	0.8	9,900	79
Transportation equipment	0.3	7,800	23
Instruments and related products	1.5	8,193[3]	123
		TOTAL	310

Table 10 summarized the totals of employment, payroll, and production dependent on air cargo shipments for 1972.

---

[1] The employment dependent on air cargo service for 2 digit Standard Industrial Classification industries is shown in Table 9. The proportion of each industry output shipped by air was derived from the 1967 Census of Transportation. Employment figures for 1972 are from the Annual Manpower Planning Report for the Portland Area. Each industry's employment is multiplied by the proportion of output shipped by air. The resulting employment is assumed to represent the amount dependent on air transportation in 1972.

[2] Combined all Census of Transportation 3-digit classes with each industry group to obtain one proportion for the entire 2-digit SIC industry group.

[3] Included estimate of largest employer in area, Tektronics, telephone survey, September 20, 1973.

[4] State of Oregon, Employment Division, Annual Manpower Planning Report for Portland Area, February, 1973.

[5] Portland SMSA includes Clark County, Washington.

Table 10[1]

Air Cargo Dependent Employment, Payroll and Value of Output, Portland SMSA

Industry Group	Employment	Payroll	Value of Output
Textiles & Leather	3	$ 20,961	$ 105,729
Apparel	28	168,952	715,792
Rubber & Plastics	3	27,702	77,414
Fabricated Metals	14	145,740	473,914
Machinery, excluding electrical	37	388,944	1,064,379
Machinery, electrical	79	773,331	1,883,913
Transportation equipment	23	229,034	771,857
Instruments & Related Products	123	1,088,427	4,411,026
TOTAL	310	$2,843,091	$9,504,025

Geographically Associated Activities

Geographically associated economic activities--those which find an advantage in location factors close to the airport--overlap with functionally associated activities. For instance, air cargo services are generally located close to the airport. There is no precise separation of the two categories. In the input-output analysis which follows, geographically associated activities are covered under functionally related activities and are included in their totals.

In this category activities which are common throughout the economy are covered. Because of proximity to PIA a substantial portion of their business comes from airport facility users. The two economic activities of importance here are hotel and motel accommodations and auto services--parking and rental. Our survey is limited to motels and auto services for 1972. Air cargo service firms are not included.

Five motels in the immediate vicinity of PIA derive a substantial number of their guests from among airport users. Data for the analysis was gathered from the South Shore Study[2] and by a telephone survey of managers and proprietors of the specific businesses covered. The hotels, motels, and related services provide the equivalent of 88 full and part time workers. Total payroll generated by air related travel for these hotels and motels in 1972 was $347,500.

---

[1] Method of estimation and sources for payroll and value of output same as for tenants and concessionaires in Note 2 to Table 1.

[2] Pacific Research Associates, Inc., Air Oriented Land Use Study--Columbia South Shore Area, June, 1970.

Data supplied by the hotels and motels indicate an average number of airport user guests of approximately 157 per day for the five reporting. At the 1972 level of expenditure per business man per day of $45.15, these lodging places generate $2,488,000 in value of output, part of which they receive directly as room rental charges and food service charges. The remainder flows into the rest of the local economy for other goods and services purchased by guests.

Parking facilities and auto rentals near the airport are another geographically associated economic activity. In 1972, there was only one parking facility and auto rental business off the PIA property and in the vicinity of the airport. Employment in this business during 1972 was 11 full and part time persons. Payroll generated from this activity is estimated at $74,500. The value of output is determined to be $281,000.

4. Summary of Present Direct Impact of PIA on Local Economy--1972

This section summarizes the results preceding. The following table presents the total direct employment, payroll, and value of output of PIA in 1972.

Table 11[1]

Direct & Functionally Related Economic Impact of PIA

CATEGORY	EMPLOYMENT	PAYROLL	VALUE OF OUTPUT
(1) Airport operations			
Airlines	760	$10,457,572	$11,908,440
Tenants	485	2,876,350	14,420,650
Federal govt.	183	1,410,271	4,562,507
Port of Portland	104	1,278,526	3,221,128
Port of Portland purchases			1,234,326
Jet fuel			17,366,691
(2) Functionally related			
Bus and taxi	39.5	$ 388,929	$ 700,169
Conventions	756	3,603,792	12,981,675
Business travel	2298	10,956,090	39,405,249
Tourists	7751	36,947,084	133,091,770
Travel agencies	229	1,774,979	3,383,017
Air cargo users	310	2,843,091	9,504,025
TOTAL	13,100	$73,963,000+	$254,674,000+

+ Values rounded to nearest $1,000

---

[1] Table 11 simply collects the data from Tables 1 through 10 in one table. The derivation of the data is explained in the notes to these tables.

5. Total Economic Impact of PIA and Functionally Related Activities

Introduction

The preceding section summarized the total of direct impacts of the Portland International Airport. This direct spending sets off a chain of further purchases throughout the Oregon economy of supplies from the businesses and agencies directly associated with commercial air operations. This is described by the use of the input-output relations among business activity in the Oregon economy.

The same input-output relations are used to derive the effect of the spending of payroll income by employees of the directly related activities. "Economic base" analysis is ordinarily used to determine the magnitude of this effect. "Economic base" analysis is fully complementary with the input-output analysis. The computations for both are accomplished by use of a particular input-output matrix which includes the household sector.

Computational Procedure and Results

The value of output for each of the economic activities surveyed in the direct economic impacts required matching to the categories of the Oregon input-output study.[1] (The 69 categories used in the study with their Standard Industrial Classification equivalent are presented in the Technical Appendix.) The output of industries dependent on PIA industries (by Oregon industry definition) for 1972 is presented in Table 12.

TABLE 12

Oregon Industry Title and Number		Value of Final Demand
Textile Products	11	$ 106,000
Apparel	12	716,000
Petroleum Refining & Related	28	17,367,000
Rubber and Plastic	29	77,000
Fabricated Metals, nec.	37	474,000
Materials Handling Mach.	40	1,064,000
Electrical Machinery	47	1,884,000
Transportation Equipment	50	772,000
Scientific & Controlling Instr.	51	4,411,000
Transportation & Warehousing	54	25,904,000
Electric, Gas, Water	57	127,000
Wholesale & Retail Trade	58	98,600,000
Finance & Insurance	59	218,000
Hotels and Personal Services	61	65,983,000
Business Services	62	4,082,000
Auto & Repair Services	63	7,642,000
Federal Government Enterprise	66	4,562,000
State, Local Govt. Enterprise	64	3,821,000
Miscellaneous	68	16,530,000
TOTAL		$254,674,000

---

[1] Donald A. Watson and Robert Allen, Oregon Economic and Trade Structure, Bureau of Business and Economic Research, University of Oregon, Eugene, 1969.

Table 12 has been assembled by assigning the various individual business or categories of expenditures in the direct economic impact to one of the Oregon Industry Titles and Number listed above. This is a different organization of the data than in the survey of direct economic impact.

The Input-Output matrix used for computation of the total--the indirect effect of purchase of supplies and the effect of payroll expenditures--was the inverse matrix of Oregon Net Transactions including the household sector.[1] This matrix removes the imports of goods used in the production process which do not have an effect in the Oregon economy. This matrix does include the effect of the spending of payroll income.

The total impact of the PIA commercial operations on the economy of the area is highlighted here. Table 13 summarizes the results.

TABLE 13

Value of Output (Total transaction)	$1,996,800,000
Value Added	$ 775,900,000
Payroll	$ 469,700,000
Employment	55,299

It must be noted that the value of output figure reported is not comparable to Gross State Product. Gross State Product nets out the intermediate sales to other industries and is essentially a value added concept. Value added is comparable to Gross State Product.[2] Gross State Product for Oregon for 1972 was approximately $11.6 billion.[2]

6. Projected Future Impact of Commercial Air Transportation at Portland International Airport

The economic impact in the future of commercial air transportation at Portland International Airport is projected on the basis of the forecasts for commercial aircraft operations, passengers, and cargo by Boeing Commercial Aircraft Company. Table 14 presents these forecasts with accompanying data for the year 1972.

---

[1] Watson and Loring, p. 57. For a discussion of this matrix, see page 5 of their study.

[2] Bank of California, Pacific Coast Markets and Business, September, 1973.

TABLE 14[1]

Projections

Year	Operations	Passengers	Freight (tons)
1972	81,254	2,644,368	33,557
1975	80,063	3,318,000	49,485
1980	94,130	4,782,000	94,454
1985	90,655	6,618,000	152,071
1990	86,301	8,164,000	244,834

The various operations, agencies, businesses, and economic activities surveyed in the analysis of the 1972 economic impact were assigned to be dependent upon either operations, passengers, or cargo. This assignment of each activity followed the guidelines of the economic analysis of the Dallas-Fort Worth Regional Airport.[2] The projection of the levels of operations of these activities was related to operations, passengers, and/or freight volumes. The table delineating these activities and value input per unit is presented in Technical Appendix I.

On the basic value of output per unit, the direct impact of airport associated activities was calculated for all of the years of the projection: 1975, 1980, 1985, 1990. These data were then reaggregated to conform to the Oregon Industry Titles and Numbers (see Technical Appendix I for Table) for calculation of the total impact through the use of the Input-Output model of the Oregon economy. Once again, the Input-Output model gives the total impact which includes the direct impact, the output of suppliers, and the output generated by spending from employee payrolls.

The calculations are summarized in Table 15.

---

[1] Boeing Commercial Airplane Company, Portland International Airport Study, Final Report of the Demand Forecast and Runway Extension Analysis, pp. 46, 36.

[2] North Central Texas Council of Governments, Dallas-Fort Worth Regional Airport, Economic Impact--Technical Report, 1970.

TABLE 15

SUMMARY OF ECONOMIC IMPACT FOR 1972 AND YEARS OF PROJECTION, 1975 to 1990[1]

1972

	PIA	FUNCTIONALLY RELATED	DIRECT: PIA & FUNCTIONALLY RELATED	TOTAL IMPACT: DIRECT & INDIRECT
EMPLOYMENT	1532	12,495	14,027	55,300
PAYROLL	$16,020,000	$57,950,000	$73,970,000	$469,700,000
OUTPUT VALUE	$52,700,000	$202,040,000	$254,700,000	$1,996,800,000
			VALUE ADDED	$726,800,000 [2]

1975

	PIA	FUNCTIONALLY RELATED	DIRECT: PIA & FUNCTIONALLY RELATED	TOTAL IMPACT: DIRECT & INDIRECT
EMPLOYMENT	1520[3]	13,639[3]	15,159[3]	64,500[3]
PAYROLL	$17,890,000[4]	$69,130,000[4]	$87,010,000[4]	$598,200,000[4]
OUTPUT VALUE	$53,840,000	$241,010,000	$294,850,000	$2,439,300,000
			VALUE ADDED	$911,900,000

---

[1] No more than 5 significant digits carried in any calculations. Total may not add due to rounding.

[2] Value added is 0.364 Output Value. Output Value includes intermediate transactions which must be netted out to measure value of final goods and services produced. The value of 0.364 is used for all succeeding years.

[3] Employment figures are adjusted for an annual increase in productivity of 3% per year for all years and all categories of employment.

[4] Payroll is 0.287 of Output Value for all years.

1980

	PIA	FUNCTIONALLY RELATED	DIRECT: PIA & FUNCTIONALLY RELATED	TOTAL IMPACT: DIRECT & INDIRECT
EMPLOYMENT	1594	17,128	18,812	80,800
PAYROLL	$24,280,000	$100,630,000	$124,900,000	$869,800,000
OUTPUT VALUE	$79,870,000	$350,837,000	$430,700,000	$3,510,400,000
			VALUE ADDED	$1,325,900,000

1985

	PIA	FUNCTIONALLY RELATED	DIRECT: PIA & FUNCTIONALLY RELATED	TOTAL IMPACT: DIRECT & INDIRECT
EMPLOYMENT	1503	19,643	21,146	96,800
PAYROLL	$31,560,000	$133,790,000	$165,360,000	$1,207,600,000
OUTPUT VALUE	$103,820,000	$487,380,000	$591,200,000	$4,855,000,000
			VALUE ADDED	$1,843,900,000

1990

	PIA	FUNCTIONALLY RELATED	DIRECT: PIA & FUNCTIONALLY RELATED	TOTAL IMPACT: DIRECT & INDIRECT
EMPLOYMENT	1491	22,020	23,611	104,500
PAYROLL	$38,900,000	$173,870,000	$212,770,000	$1,514,600,000
OUTPUT VALUE	$127,940,000	$606,180,000	$734,120,000	$6,032,000,000
			VALUE ADDED	$2,308,700,000

Summary Perspectives

It is important to note the meaning of the projections of economic activity for assessing the benefits of the runway extension. Employment is generally considered to be a project benefit. Employment is unequivocally a benefit in two circumstances: (1) when there is local employment in the specific occupations which will be hired for positions connected with the project, and (2) when the revenue generated to local governments as a consequence of additions to its tax base is equal to or greater than the costs of additional public services demanded.

The latter is a critical issue. Projects generally do not provide employment for those presently unemployed in the local area. Rather they attract additional people to the area with the specific occupational skills needed. The new employees (and their households) generate additional demands for public services which must be met with additional revenue.

In general, the higher the income level the greater the probability that the employee (and his household) will be a net fiscal benefit to the community. The average level of income associated with airport employment of $13,760 is most likely sufficient to assure a net fiscal benefit to the local governments. It is problematical how to treat the functionally associated activities in this context--the hotels, restaurants, and retail stores with larger numbers of workers receiving lesser salaries. It is possible that some employees maybe attracted to the area rather than from the existing pool of unemployed or household second workers, this could represent a net fiscal drain on the local governments where they located.

7. Temporary Economic Impact of Runway Extension Project

The expenditure for runway extension will result in the generation of employment, payroll, and the value of output both directly as a consequence of the expenditure and indirectly due to the chain of supply relations and the generation of household expenditures from payroll income. This section estimates that temporary economic impact.

No studies are available directly relating to airport construction economic impacts. Therefore, since the project is a runway extension, use has been made of a similar type of activity, highway construction. Labor and material requirements as well as economic impact are derived from this study.1/

In 1974, the year of the project, there are estimated to be 59.3 primary on-site man-hours per $1,000 of highway construction contract value. This is derived from the 1964 estimate of 81.7 hours per $1,000 reported in BLS, Bulletin #299, with a productivity increase of 3.2% per year.2/

The costs for the three alternatives, the on-site man hours of

---

1/ Bureau of Labor Statistics, Report no. 299, Labor and Material Requirement for Construction of Federally Aided Highways, 1958, 1961, and 1964.

2/ Bureau of Labor Statistics, Bulletin no. 1656, Compensation in the Construction Industry, p. 12, footnote 27, 1970.

labor, the employment, and payroll are summarized in Table 16.

TABLE 16

PROJECT ALTERNATIVE	COST	MAN HOURS	DIRECT EMPLOYMENT	DIRECT PAYROLL
1. 2,200 feet west	$4,470,000 [5]	265,071	276	$1,780,000
2. 2,000 feet west 700 feet east	$8,028,000 [5]	476,060	495	$3,200,000
3. 2,200 feet east	$5,687,000 [5]	309,368	322	$2,080,000

The derivation of these totals is described below: Cost estimates have been provided by the Port of Portland.[1] Man-hours are derived by dividing cost by 59.3 man-hours per $1,000. Employment is assumed to be for a project duration of 6 months or 26 weeks. Based upon an average of 36.9 weekly hours in construction in 1972, the totals for employment are derived by dividing man-hours by 36.9 man-hours/week times 26 weeks/man.[2] Payroll is calculated by multiplying man-hours by earnings per hour of $6.73 per hour.[3]

The indirect impact is determined by use of the Input-Output table for the Oregon economy.[4] Table 17 summarizes the indirect impacts.

The total temporary impact of the projects is shown in Table 18.

TABLE 17

PROJECT ALTERNATIVES	EMPLOYMENT	PAYROLL	VALUE OF OUTPUT
1. 2,200 feet west	465	$4,570,000	$15,290,000
2. 2,000 feet west 700 feet east	840	$8,260,000	$27,620,000
3. 2,200 feet east	546	$5,370,000	$17,950,000

Notes for above Table:

a. Value of outputs calculated directly from the Input-Output Table in the Technical Appendix.

---

[1] Boeing Runway Extension Analysis, Runway 10R-28L, "South Runway Extension Cost Comparison", September 24, 1973, and September 12, 1973, KNW initialed.

[2] Department of Labor, Manpower Report of the President, March, 1973, Table C-3, "Gross Average Weekly Hours, Average Hourly Earnings", by Industry Division: Annual Averages, 1947-72.

[3] See footnote [2] above, with two year increase of 5.5% per year.

[4] Donald Watson and Robert Loving, Oregon Economic and Trade Structure, University of Oregon, Eugene, 1969, Table I-D, "Oregon Net Transactions Coefficients Inverse (69 X 69)".

[5] These estimates include the cost of installing Category II lighting standards, a project to be undertaken regardless of this extension.

b. Employment is calculated from $32,874 output per employee, basic data from Department of Commerce, 1967 Enterprise Statistics, Part I, General Report on Industrial Organization, Table Z-1, 1972, updated to 1972 by index of output per man-hour, 1972 = 112.1, 1967 = 100, Monthly Labor Review, July, 1973, Table 33.

c. Payroll is calculated from $9,838 per employee, basic data from 1967 Enterprise Statistics, above, updated to 1972 by index of compensation per man-hour, private non-farm, 1972 = 140.4, 1967 = 100, Monthly Labor Review, above.

---

8. Air Cargo Losses to SEA-TAC

A survey has been made of the amount of air cargo which is lost to the competing airport--Seattle-Tacoma International Airport. It is known in the air cargo industry in Portland that Flying Tiger Lines makes shipments by truck to SEA-TAC for connecting flights but the amount of these shipments has not been accurately determined.

A telephone survey was made of Air Cargo Service firms in the Portland area to ascertain the amount of air cargo which is trucked to SEA-TAC for connecting flights. As this information is proprietary and involves competitive considerations among firms only the aggregate totals are given here and not the amounts for the individual firms. The results of the survey indicate that approximately 150,000 pounds per week or 21,000 pounds per day of air cargo are trucked to SEA-TAC. There is also a possibility that fresh or frozen sea food products as well as other agricultural and nursery commodities, are trucked from the Oregon and southern Washington coastal towns to SEA-TAC but no information on the quantities could be developed.

For all cargo carriers, the perspectives developed below for the DC-8-63F aircraft probably summarize the present situation. The DC-8-63F, a widely used cargo aircraft, can carry a maximum payload of 114,000 pounds of cargo. With this payload its maximum range from an 11,000 foot runway is 2300 nautical miles. The Boeing analysis specifies that this aircraft can carry 74,000 pounds of cargo 2300 nautical miles with a runway length of 8800 feet. This is the present length of PIA's south runway. To allow full cargo capacity, a reduction in range to 1300 nautical miles would appear to be necessary. (Boeing's tables do not detail this alternative.)

The reason for the trucking of cargo to SEA-TAC is basically for scheduling and assembly of cargo from scattered points. For example, Flying Tiger Lines trucks air cargo to SEA-TAC for combination with other air cargo originating or brought to Seattle. An air cargo flight with the Portland and Seattle area cargo then leaves from SEA-TAC for Los Angeles. In Los Angeles, the cargo for Tokyo is combined with additional cargo assembled from the southwestern region of the United States. This is the process of assembly of small amounts of cargo from many points for minimum cost shipment over the major route length. Another example which could be cited is that of Northwest Orient Airlines, which uses a reverse process between Los Angeles and SEA-TAC. In the case of Northwest, final assembly of cargo is at SEA-TAC rather than LAX. The obvious advantage for these cargo handlers to be gained by the ability of PIA to serve this function is the time and cost entailed in surface shipping to SEA-TAC. This should result, ultimately in a marketable product at a lesser cost to the consumer.

If the hypothesis of full cargo capacity for the CD-8-63F for a range of 1300 nautical miles from the 8800 foot present PIA runway is correct,

Table 18

PROJECT ALTERNATIVE	EMPLOYMENT		PAYROLL		VALUE OF OUTPUT	
	Direct	Indirect	Direct	Indirect	Direct	Indirect
1. 2,200 ft. west	276	465	$1,780,000	$4,570,000	$4,470,000	$15,290,000
	TOTAL		TOTAL		TOTAL	
	741		$6,350,000		$10,760,000	
2. 2,000 ft. west 700 ft. east	495	840	$3,200,000	$8,260,000	$8,030,000	$27,620,000
	TOTAL		TOTAL		TOTAL	
	1,335		$11,460,000		$35,650,000	
3. 2,200 ft. east	322	546	$2,080,000	$5,370,000	$5,690,000	$17,950,000
	TOTAL		TOTAL		TOTAL	
	868		$7,450,000		$23,640,000	

then the Seattle air cargo could be routed through Portland rather than the reverse. This implies that certain other factors (for Flying Tiger Lines) cause the trucking of Portland cargo to Seattle. It is not at all clear what these factors are, though. The 8800 foot runway length does limit the cargo capacity of a DC-8-63F to an east coast city such as New York. The runway length of 11,900 feet available at SEA-TAC allows the DC-8-63F to reach New York without payload penalty. PIA is at a disadvantage in this case. Finally, it should be stated that the payload penalty experienced by the DC-8-63F aircraft should not be the critical determinant of the need for runway extension, as it is no longer in production. However, many airlines will continue to use this aircraft in the immediate future.

Other factors concerning potential cargo operations at PIA is that the new wide body aircraft have caused a reduction in the percentage of cargo carried in all cargo aircraft. All cargo aircraft capacity has fallen from 41 percent to 23 percent in international air freight service from 1969 to 1972. This freight differential has been carried as lower lobe cargo in passenger aircraft. (Note: recent reports are hypothesizing that all air cargo may be carried as lower lobe cargo in passenger aircraft in the future.) The number of exclusive cargo flights is a small percentage of total flights. Cargo flights will make use of refueling possibilities to maximize their payloads if they cannot maximize both fuel and payload at initial takeoff. At the present time, PIA's 8800 foot runway does not allow maximization of cargo and fuel for international (i.e., far eastern) connections without an intermediate stop for fuel. Finally, the wide body aircraft with both passengers and cargo will not be capable of reaching all domestic points at the takeoff weights for the present runway length.

9. Financial Feasibility Analysis

The issue of whether the runway extension is justified on direct economic grounds alone must be assessed on the basis of the increment of benefits derived from the extension. In all of the analysis preceding, the data has been on the basis of totals for each year of the projection. The issue is not the total benefit, but the separable additional benefits brought about by the runway extension.

To answer this question, it is necessary to ascertain the additional commercial operations which will make use of the longer runway for flight of stage lengths which could not be made from the 8800 foot runway.

The relevance of the analysis performed here may be best understood from the standpoint of the determination of three sources of revenues: (1) general operating revenues to the Port, regardless of runway extension, (2) revenues due to the increase in landing fees which would not otherwise occur without the extension program, and (3) net operating revenue increases which would not otherwise occur without the extension program. In determining the third factor of revenues presented above, a figure for net operating revenue per passenger had to be obtained. As can be noted in Table 19, page III-141, this figure averages $.51 per passenger each year from 1975 to 1990. However, in obtaining this net revenue figure per passenger, total net revenues were projected from 1975 to 1990. Net Operating revenue, in this case, is determined by establishing total operating revenues minus total operating expenses.

Operating revenue, here defined as revenue from services, rentals, concessions, and metered parking (excluding landing fees, fuel flowage fees, sale of assets and work order reimbursements) has been projected for the years 1975 to 1990.[1] (See Table 19) Operating expenses have been projected for the same years and are presented. Operating expenses include management and travel, materials and supplies, equipment and fuel, utilities, janitorial service, maintenance supplies, Port payroll at PIA, and the allocation of Port central staff to PIA.[2]

Net operating revenue is the difference between Operating Revenue and Operating Expenses. These are listed in Table 19. Passenger projections for the years 1975 to 1990 are presented. These are based on Boeing's projections for 1975, 1980, 1985, and 1990. Net operating revenue per passenger is given for each year. The average over the period 1975 to 1990 is 51 cents per passenger.

It should be noted that the total net operating revenue, which ranges from $1,610,000 in 1975 to $5,820,000 in 1990 (projected), will most likely occur regardless of runway extension or no runway extension. However, this does not preclude the choice by the Port to utilize some of these revenues to help pay for a runway extension program. The level at which the Port would choose to use any of this money, if at all, would depend entirely upon other capital expenditure commitments, actual level of operating expenses, and other commitments to general fund operations of the entire Port. Although this money is potentially available to help amortize the cost of the runway extension program, it does not relate to the direct cost-benefit of the runway extension taken by itself.

In analyzing the direct cost-benefit (direct financial feasibility) of the runway extension, factors 2 and 3 as discussed previously must be set forth. Factor 2, as will be recalled, relates directly to the increase in landing fees not otherwise anticipated due to runway extension, and factor 3 relates to additional net passenger revenues which may be anticipated due to the runway extension. The revenues from these fees must be set against the cost of completing the runway extension. In the case of extension Plan I, the cost is estimated to be $4,000,000. Extension Plan II's cost is $7,558,000. Both of these costs are total project costs. The Port of Portland is applying for 83.5 percent federal matching funds to their 16.5 percent. At the $4,000,000 cost level, the Port's out-of-pocket direct expense would be $660,000, and the $7,558,000 level it would be $1,247,000.

In determining projected landing fees (which are based on the weight of the aircraft) and the additional passenger net operating revenues, certain assumptions concerning both scheduled passenger configurations and charter configurations of the wide-bodied aircraft were developed. (See Technical Appendix I for the details.) It was projected that to amortize the full $4,000,000 cost of extension Plan I, approximately 15,000 scheduled long distance passenger operations, or 11,000

---

[1] The items included under revenues and expenses come from Port of Portland, Commercial Aviation, 25, PIA accounting sheets.

[2] It will be noted on Table 19 that Operating Expenses remain relatively constant. This is due to the fact that operating expenses basically depend on the number of operations rather than the number of passengers. Over the period 1975 to 1990, total operations remain somewhat constant, yet passengers substantially increase. Those items which are passenger oriented, such as janitorial supplies, are a small amount of the total budget.

Table 19

Year	Passengers	Operating Revenue 1/	Operating Expense 2/	Net Operating Revenue	Net Operating Revenue per Passenger
1975	3,400,000	$4,080,000	$2,470,000	$1,610,000	$0.47
1976	3,700,000	4,340,000	2,550,000	1,790,000	.48
1977	4,000,000	4,630,000	2,640,000	1,990,000	.49
1978	4,400,000	4,930,000	2,720,000	2,210,000	.50
1979	4,800,000	5,250,000	2,810,000	2,440,000	.51
1980	5,200,000	5,590,000	2,910,000	2,680,000	.51
1981	5,700,000	5,870,000	2,890,000	2,980,000	.52
1982	6,200,000	6,170,000	2,860,000	3,310,000	.53
1983	6,700,000	6,490,000	2,840,000	3,650,000	.54
1984	7,300,000	6,820,000	2,820,000	4,000,000	.54
1985	8,000,000	7,170,000	2,800,000	4,370,000	.55
1986	8,600,000	7,410,000	2,780,000	4,630,000	.54
1987	9,300,000	7,570,000	2,770,000	4,800,000	.52
1988	10,000,000	7,930,000	2,750,000	5,180,000	.52
1989	10,800,000	8,200,000	2,730,000	5,470,000	.51
1990	11,600,000	8,490,000	2,670,000	5,820,000	.50
				Average	$0.51

All dollar values in constant 1972 dollars.

1/ Operating Revenue = receipts from services, rentals, concessions, and metered parking, (excluding landing fees, fuel flowage fees, sale of assets, work order reimbursements).

2/ Operating Expense = management and travel, material and supplies, equipment and fuel, utilities, janitorial service, maintenance supplies, Port payroll at PIA, and allocation of Port central staff to PIA (excluding fixed charges).

charter operations, or some combination of both, would have to occur between 1975 and 1990.[1] This would represent annual percentage increases of 27 percent and 24 percent, respectively, over estimated 1973 levels. The amortize $660,000, or the Port's 16.5 percent share of the $4,000,000, it is estimated that a total of 2,600 schedule international operations are needed, or 1,900 international charter operations. This represents a needed growth rate of 10 percent per year and 7 percent per year over present levels in order to amortize the expenditures.

To amortize the total $7,588,000 expenditure needed for extension Plan II, approximately 29,000 scheduled international passenger operations would be needed, totally, from 1975 to 1990. This would represent a 33 percent increase per year. Additional long distance charter operations would need to be approximately 21,500 total, or represent a growth rate of 30 percent per year. To amortize the Port's share of this total extension expenditure, $1,247,000, the scheduled additional long distance (international) passenger operations would need to be 4,800 total, representing a growth rate of 16 percent per year. Charter operations would need to total 3,600 or represent a growth rate of 13 percent per year.

Another operation which may increase the Port's revenues would be landing fee revenues from increased full cargo flights with non-stop stage lengths to international destinations (or to Miami since a 747 can only get to Miami with 82 percent total cargo under present runway conditions). Also included would be additional scheduled non-stop international passenger flights with lower lobe cargo. Any additional revenues which might be realized by these cargo operations would subsequently reduce the total number of scheduled international passenger and international charter flights, or a combination thereof, as presented above.

As can be noted in the Port's Preface of this impact report, the Port of Portland feels that its present and future marketing efforts coupled with a runway extension will result in substantial increases in scheduled international passenger operations and international charter operations, as well as increasing its lower lobe cargo and full cargo capacity operations. They anticipate that the increases will be more than adequate to accomplish the direct amortization of their 16.5 percent share of the cost of an extension program. From a purely analytical standpoint, only the figures necessary to amortize the extension monies can be presented. No qualitative judgment can be made as to the future effectiveness of the Port's marketing programs. It can only be opinioned that that the number of new international operations needed to amortize the 16.5 percent share of $4,000,000 (for the west runway extension, Plan I) is an attainable goal.

---

[1] Please note - Scheduled International Passenger Operations and International Charter Operations are presented as or options. Any combination of the two working together would result in a reduction of either total number or percentage increases.

IV. Summary of Impacts

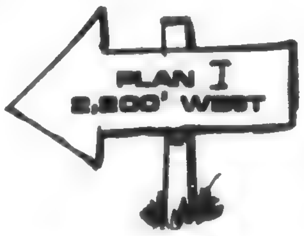
A. Terrain and Topography

Existing Conditions

Filling and grading work is completed and only final shaping of embankments is necessary.

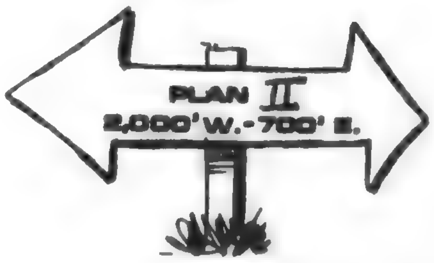
Alternative I (no extension) - In the event of no project, the recently filled and graded embankments will have to be removed or graded down and seeded.

Alternative II (an extension) - Regardless of which option is chosen, the rough filling and grading previously undertaken has been completed. Upon selection of an option, proper grading and seeding of the remaining embankments should take place.



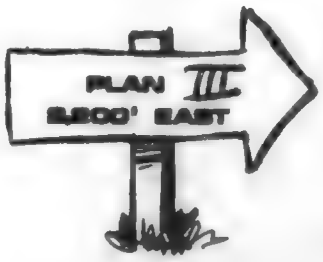
Plan I - Very minor final grading involved.

Plan II - Slightly more finish grading than Plan I; grading and road work on 82nd Avenue relocation is involved; grading necessary for relocation of ILS and grading necessary to relocate the military overrun. Grading for 82nd Avenue is relatively more significant than the finish grading of the runway/taxiway embankments.



Plan III - Essentially the same is true as for Plan II.

Conclusion - Very limited impact and of minor significance.



B. Vegetation

Existing Conditions

Rough filling and grading has been completed so recently that there has been little or no chance for new vegetation to establish a growth on the embankments.

Alternative I (no extension) - In the event of no project, the existing embankments should be reduced in size or hauled away. In either case, researching should take place.

Alternative II (an extension) - Regardless of which option is chosen, there will be limited impact on vegetation resulting from work which remains on any of the options.

Plan I - There will be a small loss of agricultural land/vegetation for permanent installation of the navaids.

Plan II - The navaids must also be installed under this plan resulting in a very minor loss of some agricultural vegetation. To the east there will also be a loss of a cluster of trees which intrude into the clear zone. There will be additionally some loss of agricultural land due to 82nd Avenue relocation.

Plan III - Essentially the same is true as for Plan II.

Conclusion - Very minor impact of limited significance.

C. Wildlife

Existing Conditions

Small birds and field animals indigenous to the area inhabit much of the seeded grass areas of PIA.

Alternative I (no extension) - After any regrading or reseeding wildlife could return.

Alternative II (an extension) - Due to a decrease in seeded area there will be the very minor loss of habitat for small field animals and birds. In the case of runways/taxiways, this is a desireable result. In the case of Plan III there will be an indirect loss of wildlife habitat due to the additional environment claimed for 82nd Avenue.

Conclusion - Very minor impact, no significance; may serve to reduce bird/plane strikes.

D. Meteorology

No impact.

E. Drainage Patterns

Existing Conditions

Currently consists of a system of open, man made and natural drainage ditches and sub-terranean drainage pipes leading to the Columbia Slough.

Alternative I (no extension) - Suitable drainage patterns should be reconstructed in the event that the embankments are finished graded with no project having taken place. The drainage will be returned to its former state if the embankments are removed.

Alternative II (an extension) - Suitable drainage patterns will be completed for whichever option is chosen, and for the areas which were filled and graded recently, but which will not be part of the chosen Plan.

Plan I - There will be no additional drainage provisions necessary and hence no impact.

Plan II - Since this involves rerouting of 82nd Avenue, including the construction of a bridge there should be some temporary drainage arranged as permanent drainage is being installed to handle runoff from the pavement and bridge surfaces.

Plan III - Essentially the same is true as for Plan II.

Conclusion - Very minor impact, but Plans II and III slightly more significant due to 82nd Avenue relocation.

F. Groundwater

Existing Conditions

The groundwater system receives limited runoff from paved areas due to the effective storm drainage system used to carry water away from runways and taxiways.

Alternative I (no extension) - There would be little or no impact on the groundwater system.

Alternative II (an extension) - Regardless of which plan may be chosen for implementation, there will be virtually no recharging of the groundwater system from water running off of new runway or taxiway pavement. Such runoff will be handled either as surface water or by the drainage system which has, and/or will be constructed.

Conclusion - Very minor impact, although inattention to proper drainage patterns could create problems.

G. Surface Water

Existing Conditions

Water running from the runways and taxiways is carried into the drainage system by drainage pipes. These lead to the Slough via a series of surface ditches and small runoff channels.

Alternative I (no extension) - There will virtually be no change in the situation.

Alternative II (an extension) - There will be additional runoff in proportion to the actual amount of pavement used for the runways and taxiways. This includes some contaminants which are currently found on existing runway and taxiways. The level of these contaminants has been shown to be inconsequential to date. Surface water runoff from paving travels via drainage ditches and pipes to the Slough.

Plan I - Runoff from this pavement will increase the flow in the entire slough system by considerably less than 1%.

Plan II - This plan involves runoff from relocated 82nd Avenue, but, including runoff from the runway/taxiway, still only increases the flow in the Slough by slightly less than 1%.

Plan III - Same thing as was said for Plan II is applicable here, except that slightly less runoff from runway and taxiway results, as it is 500 feet shorter than Plan II.

Conclusion - The increase in surface water may result in a less than 1% increase in the flow of the Slough. All indications are that this is a minor impact and will have no significant effect.

H. Sewage Disposal

Since the runway extension is not expected to increase the number of enplanements, there will therefore be no increase in the amount of sewage from PIA as a result of any project option.

I. Air Quality

Existing Conditions

The first phase of a study on ambient air which would have included PIA was being undertaken by the Columbia-Willamette Air Pollution Authority, until its recent termination. The first phase of this study indicated that the area in the vicinity of PIA possibly exceeded the state and the federal standards for suspended particulates, however, not necessarily due to PIA. Due to the fact that the second phase of the above study was not undertaken, there is a lack of comprehensive ambient air quality information and it is therefore difficult to put any conditions at PIA into proper perspective. However, the calculations performed for air contaminant levels indicated that there is probably an over concentration of hydro-carbons in the area involving the approach road and the terminal area and its associated activity. These calculations assumed worst case conditions and occur approximately only 1 to 5 days out of an average year.

Alternative I (no extension) - In the event that no extension takes place, there would be no impact resulting from a lack of action.

Alternative II (an extension) - Any of the plans will result in a sufficiently long enough runway to fulfill the predictions forecasted by the Boeing Report. Stated simply, these forecasts described an existing fleet regardless of the runway extension. Certain of the planes would be carrying heavier pay loads and would be flying for longer distances because of the opportunity afforded them by the extended runway. The variable that then becomes of concern is where precisely are these planes going to be taking off in the event of a runway extension and how does this location of takeoff relate to any ground source pollutants that were a part of the runway extension or that exist currently.

Plan I - The analysis showed that there may be a build-up of hydrocarbon concentration which when combined with any hydro-carbons in the existing air of the general area could produce a level of hydro-carbons which exceeds air quality standards. However, such calculations are based on worst case situations and the overall assessment is that no significant or serious problem could be anticipated on a regular basis. Additionally, a potential problem exists in the climb-out area by the year 1990, in that relatively high concentrations of nitrogen oxides appear by this time. However, again the design situation is assumed to be worst case conditions.

Plan II - Involves a slight shift to the east of any aircraft which may be emitting contaminants and Plan II also involves relocation of 82nd Avenue further to the east. These two combined to produce a slightly higher level of hydro-carbons than in the case of Plan I, yet it is still felt that there is no danger to human habitation. The nitrogen oxide calculations yielded slightly higher quantities than for Plan I.

Plan III - Because of the significant shift to the east and the eastward relocation of 82nd Avenue there is a very real possibility of the nitrogen oxide exceeding even the adjusted Oregon State air standards by 1990. This presents the possibility of another air quality problem, the most serious yet encountered.

NOTE: As previously discussed and stressed, the above impacts are the result of calculations performed under worst cases conditions--those expected to occur 1 to 5 times a year. Analysis has indicated a potential for slight problems in hydro-carbons. Analysis also indicated a particular problem by 1990 in the nitrogen oxide concentration on the east part of the airport. Plan III particularly complicated the nitrogen oxide situation in the eastern environs. It should be pointed out that even two knot per hour wind could easily dilute these worst case concentrations by a factor 2 to 1, thereby easily bringing all of the PIA generated pollutants within acceptable and legal limits. These calculations assumed all traffic on the south runway as a part of worst case situation. Diversion of some traffic to the north runway could neutralize this impact by doubling the volume of air available for dilution.

Conclusion - Under worst case design analysis conditions, there are limited hydro-carbon problems, which will ease as pollution control equipment on vehicles takes effect. Also, in future years, the NO_x become a potential problem associated with Plan II and particularly Plan III.

J. Noise Analysis

Existing Conditions

An analysis of the NEF contours of the existing situation PIA indicates that of a fairly lengthy somewhat wide-spread "footprint" of noise. Included within the NEF 30 contour are parts of Vancouver, Washington, near Route 5, parts of far eastern Vancouver, parts of the Portland area south of Sandy Blvd. and parts of Portland south and west of the airport on the alignment of the crosswind runway. Directly west of the airport in the Columbia Edgewater Golfcourse area is a section of housing which falls between the NEF 30 to 40 contours. Easterly from the airport, just east of the proposed site of the I-205 bridge is a previously described residential area. This area is primarily within the NEF 35 contour, with some of it completely included within the NEF 40 contour. These areas are currently substantially impacted by the airport's noise.

Alternative I (no extension) - Throughout the coming years, primarily due to improvement in technology resulting in quieter engines, there will be a very noticeably diminishing effect on surrounding area due to noise. NEF contours for 1980 and 1990 depicting no runway extension, show a greatly reduced set of contours as far as the total area that they effect. By 1980 the contours have receded to the point where very little residential area is included in the NEF 30 contour. The Columbia Edgewater Golfcourse area is still affected, as is the housing east of the proposed I-205 bridge and a very small area in Portland on the southerly end of the crosswind runway. NEF 25 contour still does enclose some residential area, but this is considered by most authorities to not be significant inside a traditional residence. By 1990 with no extensions, the contours have reduced even more, although the Columbia Edgewater Golfcourse area and the described near eastern residential areas do remain affected by NEF 30, 35 and 40 contours. The rest of the area with the exception of the south end of the crosswind runway will remain fairly unaffected by any contours greater than 30.

Alternative II (an extension) - Under the project alternatives, utilization of the south runway increases, drawing traffic from the crosswind runway as well as the north runway. By 1980 and 1990 this results in a lengthening of contours along the centerline of the south runway, but a general narrowing of the total footprint still occurs. The overall effect of this narrowing/lengthening phenomenon is positive because it makes use of the generally uninhabited Columbia River corridor for the length of the contours. A reduction in width simply decreases the amount of residential area on the Washington side and the Oregon side of the airport which is affected.

Plan I & Plan II (1980) - General effect at this time is a slight lengthening of contours and very slight overall shifting to the south of all contours when compared to the no project option. Close in housing is not included in NEF 40 contours.

Plan III (1980) - Housing east of the proposed I-205 bridge is equally as or actually less than as affected when compared to the 1972 situation. But there is a greater eastward extension of NEF 40 than in Plans I and II. The Columbia Edgewater area is affected less than it is under present conditions, and is slightly less affected by this Plan than Plans I or II. The area off the south end of the crosswind runway will experience a more diminished effect with none of it being affected by the NEF 30 contour. The NEF 30 contour appears to encompass a very small amount of housing south of Sandy Blvd. (extended).

Plan I & Plan II (1990) - A further narrowing and lengthening of the footprint contours occur as increased utilization of the south runway is realized. The Columbia Edgewater Golfcourse area is effected less on its south-west side than before, although on its northeast side it experiences slightly increased impact. The NEF 40 contour has also extended to include the eastern section of Tomahawk Island. The NEF 30 contour still includes a small amount of housing south of Sandy Blvd. (extended). Considerably more of the residential area east of the proposed I-205 bridge is included within the NEF 40 contour indicating a substantial increase from the 1980 noise impact on that area--a return to a similar impact as now existent.

Plan III (1990) - For 1990, the following may generally be concluded. To the west of the airport the effect will be much the same as in Plans I and II (above) for 1990. For 1990 slightly south of Sandy Blvd. (extended) a few more acres of residential area will be picked up by the NEF 30 contour. As is to be expected the NEF 40 contour continues to include a reasonably large portion of the residential area east of the proposed I-205 bridge. This amounts to a greater amount than for Plans I and II.

Conclusion: With the no project alternative, the general situation improves over the existing situation. The Plan I option has slightly less of an overall improvement through 1990. Plan I is the most desirable of all the plans, impacting the least areas of current or anticipated human activity. Plan I's impact on the residences due east and due west of PIA, while generally less than the other plans, does equal or slightly exceed the noise levels associated with the current operational contours.

K. Pesticides & Herbicides

Existing Conditions

The amount of pesticides and herbicides used at the Port is not enough to make any noticeable impact on air or water quality, and there have been no reports of injury or harm to animals. It is not expected that there will be any significant impact or increase in the amount of pesticides or herbicides associated with any situation of a runway extension or no runway extension.

L. Aesthetics

Existing Conditions

The existing conditions are such that there are now three rather large sand fill embankments constructed in anticipation of runways/taxiways in either direction. There is also the existing situation of 82nd Avenue passing through a cut between the runway situation on the west and a sand stock pile on the east. There are various aesthetic phenomenon associated with the temporary construction atmosphere that has been created over the last few months.

Alternative I (no extension) - The recently filled and graded banks could prove to be an aesthetic problem if they are not either removed or graded down to a lower elevation and reseeded.

Alternative II (an extension) - The choosing of one plan will result in a large embankment being left in the situation of the other two. These will have to be removed or either graded down and seeded.

Plan I - The approach lighting system will be moved closer to Marine Drive on the extended runway centerline. This will bring the flashing strobe lights closer to the highway and they may prove to be an aesthetic problem. With that exception this plan locates the construction work and the resulting one-way taxiway in a position most remote from other human activities and observations.

Plan II & Plan III - These create a visual impression of the east end of the runway where human activity is more highly concentrated. They also involve the relocation of 82nd Avenue which will need aesthetic attention and treatment if it is not to be a distracting and aesthetically unpleasing condition.

Conclusion: The aesthetic problems are of a minor nature. Reseeding will restore most of the area back to its appearance prior to the work. In the case of 82nd Avenue relocation, there will be the opportunity to create a positive aesthetic impression if hign road and landscaping standards are adhered to.

M. Energy

Existing Conditions

PIA, as expected, is a large consumer of energy.

Alternative I (no extension) - The general forecast for growth by Boeing assumes no runway extension, and assuming a reasonable growth rate the Port will be an increased energy user in the years to come, regardless of whether there is an extension or not.

Alternative II (an extension) - Regarding all three of the extension plans, the only energy increase due to an extension will be a small amount of jet fuel associated with the longer flights that will be most probably taking place in connection with the longer runway. There may also be a slight increase in electric energy used which would be associated with the operation of the navaids and any additional runway or taxiway lighting. On the assumption that an increase in cargo shipment will take place there would be a commensurate increase in the amount of gasoline and diesel fuel used in association with the additional surface handling of cargo.

Conclusion: A very minor increase in energy will result from an extension plan.

N. Economics

Existing Conditions

PIA is a vital resource in the community and a considerable amount of economic activity is associated directly and indirectly with the airport. The airport currently is not able to effectively compete in certain areas of the airport related industry and businesses. It is limited in its ability to handle charter passenger traffic, international traffic, and it is further restricted in its ability to handle maximum cargo payloads. These restrictions are primarily to the existing maximum 8,800 foot runway length, which restricts takeoff weight and stage lengths.

Alternative I (no extension) - The airport would continue to strive for as large a portion of the total sphere of economic activity as it can capture. However, in the future, with an increase in larger number of jet aircraft in the world wide fleets PIA will find itself falling further and further behind in competition with airports in the region, such as SEA-TAC, Los Angeles, San Francisco, etc.

Alternative II (an extension) - It would be a temporary positive impact due to construction. The construction costs are for a great portion, salary and wages. This creates a favorable economic advantage for those persons who are employed. Money directly spent would increase the money in circulation in the region. Generally the area will provide indirect economic uplift to many persons and businesses. The long-range effect of any plan would be to permit a larger air cargo operation, scheduled international flights of longer length than currently being undertaken, and to additionally allow for a more complete charter service capacity.

Plan I - Plan I is the least expensive and would involve the least expenditure of the Port of Portland's money, the state and federal money. Therefore, the chance of amortizing the debt more realistically exists.

Plan II & Plan III - These plans are more expensive due primarily to the added cost of relocating of 82nd Avenue. Since the expense of 82nd Avenue is not directly regained in additional fees generated at the airport, then this adds significantly to the amortization load which the airport is going to have to bear, regardless of whether it is a $4 million extension of Plan I or a $7-1/2 million extension of Plan II.

Conclusion - The least expensive the plan the more realistic the possibility of repaying the debt in a reasonable amount of time, as long as the new revenues will be the same for all plans. Approximately the same additional traffic would be generated by all three plans, therefore, it seems logical to choose the cheapest plan in hopes of more easily amortizing the debt.

V. Relationship Between Short-term Uses Verses Long-term Productivity

A. Short-term Effects

The impact would be the immediate infusion into the local economy of hundreds of thousands of dollars in salaries over the next five or six months. This may have the advantage of taking people off of some of the unemployment rolls and placing them in a productive job situation. A result of these actions would be an improved economic climate, achieved by placing more money in circulation.

There will be an aspect of safety involved. Any runway extension can be considered a safety measure as it provides an overrun. It not only gives planes a longer run for take off but it also gives them an extended landing if problems arise. The net result of this is a safer airport situation.

Another immediate impact could be the fulfillment of existing authorizations for the various airlines to fly to more distance destinations.

There will be the removal of some ground cover and grasses used as a habitat by a small variety of wildlife, thereby changing their lifestyle and life patterns to some extent. At the same time the potential for bird strikes is reduced.

There has also been and will continue to be a loss of a certain amount of vegetation. This vegetation is in the form of agricultural products as well as semi-wild bushes growth along the edges of assorted drainage ditches.

There will be an immediate increase in the amount of land covered by upper range NEF contours--35 to 40--because of the fact that larger planes would be taking off and utilizing only a single runway. A delayed lift off, associated with these larger planes, will push the contours further out. Hence, there could be an immediate impact on noise and air pollution problems. Such actions may even bring some of the residences just east of the proposed I-205 bridge within the NEF 40 contour.

B. Long-term Productivity

There has been a small reducing in the existing amount of terrain and topography of the Columbia River Floodplain. Along with this loss of terrain and the subsequent gain in paving, there has been a minor reduction in wildlife which has inhabited or is currently inhabiting this general area.

Some of the natural drainage patterns have been disrupted because of the project, however, careful consideration and the resulting laying of sewer pipes has resulted in the very minimal total effect on the drainage system, i.e., the water which falls on the land still reaches the Columbia Slough in approximately the same ratio to total rainfall that it did before. After completion of the final project, runoff from the runway and taxiway will be handled as if it were surface water with the majority of it flowing through drainage pipes and established drainage patterns to the Slough. Some of it, however, will seep into the ground water system, serving to recharge that assisting in providing a constant subterranean flow.

Under worst case conditions the air quality analysis indicates some possible short-term problems which time will ease, in the case of auto emissions. There are also some minor problems with plane emissions. These will become more intense in the future, with auto (from 82nd Avenue relocated) combining with plane emissions to create a future problem in the eastern climb-out box. For an initial period of time, there may be a problem with the pollutants from the automobiles and airplanes mixing and forming unacceptably high concentrations. This may happen in the immediate vicinity of the airport, but possibly as a result of general atmospheric mixture.

In field of energy consumption there will be a loss due to the consumption of energy in the form of fuel, gasoline, diesel, fuel oil, natural gas, and some electricity.

From an economic standpoint, there seems to be no facts suggesting that there is a long-term loss as a result of the project.

The economic prospects for the metropolitan area stand to be uplifted by a runway extension such as among those under consideration. The ability to capture additional portions of the air cargo market, currently being lost to SEA-TAC would be a very positive economic enhancement. The possibility of encouraging, developing, locating new or airport related industries and businesses to the area exists, if well-defined and established flexible connections by air exist with the rest of the continent and world. An improvement of the situation wherein regularly scheduled and charter passenger flights are able to carry a considerable load of freight would reduce cost of shipment per mile, thus making Portland much more able to easily compete with other air marketing centers.

VI. Irreversible and Irretrievable Commitments of Resources

For the foreseeable future the only irreversible and irretrievable commitment of land would be that upon which the runways and taxiways themselves are built. The sites for the borrow sources are being returned to their approximate former use and character. The land that would be used by 82nd Avenue relocated (if Plan I or II is implemented) is being committed for the foreseeable future. However, all of these commitments are not really irreversible or irretrievable, because the runway/taxiway embankments may be hauled away at any time and the land returned to its former use. The same is true of the ground upon which 82nd Avenue will be constructed.

Certain other aspects of the natural environment besides land are being committed for a medium to long-term period of time. Included in this category would be the vegetation, wildlife and waterfowl, and their various habitats.

There is no really permanent irreversible or irretrievable aspect of water quality that is being committed.

In the case of air quality, there is no quantifiable commitment. Due to the constant mining, diluting and diffusing of the air, there is really no irretrievable loss of air.

There is somewhat of a limited irreversible and irretrievable commitment of land in the form of land usages fairly permanently affected by noise. The noise is going to exist through at least the medium to long-term future and land as a resource is impacted by noise. To some extent the uses for and the patterns to which the land will ultimately be committed will result in its being shaped a great deal by these noise factors.

There will be a very minor commitment to energy. A limited amount of additional jet fuel for the longer stage lengths of the jet planes will be necessary. A limited amount of additional electricity will be necessary for runway/taxiway lights, associated with the extensions.

Financial resources are obviously being commited to this project, as both local and federal dollars are being combined to construct any extension. However, to the point that these will be recouped from future landing fees and other revenues of various other sources, the financial commitment cannot be considered irreversible or irretrievable.

VII. Summary of Mitigating Measures

A. Terrain and Topography

General

With the completion of the finish grading, all embankments should be seeded, including those embankments not involved in the particular optional plan chosen. The borrow sources should also be hauled away, or at least graded and seeded in a suitable fashion.

Plans II and III. In the case of grading for 82nd Avenue, installation of drainage pipes should take place on a temporary basis to handle any runoff situations that arise in grading. Small depressions should be filled to eliminate standing water, which often attracts birds.

B. Vegetation

General

Upon final grading, all of the areas should be reseeded with a relatively quick growing grass suitable for mowing. In certain areas and under some situations where FAA standards or traditional airport design standards are not violated, some landscaping other than seeding may possibly be undertaken. The borrow source areas may possibly be places where landscaping other than reseeding could take place. The low shrubbery and bushes associated with the drainage canals and the ditches provide a pleasant eye relief on the very flat landscape and should be initiated where possible.

C. Wildlife and Waterfowl

General

The seeding of grasses on the embankments of the runways/taxiway should be such that attracts the least numbers of birds. This would have the effect of minimizing the bird strikes often associated with airport runways. Planting or replanting of natural shrubbery, etc., along drainage canals or ditches may provide suitable habitat for numerous ground birds or small animals that are water-oriented.

Plans II and III. Since these plans involve the relocation of 82nd Avenue, it would be desirable to plan in terms of small wildlife habitat along the edges of the right-of-way or associated with any crossings of water, either by bridge over the main Slough or small bridges or culverts.

D. Meteorology

General

It is not appropriate to discuss mitigating measures for this subject.

E. Drainage Patterns

General

It is desirable to intercept as much runoff as possible and divert it directly through drainage pipes and surface canals and ditches to the Slough. Grading of terrain should also, as mentioned earlier, discourage standing of small pools of water.

Plans II and III. In the case of additional amount of impermeable surface involved with the relocation of 82nd Avenue, very strict attention should be given to temporary drainage during construction and permanent drainage after construction so that most of the runoff ends up directly in the Slough. It would be very wise under the circumstances to remove the pavement from any abandoned or vacated roads so that this surface of the earth then becomes suitable for recharging the ground water system without any contaminants entering the ground.

F. Ground Water

General

Because of a fairly effective drainage system that is installed in connection with filling and grading done thus far, there is not much runoff actually entering the groundwater system. There may be a problem of standing water or of runoff from the embankments of the option not used.

G. Surface Water

General

During the construction phase an essential concern should be to prevent soil erosion by preserving and protecting graded areas. Unprotected surfaces can temporarily be protected by very fast growing grasses, fiber mats, gravel, mulches, or a bituminous spray. Water flow across land during construction can be controlled by temporary small dikes or berms. Removal of any of the abandoned paving areas after the project is completed would be best. Additionally, in the construction phase, care should be given to heavy equipment and the ground depressions caused by heavily laden large wheeled vehicles.

H. Sewage Disposal

General

There is anticipated to be no adverse impacts to which mitigating measures could be applied.

I. Air Quality

General

The calculations indicated some potential problems in the future, but were arrived at under a "worst case" condition. Under such conditions the pilots and airport operation personnel have a choice as to which runway to use and from which direction landings and take-offs can be oriented.

Lack of wind, which is a characteristic of worst case conditions, allows such a choice. Therefore, since it is desired to avoid concentration of pollutants in the climb-out and approach areas, aircraft operations may be split between the two runways. This would have the effect of doubling the air volume available to dilute any emitted air pollutants, thereby reducing the critical concentrations by half.

Under current situations, there is a hydrocarbon problem in the ground areas. It is essentially tied to access traffic and to ground surface vehicles in general. Assuming vehicle compliance with the existing emission standards, this problem will correct itself by 1980. However, since the hudrocarbon problem exists, various operators of ground surface vehicles, fleet vehicles, may wish to give serious consideration to temporary measures such as conversion of gas and diesel vehicles to some other fuel source, such as the propane. An expanded service for Dart and Tri-met lines, encouragement of outlying parking lots, discouragement of driving directly to the terminal, can also be considered.

During the construction phase the generation of dust and dirt could be fairly serious. This is a temporary problem to be expected throughout the projected construction time. Sprinkling with water or coating with oil those areas that are being graded is one very effective way of handling this matter.

J. Noise Analysis

General

The major problem that any urban airport is faced with is the sound of the planes as they are coming in and as they are leaving. The practical angles of approach and departure are limited to long gentle slopes. The ground areas are impacted with a noise that is directly related to the elevation of the plane overhead and to the amount of throttle that the engines of the plane happen to be under at a given time.

One method of eliminating or easing part of these problems is referred to as a two-segment approach. This is an approach procedure wherein a plane descends on a steeper gradient (approximately 6° with the horizontal) before assuming its approach glideslope which is approximately 3°. The result is that offensive noise levels do not affect ground level situations nearly so quickly and the more intense noise is kept much closer to the airport, thus relieving those areas of human activity which would be normally affected if the plane came in on a 3° glide slope for the entire approach.

Another concept which is termed "the reduced thrust landing" occurs when optimum scheduling of flap setting and engine power is achieved, to produce the least amount of sound.

Another concept which is used at a number of airports is termed "displaced threshhold approach". This involves landing at some point inboard of the end of the runway. Hence, if the normal landing threshhold were inboard for any of the extended runway configurations, theoretically no increase in noise due to landing operations would result from a runway extension. Such decisions have to be weighed against the obvious drawbacks in safety and the fact of not having the entire runway for an actual landing.

An alternate technique is referred to as "noise abatement" take-off. This concept can be tailored exclusively to a specific airport. However, there are some general guidelines that may be followed. A noise abatement take-off, for instance, might be a fairly steep, nearly full thrust climb-out after taking off to gain elevation in order to avoid a nearby residential area. Upon reaching a certain altitude, engines are cut back and the plane levels out somewhat. The effect of this is that the plane is passing over noise sensitive land uses below, but its engines are cut back and therefore quieter.

There are additionally, numerous changes that may be forthcoming from the industry that will result in less noise being emitted from an engine. However, this is of course, out of control of the Port.

Another technique may be applicable, particularly in the case of PIA, since there is a fairly long corridor of a river, running approximately parallel and adjacent to the two runways. This is an operational procedure to keep the planes in the corridor as long as possible on westward take-offs, until they have flown westward past Vancouver and the mouth of the Willamette River. After passing this point, the planes could then turn to go either north or south.

Another noise abatement procedure, which is technically out of the hands of the Port, would be for local governments to recognize the approach and take-off corridors for PIA and to zone land use accordingly so that certain human activities are not impacted by noise. The Port may have to continue to consider the outright purchase of lands that are affected by noise so that they themselves are in position to control land use.

An additional procedure, again out of the control of the hands of the Port, would be for local governments to withhold public services, such as sewer and water, in areas that they feel are severely impacted by airport noise. This usually requires enabling legislation at the state level, but is being done in some parts of the U.S.

Another mitigating measure out of the hands of the Port, but in the control of local governments, is building codes which require certain levels of sound insulation in certain zones that are affected by airport noise.

Finally an additional procedure which the Port could consider as an alternative to outright purchase of land to protect against encroachment, is the purchase of noise easements. The costs are considerably less than the outright purchase of the land.

K. Pesticides and Herbicides

General

The wisest policy in the use of these chemicals is foresight as to when to apply them, i.e., not during a rainy season. They should not be applied near any running water or near known habitats of wildlife, waterfowl or birds, unless it is the intent to discourage their habitation there.

L. Aesthetics

General

Suitable grading of the embankments in the case of the plans not acted upon, the reseeding of any areas that have been disturbed by grading, and the planting of shrubbery along drainage ditches to provide eye relief from the normally flat landscape will all ease the recent construction work.

M. Energy

General

Regarding the impacts that were identified in the energy analysis, there appears to be very little that can be done to minimize any additional energy consumption at PIA, that would be a direct result of south runway extension. Any measures which could be suggested would be applicable industry-wide and throughout the country at other airports, and would probably entail a national policy to achieve and implement.

VIII. Identification of Steps Taken to Determine Public Interest

The Port staff and Commission have, in the past, worked with the community, attempting to keep the community at large informed of their undertakings and their various projects. For instance, concerning the former proposed expansion plan, the Port in October 1971 approved the formation and appointment of a ten man Steering Committee, representative of major local governments and environmental agencies. It was the responsibility of this group to review and expand and update the environmental material which had been produced over the previous four years in connection with the proposed expansion of PIA and to supervise the preparation of a draft EIR. Furthermore, a resource panel consisting of members representing a broad cross section of Portland-Vancouver interests was appointed to provide two-way communication between the public and Steering Committee. Under the guidance of the Steering Committee, three study teams were organized and professionally retained to perform detailed studies of the environmental impacts of the proposed plan, and each of the four alternate courses of action. The study teams were identified with the three general environmental categories: (1) pollution, (2) socio-economics, and (3) natural resources. Both the Port Commission and the staff, as well as the panel held numerous public hearings and community interest group meetings.

The Port has liberal use of all of the means of communication with the community, keeping them informed of their project. Newspapers, the radio, public meetings, the Port's own newspaper (Portside) have all attempted to inform the community of the aspects of their proposed project.

As stated earlier in this report, the Port Commission staff has been engaged in numerous consultation with local government groups from the very beginning of the preparation stage for this Environmental Impact Report (EIR). The Port staff has visited local government agencies and spoken with citizen groups in the area which would probably be impacted by the extension plan. A letter of explanation was left with governmental officials at this time which had attached to it an outline of this proposed EIR. These persons were asked to comment on and offer any suggestions on the outline of the proposed EIR. These initial contacts with governments were followed by three newsletters, keeping these governmental agencies informed and posted on progress.

Public information meetings were publicized by radio and TV, newspapers and fliers, and were held respectively October 8, 9, and 10 at Freemont Junior High School, Columbia Grade School, and the Fort-Vancouver Regional Library. The purpose of these meetings was to provide information, and to gather local comment and input concerning this project.

The project has also been submitted to the A-95 review agency for processing. Actual circulation of the information concerning this project to A-95 reviewers will be reserved until the specific alternative and/or the option is selected.

APPENDIX A

PORTLAND INTERNATIONAL AIRPORT STUDY
FINAL REPORT OF THE
DEMAND FORECAST AND RUNWAY EXTENSION ANALYSES

PREPARED BY
BOEING AEROSYSTEMS

BOEING COMMERCIAL AIRPLANE COMPANY
(A DIVISION OF THE BOEING COMPANY)
RENTON, WASHINGTON

PAGES 56 - 67

SEPTEMBER 1973

VI. AIRCRAFT PERFORMANCE AND RUNWAY LENGTH

The factors which have a bearing on runway length may be grouped into three general categories as follows:

1. Performance requirements imposed by the government on aircraft manufacturers and operators.
2. Environment at the airport.
3. Those items which establish the operating takeoff and landing gross weights for each aircraft type.

A. Regulatory

Transport-category aircraft are licensed and operated under a code enforced by the FAA. This code is promulgated by the FAA in coordination with industry. The regulations govern the aircraft gross weights at takeoff and landing by specifying performance requirements which must be met in terms related to the runway lengths available.

The regulations consider two general cases in establishing the lengths of a runway necessary for safe operations of aircraft. They are (1) takeoff involving an engine failure wherein sufficient runway is required to allow aircraft to continue to takeoff despite the loss of power, or else to brake to a stop; (2) landing, wherein sufficient runway is required to allow for normal variation in landing technique, overshoots, poor approaches, and (3) all-engine takeoff, wherein sufficient runway is required to allow for likely variation in lift-off techniques. This particular regulation is aimed toward the everyday, normal takeoff maneuver, since engine failure occurs rather infrequently.

The runway length needed at an airport by a particular type and weight of turbine-powered aircraft is established by one of the foregoing three cases, whichever yields the longest length.

In the regulation the word "runway" refers to full-strength pavement. Thus, in the discussion which follows, the terms runway and full-strength pavement are synonymous. The regulations state that the "landing distance" needed for each aircraft using the airport must be long enough to permit the aircraft to come to a full stop within 60 percent of this distance, assuming that the pilot makes an approach at the proper speed and crosses the threshold of the runway at a height of 50 feet The landing distance must be of full-strength pavement, and is given by the airframe manufacturer for wet pavement conditions.

The normal, or all-engine takeoff, case defines a "takeoff distance" which, for a specific weight of aircraft, must be 115 feet percent of the actual distance the aircraft uses to reach a height of 35 feet. Not all this takeoff distance has to be of full-strength pavement, because pilot techniques would never vary so greatly as to need all of it before lifting off the ground. What is necessary is that all this distance be free from obstructions to protect against an overshooting takeoff. Consequently the regulations permit the use of a "clearway" for part of this distance. A clearway is defined as "an area beyond the runway not less than 500 feet wide, centrally located about the extended centerline of the runway, and under the control of the airport authorities. The clearway is expressed in terms of a clearway plane, extending from the end of the runway with an upward slope not exceeding 1.25 percent above which no object nor any portion of the terrain protrudes, except that threshold lights may protrude above the plane if their height above the end of the runway is not greater than 26 inches and if they are located to each side of the runway." Up to one-half the difference between (1) 115 percent of the distance to reach the point of lift-off and (2) the takeoff distance may be clearway. The remainder of the takeoff distance must be full-strength pavement and is identified as the "takeoff run."

For the engine failure case, the regulation specifies that the takeoff distance required is the actual distance required to reach a height of 35 feet with no percentage applied as in the all-engine takeoff case. This recognizes the infrequency of this occurrence. The regulations again permit the use of a clearway, in this case up to one-half the difference between the distance to lift-off and the takeoff distance, the remainder being full-strength pavement.

As mentioned previously, the engine-failure case requires that sufficient distance must also be available to stop the airplane rather than continue the takeoff. This distance is referred to as the "accelerate-stop distance." The regulations recognize that an aborted takeoff is relatively rare and permit use of lesser-strength pavement, known as "stopway", for that part of the accelerate-stop distance, beyond the takeoff run. The stopway is defined as "an area beyond the runway, not less in width than the width of the runway, centrally located about the extended centerline of the runway, and designated by the airport authorities for use in decelerating the airplane during an aborted takeoff. To be considered as such, the stopway must be capable of supporting the airplane during an aborted takeoff without inducing structural damage to the airplane."

The runway length established on this basis is referred to as the "balanced-field concept" or "balanced runway" and results in the shortest runway.

The runway length determined, for both takeoff and landing, in the Airport Planning Manual published by airplane manufacturers responds to the above principles and criteria.

The following has been extracted from the FAA Advisory Circular Number 150/5325:

INTRODUCTION. The determination of the length of a runway is related to the airplane or family of airplanes expected to use that runway. The takeoff and landing requirements of those airplanes must be known to derive the length necessary for the runway.

BACKGROUND. Aircraft performance curves for design have gained wide recognition by airport engineers and planners as effective means of determining how long to build runways. With the issuance by the airframe manufacturers of the publications entitled Airport Planning Manuals, it was recognized that the disparity of present day transport aircraft precluded the application of a runway length design concept based on a type of air carrier service. Therefore, precise runway length determination can be made if a particular aircraft is used as a basis. Aircraft performance curves of individual airplanes were therefore developed as a design and planning tool, for use by airport planners.

PARAMETERS

RUNWAY LENGTH REQUIRED FOR TAKEOFF. The runway length determined from the takeoff aircraft performance curves for large airplanes is equal to the airplane's accelerate-stop distance or the airplane's takeoff distance, whichever is greater. Condition of no wind is assumed.

AIRPORT ELEVATION. The elevation of the airport above mean sea level is to be used for runway length determination and for this purpose is considered equivalent to the airport pressure altitude.

TEMPERATURE. The temperature recommended for airport runway length design is the normal maximum temperature at the airport for the hottest month.

GRADIENT. The runway length determined for the takeoff aircraft performance curves is based on an effective runway gradient of zero percent. The effective runway gradient is defined as the maximum difference in runway centerline elevations divided by the runway length. For effective runway gradients other than zero percent, the runway length should be increased at the rate of ten percent (for turbojet powered airplanes) for each one percent of effective runway gradient.

B. Airport Environment

Thus far it has been shown how the FAA requirements can influence runway length. Certain conditions at the airport can also do so. The more important of these conditions are (1) temperature, (2) surface winds, (3) gradient of the runway, and (4) elevation of the airport.

To determine the relative effects of variations in these conditions, an analysis was made with several of the current jet transport aircraft. The results are presented on Tables VI-B-1 through -7.

The manufacturers' airport manuals present information assuming that the airport environment is the following:

1. The airport is at sea level.
2. The temperature at the airport is the I.S.A. +15°C (86°F) (International Standard Atmosphere +15°C = 30°C).
3. The runway is level in a longitudinal direction.
4. There is no wind blowing on the runway.

The 30° C (86° F) temperature was considered as adequately representing the Portland environment since while the normal maximum is 25.4°C (77°F) and the extreme high recorded has reached 41.5°C (106.7°F), there have also been recorded temperatures at an average of 9 days per year with temperatures above 32°C (86.4°F).

Furthermore, the Portland International Airport is at sea level, the gradient of 0.02% is small enough to be ignored, and the no wind conditions is coincident (usually) with high temperatures.

C. Takeoff and Landing Weights

The takeoff weights have been computed for:

1. The maximum certified takeoff weight, not limited by runway lengths.
2. The maximum takeoff weight limited by the existing 8,800 feet runway.
3. The maximum takeoff weight as limited by other runway lengths such as: 11,000 feet and 11,500 feet.
4. The landing weights are the maximum structural limited weight, and the runway length is for wet pavement.

D. Payload Range Performance

Three types of payload have been considered:

1. Scheduled Passenger Service. The standard seating capacity as presented by the manufacturers has been assumed. International and transcontinental aircraft have been considered in a configuration of 15% first class and 85% economy class, while short distance service has been assumed on an all economy seating configuration.

   A weight of 205 pounds has been assigned to each seat, to include the passenger and his baggage (both are statistical averages).

2. Charter Passenger Service. Maximum seating capacity has been considered in this category.

   A weight of 205 pounds has been assigned to each seat, to include the passenger and his baggage (both are statistical averages).

3. **Freight Service.** Ranges have been considered at both maximum structural payload, and maximum fuel capacity.

Note: In both the Scheduled Passenger Service and in the Charter Passenger Service configurations and payloads, no allowance has been made for airfreight. The inclusion of any load in the lower compartment of passenger aircraft, besides the passenger baggage, involves several variables. The first one is the available volume left in the lower compartment after placing in it the passenger baggage. While on the advanced "wide bodies" there may be adequate volume available, in the earlier and smaller jets these may not even be enough volume for the passenger baggage (at 100% seat occupancy).

The second is that the required weight must be made available by unloading equal weight in fuel thereby reducing range, or by unloading passengers, at a rate of approximately five passengers and their respective baggage for every 1,000 pounds of freight.

Therefore, the choice among innumerable combinations of the above variables depends on the actual passenger load factor, seasonal temperatures, and mainly on the economic policies of the air carrier.

Furthermore, charter passenger flights do not (customarily) carry freight.

Finally, the seating capacities used in this study reflect typical interior arrangements as specified by the airframe manufacturers in their Airport Planning Manuals. In actual practice it can be safely stated that each airline adopts different seating arrangements. An example may illustrate further. No two airlines buying Lockheed L-1011s have the same seating arrangements. Seating capacities of the various airlines are as follows: Delta, 250; Eastern, 254; TWA, 218; Air Canada, 261; Pacific Southwest Air Lines, 297; All Nippon, 306; LTU, 330; BEA, 390 and Court Line, 400. Both of the British carriers, BEA and Court Line, employ 10 abreast seating systems. PSA's 297 total includes saleable seating it plans in the lower deck replacing the galley. BEA and Court are Inclusive Tour operators (charter) while PSA does not serve meals inflight.

TABLE VI-B-1

RUNWAY LENGTH REQUIREMENTS
FOR MAXIMUM TAKE OFF WEIGHT
AT ISA + 15° C. (86°F)

AIRCRAFT	PAYLOAD(1) SEATS	PAYLOAD(1) LBS.(2)	MAX. T.O.W. LBS.	RANGE N.M.	RUNWAY (FEET)
747-B	374	76,800	775,000	5750	11,500
DC-10-30/40	270	55,400	555,000	5300	11,400
DC8-62	164	33,600	350,000	5300	12,200
707-320B	141	29,000	333,600	5000	10,300
DC8-43	136	27,900	315,000	4800	11,100
DC8-63	216	44,400	355,000	4350	12,200
DC-10-10	270	55,400	430,000	3700	9,300
727-200	163	33,500	207,500	2360	11,200
DC9-41	125	25,700	114,000	1150	9,200
MAX. TAKE OFF WEIGHT ATTAINABLE ON 8800 FT. RUNWAY					
720-B	131	26,900	234,300	3500	7,400
L-1011-385	256	52,500	409,000	2850	8,800
727-100	125	25,700	170,000	2200	8,800
737-200	115	23,600	110,700	1470	7,900
DC9-15	90	18,400	90,700	1310	7,300
DC9-32	115	23,600	108,000	1280	8,100

(1) SEATING CAPACITY FOR SCHEDULED PASSENGER SERVICE

(2) 205 LBS. X PASSENGER
THIS PAYLOAD ASSUMES TOTAL (100%) OCCUPANCY OF THE AVAILABLE SEATS.

TABLE VI-B-2

REDUCED RANGE AND TAKE OFF WEIGHT

FROM THE 8800 FEET RUNWAY

AT ISA + 15° C (86°F)

AIRCRAFT	PAYLOAD[1] SEATS	LBS.	T.O.W. LBS.	RANGE N.M.	% T.O.W.	% RANGE
747-B	374	76,800	698,000	4500	90	61
DC10-30/40	270	55,400	496,000	3900	90	74
DC8-62	164	33,600	308,600	4600	88	87
707-320B	141	29,000	308,600	4400	92	88
DC8-43	136	27,900	278,000	4400	88	91
DC8-63	216	44,400	308,600	3600	87	83
DC10-10	270	55,400	425,000	3600	99	97
727-200	163	33,500	190,750	1875	92	80
DC-9-41	125	25,700	113,300	1100	99	95

(1) PAYLOAD FOR PASSENGER SCHEDULED PASSENGER SERVICE
(2) 205 LBS. X PASSENGER
THIS PAYLOAD ASSUMES TOTAL (100%) OCCUPANCY OF THE AVAILABLE SEATS.

TABLE VI-B-3

RUNWAY LENGTH REQUIREMENTS
AND
PAYLOAD RANGE PERFORMANCE
FOR
FREIGHTER AIRPLANES

(ISA + 15°C) (86°F)

			MAX TOW PERFORMANCE		8800 FT RUNWAY LIMITED TOW		
AIRCRAFT	MAX TOW LBS.	REQUIRED FT	PAYLOAD LBS.	RANGE NM	TOW LBS.	PAYLOAD LBS.	RANGE NM
747F	775000	11500	257900	2600	698000	257900	1350
			152000	4800		152000	3600
			60000	5750		75000	5500
						60000	5750
DC8-63F	355000	11000	114000	2300	315000	74000	2300
			54000	4800		14000	4800
			10000	5750			
707-320C	336600	11000	75000	2800	308600	77500	2300
			27000	5200		27000	4500
			10000	5600		10000	5300
727-100C	170000	8800	41000	1300			
			37000	1500			
			26000	2250			

TABLE VI-B-4

RANGE WITH CHARTER PASSENGER PAYLOAD

RUNWAY LENGTH FOR MAXIMUM TAKEOFF WEIGHT
(ISA + 15° C) (86°F)

AIRCRAFT	PAYLOAD SEATS(1)	LBS.(2)	MAX. T.O.W.	RUNWAY FT.(3)	RANGE N.M.
747-B	490	100,000	775,000	11,500	5100
DC10-30/40	345	70,800	555,000	11,400	4900
707-320B	189	38,800	333,600	10,300	4600
DC8-43	177	36,300	315,000	11,100	4150
DC8-63	259	53,200	355,000	12,200	4050
DC8-61	259	53,200	325,000	11,000	3200

(1) SEATING CAPACITY FOR CHARTER PASSENGER SERVICE

(2) 205 LBS. X PASSENGER
THIS PAYLOAD ASSUMES TOTAL (100%) OCCUPANCY OF THE AVAILABLE SEATS.

TABLE VI-B-5

RANGE WITH 100% CHARTER PASSENGER PAYLOAD

FROM 8800 FT RUNWAY

(ISA +15°C) (86°F)

AIRCRAFT	PAYLOAD SEATS[1]	PAYLOAD LBS.[2]	MAX TOW	RANGE NM	% OF MAX RANGE	% TOW
747B	490	100000	698000	3900	76	90
DC10-30/40	345	70800	496000	3800	77	89
707-320B	189	38800	308600	3900	85	92
DC8-43	177	36300	278000	3400	82	88
DC8-63	259	53200	308600	3100	76	87
DC8-61	259	53200	297000	2600	81	91

(1) SEATING CAPACITY FOR CHARTER PASSENGER SERVICE

(2) 205 LBS. X PASSENGER
THIS PAYLOAD ASSUMES TOTAL (100%) OCCUPANCY OF THE AVAILABLE SEATS.

TABLE VI-B-6

LANDING RUNWAY LENGTHS

WET PAVEMENTS

AIRCRAFT	LANDING (I) RUNWAY (FEET)
747F	8400
DC8-43	7800
747B	7700
DC8-63	7200
DC10-30/40	6900
DC8-62	6800
707-320B	6800

(I) MAXIMUM ALLOWABLE LANDING WEIGHT ON WET PAVEMENT, AS COMPUTED BY THE AIRFRAME MANUFACTURER AND PRESENTED IN THE RESPECTIVE AIRPORT PLANNING MANUAL.

TABLE VI-B-7

RUNWAY LENGTHS GREATER THAN THAN 8800 FEET

TO PERMIT TAKE OFF WITH MAXIMUM CERTIFIED WEIGHT

(ISA + 15° C) (86°F)

AIRCRAFT	LENGTH (FT.)
DC9-41	9,200
DC10-10	9,300
A300-B4	9,300
707-320B	10,300
DC8-61	11,000
DC8-63F	11,000
DC8-43	11,100
727-200	11,200
DC10-30/40	11,400
747-B/F	11,500
DC8-62	12,200
DC8-63	12,200

APPENDIX B

AMBIENT AIR STANDARDS

Table 2

Oregon State Ambient Air Standards
(Adopted January 24, 1972)

POLLUTANT	STANDARD
1. Suspended Particulate	60 ug/m^3 Annual Geometric Mean
	100 ug/m^3 24 hr average 15% of samples
	150 ug/m^3 24 hr average once per year
2. Sulfur Dioxide	60 ug/m^3 Annual Arithmetic Mean
	260 ug/m^3 24 hr average once per year
	1300 ug/m^3 3 hr average once per year
3. Carbon Monoxide	10 ug/m^3 8 hr average once per year
	40 ug/m^3 1 hr average once per year
4. Photochemical Oxides	160 ug/m^3 1 hr average once per year
5. Hydrocarbons	160 ug/m^3 3 hr average once per year
6. Nitrogen Dioxides	100 ug/m^3 Annual Arithmetic
7. Particulate Fallout	10 g/m^2/month in an industrial area
	5 g/m^2/month in industrial area if observation shows presence of wood waste, soot or 70%+ volatile fraction
	5 g/m^2/month residential or commercial area
	3.5 g/m^2/month residential or commercial area if observation shows presence of wood waste, soot, or 70%+ volatile fraction
8. Calcium Oxide (Line dust)	20 ug/m^3 never to be exceeded
	fallout not to exceed 0.35 g/m^2/month in residential or commercial areas

Source: State of Oregon Clean Air Act Implementation Plan, DEQ, January, 1972.

Table 1

AMBIENT AIR STANDARDS

Pollutants	CWAPA-DEQ Standard	EPA-APCO National Primary Standard	EPA-APCO National Secondary Standard
Suspended Particulates	a. 60 ug/m^3 Annual 50 percentile b. 100 ug/m^3 for not more than 15% of samples per month	a. 75 ug/m^3 Annual Geometric Mean b. 260 ug/m^3 maximum 24 hr. concentration not more than once per year	a. 60 ug/m^3 Annual Geometric Mean b. 150 ug/m^3 maximum 24 hr. concentration not more than once per year
Particulate Fallout	5 grams/sq. meter/month	None	None
Carbon Monoxide	20 ppm maximum for 8 consecutive hours	a. 8.7 ppm maximum for 8 consecutive hours not more than once per year b. 35 ppm 1 hour maximum not more than once per year	Same as Primary
Sulfur Dioxide	a. 0.50 ppm 1 hr. average once in every 4 days b. 0.10 ppm 24 hr. average once in any 30 consecutive days	a. 0.03 ppm Annual Arithmetic Mean b. 0.14 ppm maximum 24 hour average not more than once per year	a. 0.02 ppm Annual Arithmetic Mean b. 0.10 ppm maximum 24 hour average not more than once per year c. 0.50 ppm maximum 3 hour concentration not more than once per year
Photochemical Oxidants	None	0.08 ppm 1 hour maximum not more than once per year	Same as Primary
Nitrogen Dioxide	None	a. 0.055 ppm Annual Arithmetic Mean	Same as Primary

---

References: a. Federal Register, Volume 36, No. 67, April 7, 1971
NOTE: EPA-APCO National Primary and Secondary Standards have been converted to parts per million for comparative purposes

b. Rule of the Columbia-Willamette Air Pollution Authority

APPENDIX C

HAWORTH AND ANDERSON-CRAG CORRESPONDENCE

HAWORTH & ANDERSON
WEST 420 SPRAGUE AVENUE 838-6438
SPOKANE, WASHINGTON 99204 (509) [redacted]

September 18, 1973

Mr. Lyle Balderson
Area Development Director
C.R.A.G.
6400 S.W. Canyon Court
Portland, Oregon 97221

Dear Mr. Balderson:

I found my short meeting with you to be of a substantive nature and did want to follow up with a letter to you. Since the impact of Portland International Airport, either existing as it is or with an expanded runway, impacts a number of government jurisdictions, all of whom seem to be participants in C.R.A.G., it seems appropriate for someone from your organization to address the matter of land use planning as it may be impacted by an extension of the south runway at PIA.

I believe at the time that you expressed some concern over the major rezoning that was currently taking place west of the airport property. I would appreciate any comments you may have on that specific action, and generally on land use planning in the area surrounding PIA.

The south runway extension project that the Port is considering, and which will probably be undertaking in the near future, is one which should make the Port's operational capacity adequate, based on current projections through 1990 in so far as air traffic is concerned. It would seem very wise to me if the various local governments involved were to not make any major commitments or allow any major private commitments intensifying land uses that may be operationally incompatible with a large airport, especially in any area which may be directly impacted by existing and/or future airport operations. As I say, I would appreciate any comments you have along this or any other line.

Sincerely yours,

HAWORTH & ANDERSON

Thomas G. Mosher

Thomas G. Mosher,
Associate, A.I.P.

TGM:kjh

ENVIRONMENTAL ANALYSIS · LAND USE PLANNING · ECONOMICS · HOUSING · URBAN & REGIONAL STUDIES

CRAG

COLUMBIA REGION ASSOCIATION of GOVERNMENTS

6400 S.W. CANYON COURT
PORTLAND, OREGON 97221

(503) 297-3726

KAMAS COUNTY
anby
Gladstone
Happy Valley
Lake Oswego
Milwaukie
Oregon City
West Linn

RK COUNTY
Camas
Vancouver
Washougal

[illegible]

October 9, 1973

HAWORTH AND ANDERSON
Mr. Thomas G. Mosher
West 420 Sprague Avenue
Spokane, Washington 99204

Dear Mr. Mosher:

Sorry for the delay in responding to your letter of September 18, 1973; time does slip by.

In your letter, you referred to my concern over the major re-zoning that is proposed for a piece of property just west of the airport. The reason for that concern is somewhat answered in the last paragraph of your letter which states: "It would seem very wise to me if the various local governments involved were to *not* make any major commitments or allow any major private commitments intensifying land uses that may be operationally incompatible with a large airport, especially in any area which may be directly impacted by existing and/or future airport operations." Your comments relate directly to my concerns about development throughout the region, and specifically, the airport.

As you know, the Portland International Airport has been designated as the only major airport for the CRAG region and this is reflected not only in our Interim Regional Land Use Plan and the airport plan for the region, but in the three land use concepts currently being developed for the new regional plan. It seems very reasonable, therefore, that we keep as many options as possible open while we determine the basic land uses for the area adjacent to the airport site. This would include land uses that may have impact on landing patterns as well as those which may be incompatible from a noise standpoint.

To keep some of these options open, we have initiated the Interim Regional Policy which is designed to allow us some breathing room while we are completing the Regional Comprehensive Plan; our need for such a policy relates quite closely to the airport situation.

We at CRAG realize that we cannot hold up the decision-making process forever, and, in fact, even a short period of time is onerous to some people and/or firms. The elected officials of CRAG are very aware of this fact. They feel the need to complete the regional plan as soon as possible so these decisions will not be delayed too long.

I hope this gives you some feeling for our concerns at the regional level and if I can be of any further service, please call.

Sincerely,

Lyle E Balderson

Lyle Balderson
Area Development Director

LB:ps

APPENDIX D

NOISE ABATEMENT DATA

FROM

AIRCRAFT NOISE IMPACT
PLANNING GUIDELINES FOR LOCAL AGENCIES

NOVEMBER 1972

NOISE ABATEMENT STRATEGIES; COSTS, EFFECTIVENESS, OTHER CONSIDERATIONS

Noise Abatement Strategy	Noise reduction[1]	Costs	Limitations, Comments, other considerations
Higher holding and maneuver altitudes, raise glide slope intercept altitude	About 9 EPNdB with increase from 1500' to 3000'. Primary benefit 2-4 miles from threshold.	ATC workload	In use at some airports. FAA policy "keep 'em high". Doesn't help in highest noise areas. No equipment change.
Steeper glide slope	0-10 EPNdB, greater with greater distance from threshold. (higher altitude, reduced power)	Pilot workload Safety	Some gains available from enforcing existing minimum glide slope. Reduce fear of low-flying aircraft.
Two-segment approach, 6° to 3° at 3 miles, 1000' altitude.	0-10 EPNdB, greater with greater distance from threshold. (higher altitude, reduced power)	Safety Pilot workload	Could have later switch to flatter slope with automated systems.
Two-segment approach, 6° to 3° at less than 1 mile, 250' to 400' altitude. (automatic controls)	5-15 EPNdB, greater with greater distance from threshold. (higher altitude, reduced power)	Equipment modifications	More benefit in highest noise impact areas than most other changes.
Delayed flap and gear extension	0-6 EPNdB until extension (reduced power)	Safety Pilot workload	Considerable benefit from changes with existing equipment - pilot option now. More potential with automated systems. Potential benefit in high-noise areas.
Combined approach techniques, existing equipment (high intercept, reduced flaps, 2-segment approach)	Possibly 20 EPNdB at 6-10 miles, less as threshold approached. (higher altitude, reduced power)	Pilot and ATC workload Safety	
Thrust cutbacks after takeoff, reduced flaps.	Up to 5 EPNdB[1] after cutback, less with greater distance. Varies with aircraft type.	Safety	Now in use at some airports and by some airlines. Less useful with 4-engine jets because of less reserve power. More potential with higher reserve power. Some additional potential with automated systems. May result in more area in NEF contours because of slower climb after cutback.
Preferential runways	Raises in some, lowers in others	Small to moderate reduction in capacity, Pilot & ATC workload, Longer flights	Opportunity limited by land use pattern, usefulness limited by wind conditions at airports with strong prevailing winds.
Runway threshold shifts	Slight	May involve runway extension	Much shift required for significant reduction. More important as other techniques implemented. May increase airport noise with increased use of thrust reversal.
Concentration in corridors, delays before turning.	Varies, increase in some areas	Reduced capacity Pilot and ATC workload Longer flights	Monitoring helpful. Once established, should remain stable to be useful in adjusting land uses to noise impact.

---

[1] Data for operational changes from H. C. Gregoire and J. M. Streckenbach, Effects of Aircraft Operation on Community Noise, Seattle, The Boeing Company, June 1971. Will very considerably depending on existing practice, type of aircraft used, and ground location relative to flight path.

Noise Abatement Strategy	Noise reduction	Costs	Limitations, Comments, other considerations
Relocation of take-off and approach routes	Raises in some, lowers in others	Longer flights Reduction in capacity Pilot and ATC workload	Opportunity limited by development pattern. To preserve opportunity need development controls in undeveloped corridors. Monitoring helpful.
Schedule restrictions (eliminate night flights)	High at night, none in daytime.	High to airlines if no alternate airport. Reduced capacity. Schedule conflicts.	Doesn't help at schools, other day uses. Considerable benefit in residential areas. Greatest opportunity in metropolitan areas with more than one airport, outlying airport for night flights.
Shifting corridors by time of day	Varies, increase in some areas and at some times	Reduced capacity Pilot and ATC workload Longer flights	Monitoring helpful. May be particularly useful in unusual land use situations where day-night shift appropriate. Possibility of providing some respite for all but closest in areas at cost of wider area of impact.
Aircraft type restrictions. Eliminate 4-engine jets, license by noise levels.	Varies with existing usage, particular restriction.	High to airlines if no alternate airport.	In use at JFK; Newark and La Guardia no 4-engine jets. Greatest opportunity in metropolitan areas with more than one airport, outlying airport for noisier aircraft.
Regulate time and place of ground operations	Varies		Most benefit from restricting night engine runups near residential areas.
Nacelle Lining	Takeoff - 3 EPNdB Approach - 10-15 EPNdB from present engines[1]	Initial - up to $1,000,000/aircraft, + 9 operating[1]	Available soon. Requires Federal action.
"Quiet engine"	About 10 EPNdB below "best" today (747, DC-10) takeoff and landing[1]	$4 million/aircraft retrofit, less on new aircraft[1] (varies with type)	Available in 1975 or later. Requires Federal action. Various types under consideration.
Airframe changes Larger aircraft V/STOL aircraft	Reduce number of flights, increase takeoff and approach slopes	Research and development	Private sector action. Limited by passenger traffic demand.
Traffic allocation among airports and aircraft.	Reduce sensitive areas exposed, reduce number of flights	Longer flights Schedule problems Ground transportation	Among airports - limited to areas with more than one major airport. Among aircraft - reducing surplus seating requires some inter-airline coordination. Federal planning assistance.
New airports	Raises some, lowers others. Reduce sensitive area exposed.	Administration Planning Acquisition Access Externalities at different locations	Some regional cooperation likely to be required. Easier with metropolitan authority with taxing powers. Coordination of airport location and design with land use planning and controls necessary to insure long-run benefits. Federal planning assistance.
Abandonment of existing airports	Reduce sensitive areas exposed	Abandon existing facilities. Jobs lost if no new airport. Depends on distance to nearest available air facility.	Can possibly use for general aviation or V/STOL. Possible income from sale of property.
Airport master planning - runway orientation	Reduce sensitive areas exposed	Varies: Administration Acquisition Operating costs	Wind, safety factors now predominate design requirements. Limited incentive to consider noise. Helpful to coordinate with surrounding land use if under same authority. Primarily new airports, also expansion. Expansion of use of environmental impact statement and review requirements may cause noise to be considered. Federal planning assistance.

[1] National Academy of Sciences, National Academy of Engineering, amaica Bay and Kennedy Airport (Volume II), 1971, p. 115

Noise Abatement Strategy	Noise reduction	Costs	Limitations, Comments, other considerations
Airport master planning - maintenance areas	Varies by location	Varies	Locate maintenance areas away from sensitive uses. Federal planning assistance.
Airport master planning - site size to include impact area	Reduce sensitive area exposed	May be very high initial cost, carrying costs. Taxes foregone. Acquisition (possible income from leasing or sale with restrictions)	Airport authority may not be legally empowered to acquire land for other than airport use. (State enabling legislation required.) Local political opposition - removal from tax rolls, development potential. Coming into use at newest planned airports: Palmdale (Los Angeles) 18,000-acre site; Irving (Dallas-Ft. Worth); Minneapolis-St. Paul. Limited by financial resources of airport authority. Can make agreements on controls with surrounding communities rather than purchase. Federal planning assistance.
Airport master planning - management of airport property	Reduce sensitive area exposed	Administration Possible reduced utilization	Conditional leases or sale of excess property. Effectiveness limited by site size. Federal planning assistance.
Air traffic demand - V/STOL	Reduce highest noise impact areas, possibly increase lower impact. (Reduce number of CTOL flights)	New metropolitan V/STOL ports. New equipment. Access.	V/STOL demand most sensitive to changes in other transport - highways, HSGT, etc. Introduce now unexposed areas to noise. High takeoff, approach noise. May be serious access and parking problems in downtown areas.
Other transport modes (Primarily High speed ground transportation)	Reduce number of flights	System, equipment, access, land acquisition, research and development, planning.	Inter-regional and inter-state cooperation required. Volume sufficient for major separate system in only very few locations (NE corridor, LA - SF).
Other technologies (communication)	Reduce number of flights	System Research and development	Unpredictable, 10-20 year + horizon. Social changes likely with communication system sufficiently developed to reduce flight demand. National scale of planning and implementation required.
Barriers	Up to 10 EPNdB adjacent to airport. Useful for runups	Varies with extent	High, massive barriers best. Trees limited in reduction capacity. Not effective for airborne aircraft. Barrier must be close to either source or receiver to be effective. May be useful for V/STOL.
Public acquisition and development of vacant land	Reduce sensitive areas exposed from what would occur without public action	Acquisition Site Preparation Marketing Carrying costs Administration Tax loss during holding period	Airport authority not likely to want to get involved. Local government may object to controls. Business objections to government in the development business. Limited by demand for compatible use in impact area. Significant percent of impact area only at a very few airports.
Market service incentives for compatible development of vacant land	Reduce sensitive areas exposed from what would occur without public action	Publicity Administration Tax incentives--tax loss for initial period	Can't prevent incompatible development. Tax incentives a minor factor in most business location decisions. Limited by demand for compatible use in impact area. Significant percent of impact area only at a very few airports.
Public use	Reduce sensitive areas exposed from what would occur without public action	Acquisition Development Differential in capital and operating costs between airport site and alternate sites Tax loss	Public uses likely to be limited. Federal aids available for many public uses. Many open space and recreation uses also sensitive to noi[illegible] her airport impact.

Noise Abatement Strategy	Noise reduction	Costs	Limitations, Comments, other considerations
Relocation of incompatible uses - Acquisition	Reduce sensitive area exposed	Very high - purchase of developed land, demolition, assembly and preparation, relocation. (Federal aids for many parts of program)	Airport authority often not authorized and would not want to undertake. Generally very large areas involved. Local opposition probably strong. Existing development may not have sufficient other "blight" to justify. Noise as blighting influence in itself sufficient to justify redevelopment only in most extreme cases. Some relocation may be done in private sector if market is aided - alternatives provided, relocation loans, etc.
Relocation - market service	Reduce sensitive areas exposed	Varies with nature and extent of program. Relocation information and/or financial assistance. Development of alternate locations.	Doesn't reduce noise level. Theoretically means of adjusting market efficiently.
Zoning to compatible use	Reduce sensitive area exposed	Administrative. Slows development if demand for forbidden use (tax loss). Opportunity cost of land in other uses. Retroactive - compensation. If a "taking" - acquisition. Federal aids (HUD 701).	Usually many jurisdictions have authority in impact area. Local government doesn't have resources to set and enforce complex standards. Easier with model codes. May require enabling legislation to use noise as criterion. Can't restrict aircraft operations (Federal preemption). Tax competition discourages restrictions. Not retroactive - limited to undeveloped areas. Local government will resist metropolitan zoning. Minnesota Airport zoning act provides for combined authority for standard setting. Zoning-oriented land use classifications and noise sensitivity not always correlated - new standards may be required.
Subdivision regulation	Reduce sensitive area exposed	Administrative	Require large parcels for commercial/industrial development in impact area. Little effect in itself in reducing conflicts - dependent on zoning regulations.
Public Services Planning - Official Map (Withhold services in impact area)	Reduce sensitive area exposed	Administrative. Tax income loss from undeveloped land. If a "taking" - acquisition.	May be legal restrictions on ability to withhold services. State enabling legislation required. May be followed as informal policy, but with much reduced effectiveness.
Advance acquisition of land in impact area for resale with controls	Reduce sensitive area exposed	May be very high initial cost and carrying cost, considerable recovery with development.	Due to high cost, limited to undeveloped areas. Legal authority limited - state enabling legislation required. Airport authority not likely to undertake unless required to. Political opposition from local government. Tax competition. Limited by financial resources. Income highly dependent on timing. Acquisition may be difficult because of speculative increases in value after site selection. New airports only. Method to circumvent limitations on use of noise criteria in zoning and building codes through deed restrictions.
Building codes requiring insulation	Inside: up to 25 EPNdB over normal construction	Administrative. Increased costs of development (tax loss) 10-20% increase in construction cost.	May require state enabling legislation to use noise zones for building code restrictions. Difficult to apply retroactively. Model codes helpful. Local opposition to increased development costs. Not likely to be legally applicable to single-family residences. Many local jurisdictions involved. Heat insulation often does not provide adequate sound insulation. Cost to owner or buyer.

Noise Abatement Strategy	Noise reduction	Costs	Limitations, Comments, other considerations
Housing code	Inside: up to 25 EPNdB over normal construction	Administrative Code writing Increased development costs	Housing code commonly applies to existing dwellings. Public concern legally questionable for requirements in single-family dwellings. Many jurisdictions involved. Local opposition to increased costs. Model codes helpful.
Sound insulation of structures	10-25 EPNdB over normal construction. Varies with type of existing construction and extent of modification.	Varies with reduction: 10-15 dB, about $3/sq. ft[1]; 25 dB, about $8/ sq. ft. (residences)	Doesn't change outdoor environment. Air conditioning required - changes "feel" of being inside house - ability to hear children and other neighborhood noises. Also insulates against traffic and other ambient noise. Legal limits on imposition of requirements through zoning and building codes - state enabling legislation, model codes helpful. Resistance from local community - increases development costs. Can tie provision of public funds to granting easement.
Sound masking	None - increases noise level	Acquisition, installation (varies)	Untested in residential use. May be suitable for some commercial facilities.
Planning by government, airport authority	Reduce sensitive area exposed	Administration Data collection	Must be based on accurate information for long time horizon to be effective in land use planning. Needs implementation tools. Many local jurisdictions often involved.
Public Hearings	Varies	Varies	Low level of public information makes process one-sided. Could be required for larger number of noise impact factors, including operational changes as well as location and design. Little incentive to adopt public-recommended changes.
Public involvement	Varies	Higher than hearings	Meaningful citizen involvement in decision-making expensive and time-consuming. Needed earlier in design process. May only reach certain socio-economic groups. Need some means to require joint solution to make effective (airport may ignore).
Noise easements on developed property	None	Varies with extent of easement - same order of magnitude as insulation - 10-20% of value.	Does nothing to control noise. Effect may depend on method of financing. May provide enough money to insulate structure. May be purchased or leased. Protects airport operator against litigation, though increased noise may bring new litigation.
Tax reductions	None	Administrative decision determines amount of tax loss	Similar to easement, but doesn't give legal protection. If applied to new development, may encourage incompatible development.
Existing legal channels	Varies	Litigation cost	Difficulty of demonstrating extent of damage. Must be continuing threat in order to affect aircraft noise levels. Same people often on both sides of case when city vs. airport authority. Time for settlement long.
Regulation by FAA	Varies	Costs to airport operator, airlines	FAA has little incentive to consider local community impact. Regulations to be most effective should be based on performance standards, but such standards make enforcement difficult. Difficult to develop regulations that don't create unusual market forces rather than desired noise reduction. Not automatic compliance, depends on enforcement.

---

[1] *MANAPS*, JFK International Airport, p. 17.

Noise Abatement Strategy	Noise reduction	Costs	Limitations, Comments, other considerations
Legislative establishment of responsibility and payment mechanism	Varies	Cost to airport operator, airlines. Administration.	Powerful airline, airport and airframe manufacturer lobbies will oppose. Limited by Federal preemption of airline regulation, prohibition against state interference with interstate commerce. Legal questions about use of noise contours as basis of strategy.
Information systems, monitoring	Control over other noise abatement strategies	Setup of monitoring network. Administration	Must have legal powers to control aircraft in order to be useful. Provide information for setting local standards.
Alternative decision structures, Metropolitan coordinating mechanisms: a. cooperation b. joint authority c. supervening authority	Easier implementation of land use related strategies	Administrative	Simple information may be sufficient to achieve considerable control. Local objections strong to giving up any significant decision power to metropolitan authority. Needs to be combined with other measures, such as tax sharing, to encourage local participation.
Economic incentives for noise reduction: Fines Variable landing fees Passenger taxes Adjusting airline license fees	Varies	Costs to airlines. Monitoring system. Administration.	Must be carefully structured to have desired effect. Limited by Federal preemption of aircraft operations regulation, prohibition against state interference with interstate commerce. Possible conflicting incentives at different airports.
Information to local communities, developers, homeowners	May reduce sensitive area exposed from what would occur with no information	Cost of Information Enforcement	Leaves decision on whether to use noise as criterion to individual or community. Any social costs of noise impact not included in decisions.

Table 4-1 lists the groups of noise abatement strategies outlined previously. This shorter list of strategy alternatives will be used in tables and diagrams relating noise abatement strategies and analyzing their effect.

TABLE 4-1

SUMMARY LIST OF NOISE ABATEMENT STRATEGIES

Operational Changes	Changes in routes, flight profiles, operating techniques.
Schedule Restrictions	Restricting flight schedules, such as forbidding night flights.
Aircraft Type Restrictions	Restricting aircraft type in use at the airport, such as forbidding four-engine jets, etc.
Technological Change	Engine redesign, airframe changes, new aircraft types, electronic navigation aids, etc.
Airport System Change	Change in airport location or use, construction of new airports, etc.
Traffic Demand Change	Increase or decrease in air transport demand due to other transportation, communications, social change, etc.
Encouraging Compatible Use	Policies that encourage noise-compatible facilities to locate in noise areas.
Public Use	Public use of noise impact areas.
Relocating Incompatible Use	Relocating existing incompatible uses outside noise areas.
Prohibiting Incompatible Use	Prohibiting additional uses incompatible with noise from locating in noise areas.
Sensitivity Changes	Changing sensitivity of noise receiver, as through insulation or masking.
Airport Environs Planning	Planning of development with attention to noise problems.
Compensation	Compensation to those in noise areas.
Legal Action	Use of existing legal channels to force adoption of noise abatement measures, gain compensation, etc.
Regulation, Admin Mech	Regulation of operations specifying noise abatement techniques, noise limits, etc.; coordination mechanisms.
Economic Incentives	Use of variable fines or fees to encourage noise abatement measures.
Information	Market service strategies providing information to individuals, businesses and government agencies.

Figure 4-1 shows the relation between noise abatement strategies and types of airport/environment situations. In general, land-use-related strategies are less effective and more expensive for existing airports and intense development, and more effective for new airports and undeveloped areas.

FIGURE 4-1
RELATION OF NOISE ABATEMENT STRATEGIES
TO AIRPORT/ENVIRONMENT SITUATIONS

AIRPORT/ENVIRONMENT SITUATION TYPE	DEVELOPMENT	SIZE[1]	Operational Change	Schedule Restriction	Aircraft Type Restriction	Technological Change	Airport System Change	Airport Design Change	Traffic Demand Change	Encourage Compat. Use	Public Use	Relocate Incompat. Use	Prohibit Incompat. Use	Sensitivity Changes	Airport Environs Planning	Compensation	Legal Action	Regulation, Administration	Metropolitan Control	Economic Incentives	Information
New Airport	Developed Area	Major	*	*	*	+	*	*	*	+	+	*	-	*	+	*	*	*	*	*	
		Minor		+	+	-	+	+	-	-	+	*	-	*	+	+	*	+	+	+	+
	Undeveloped Area	Major	-	-	-	-	*	+	-	+	+	-	*	-	*	+	-	+	*	-	+
		Minor	-	-	-	-	+	-	-	+	+	-	*	-	*	+	-	-	+	-	+
Existing Airport	Developed Area	Major	*	*	*	+	*	+	+	-	+	*	-	*	+	*	*	*	*	+	+
		Minor	*	*	*	+	2	+	-	-	+	+	-	*	+		*	+	+	+	+
	Undeveloped Area	Major	-	-	-	-	+	+	-	+	+	-	*	-	*	+	-	-	*	-	+
		Minor	-	-	-	-	2	+	-	+	+	-	*	-		+	-	-	+	-	+

* Most Important
+ Secondary Importance
- Minor concern
1 Major: over 50 jet takeoffs and landings daily.
2 Importance of system planning at smaller airports depends on proximity of other communities and airports.

Figure 4-2 relates noise abatement strategies to land uses in the impact area. Effectiveness in dealing with noise problems and costs of implementation are considered separately.

FIGURE 4-2
APPLICABILITY OF NOISE ABATEMENT
STRATEGIES TO LAND USES

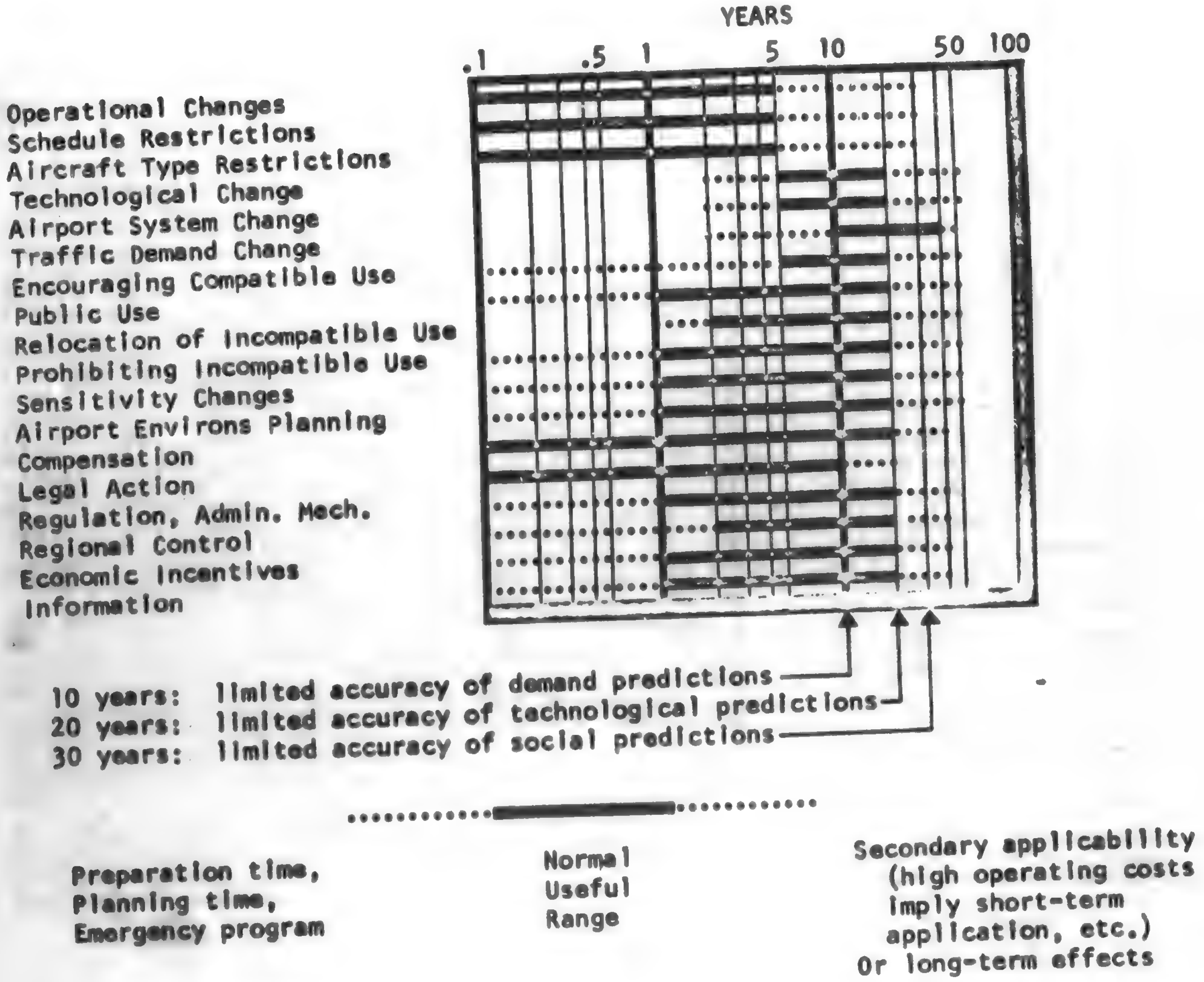
H: High
M: Moderate
L: Low
V: Varies
U: Unknown
N: Not Applicable

	EXISTING USE						NEW CONSTRUCTION					
	Residential Single, 2-family	Residential Multi-family	Commercial/ Industrial	Schools, Churches, Hospitals	Outdoor Recreation	Agriculture, Mining, Fishing	Residential Single, 2-family	Residential Multi-family	Commercial/ Industrial	Schools, Churches, Hospitals	Outdoor Recreation	Agriculture, Mining, Fishing
Operational Changes	H/M	H/M	H/M	H/M	H/M	H/M	H/M	H/M	H/M	H/M	H/M	H/M
Schedule Restrictions	H/M	H/M	L/M	L/M	L/M	L/M	H/M	H/M	L/M	L/M	L/M	L/M
Aircraft Type Restrictions	M/M	M/M	M/M	M/M	M/M	M/M	M/M	M/M	M/M	M/M	M/M	M/M
Technological Change	V/H	V/H	V/H	V/H	V/H	V/H	V/H	V/H	V/H	V/H	V/H	V/H
Airport System Change	H/H	H/H	H/H	H/H	H/H	H/H	H/H	H/H	H/H	H/H	H/H	H/H
Traffic Demand Change	V/U	V/U	V/U	V/U	V/U	V/U	V/U	V/U	V/U	V/U	V/U	V/U
Encouraging Compatible Use	L/M	L/M	L/M	L/M	M/M	M/M	L/M	L/M	M/M	M/M	M/M	M/M
Public Use	M/H	M/H	M/H	M/H	M/H	M/H	M/H	M/H	M/H	L/H	M/H	M/H
Relocating Incompat. Use	H/H	H/H	H/H	H/H	H/M	H/V	N/N	N/N	N/N	N/N	N/N	N/N
Prohibiting Incompat. Use	L/L	L/L	L/L	L/L	L/L	L/L	M/L	M/L	M/L	H/L	M/L	M/L
Sensitivity Changes	M/H	M/H	M/H	M/H	L/N	L/N	M/H	M/H	M/H	M/H	L/N	L/N
Airport Environs Planning	L/L	L/L	L/L	L/L	L/L	L/L	M/L	M/L	M/L	M/L	M/L	M/L
Compensation	L/H	L/H	L/M	L/H	L/M	L/M	L/H	L/H	L/M	L/H	L/M	L/M
Legal Action	L/H	L/H	L/H	L/H	L/H	L/H	L/H	L/H	L/H	L/H	L/H	L/H
Regulation, Admin. Mech.	M/L	M/L	M/L	M/L	M/L	M/L	M/L	M/L	M/L	M/L	M/L	M/L
Regional Control	M/L	M/L	M/L	M/L	M/L	M/L	M/L	M/L	M/L	M/L	M/L	M/L
Economic Incentives	M/M	M/M	M/M	M/M	M/M	M/M	M/M	M/M	M/M	M/M	M/M	M/M
Information	L/L	L/L	L/L	L/L	L/L	L/L	M/L	M/L	M/L	M/L	M/L	M/L

Upper left: Effectiveness in reducing noise conflicts
Lower right: Order-of-magnitude cost (rank ordering)

Figure 4-3 summarizes the time horizons of noise abatement strategies, indicating which strategies can or should be considered for the time period in question. Often one strategy may be applied temporarily while longer-range solutions are being planned and programmed.

FIGURE 4-3
TIME HORIZONS OF NOISE ABATEMENT STRATEGIES



10 years: limited accuracy of demand predictions
20 years: limited accuracy of technological predictions
30 years: limited accuracy of social predictions

APPENDIX E

TRAVEL TIME PENALTIES ASSOCIATED WITH PORTLAND BUSINESS AIR TRAVEL

RUSSELL A. DAWSON, PH.D.
OCTOBER 1973

Travel Time Penalties Associated With
Portland Business Air Travel

Introduction and Summary

Non-stop flight connections are lacking between Portland and many major U. S. cities. From Seattle and San Francisco convenient non-stop service is available to most major cities. Thus there is a travel time penalty for business trips between Portland and other points, relative to either Seattle or San Francisco. The average business traveler must spend about an hour and a half longer traveling to and from Portland than from these other West coast airports; this time is worth about $10.15 to each of them. For 1971, the time loss is about 166,000 hours, worth approximately $1.07 million to business travelers.

Calculation of Travel Time Penalty

Commercial air passengers in and out of PIA during 1971, the year surveyed, were 1,231,989 inbound and 1,235,066 outbound. Purposes of trips of passengers on commercial flights to and from PDX were taken from the Multi-Mode Transportation Terminal[1] for 1968. For PDX originating passengers there were 58% business trips and for terminating passengers there were 65% business trips.

Data from other airport studies regarding the occupational distribution of air travelers is used since none was available for Portland. It is felt that there is sufficient similarity between Portland and the other cities in occupations of air travelers. Occupations of business air travelers were determined from studies of the New York, Detroit, and Toronto metropolitan areas. The mean percentage of each category is used for the Portland International Airport.

By occupation, the percent of total trips is as follows:

Table 1

Percent of trips by Occupation

Occupation	Percent of Trips
Salesperson	6.6%
Office Worker	4.5%
Professional	58.5%

There are fifteen cities or Standard Metropolitan Statistical Areas which have non-stop service between Seattle and/or San Francisco but which lack such service for Portland. The fastest flight time to these cities from Portland and Seattle were compared to determine how much more time is required on flights to and from Portland. San Francisco was used if there was no non-stop flight from Seattle.

---

[1] Source: Port of Portland, Multi-Mode Transportation Terminal Data Base, Part I, May, 1970. Chap. VI, Sec. III; "Air O & D Activity by City County, State, or Country."

Criteria were developed for flights which would be utilized by persons traveling on business trips. Flights allowing business travelers the maximum potential to conduct business without time loss were selected.

Table 2, on p. 3, presents the relevant information on the cities chosen for analysis. The cities are indicated along with the flight times from San Francisco (SFO), Seattle (SEA) and Portland (PDX). The final column lists the time by which a flight to or from each of the fifteen cities for the comparison alternatives.

The Civil Aeronautics Board's Origin and Destination Survey provides the data needed on numbers of passengers flying between Portland and the fifteen selected cities. Table 3, on p. 4, presents the number of business trips to and from Portland for the fifteen cities of the survey. The percentage distribution of passengers by trip purpose from the Port of Portland's 1968 survey is assumed to be representative for 1971.

Annual average salaries for the occupations surveyed are presented in Table 4.

Table 4
Annual Average Salary for Selected Occupation Groups

Occupational Group	Annual Average Salary--U.S.
Professional, Executive, Technical	$14,365
Sales Workers	8,154
Office Workers	6,670
Annual Average Salary weighted by Portion of Business Travel	$13,279

For these occupation groups, the total average annual salary was calculated by determining the relative portion of each individual group as a proportion of total business travelers.

The value of the average business travelers' time is calculated to be $6.45 per hour.

The value of the time loss may now be calculated. Table 5, on p.5 , presents the data in tabular form. The time penalty differential between Portland and the fifteen selected cities is listed. This time penalty differential times the number of business trips to each city gives the total time loss for each city. Summing over all cities gives the total time loss of 187,430 hours.

The time penalty differential for each city multiplied by $6.45 per hour gives the Dollar Value Penalty per trip. The Dollar Value Penalty per trip multiplied by the Time Loss-Total Trips for each city gives the total time loss for each city. Summing over all cities gives the total value of time loss associated with business travel to and from Portland. This value of time lost is $1,070,839.

Table 2

Flight Times to Selected Domestic Cities from PDX, SFO, SEA[1]

City	Flight Times				
	Non-Stop from SFO	Non-Stop from SEA	From PDX	No. of Stops from PDX	Time PIA flight exceeds SEA non-stop (SFO time where no non-stop SEA flight exists)
Atlanta	4:10	--[2]	5:27	1	1:17
Baltimore		4:35	5:50	1	1:15
Boston		4:55	6:25	1	1:30
Cleveland	4:20	--[2]	5:20	1	1:00
Dallas-Ft. Worth		3:15	4:30	1	1:15
Kansas City		3:05	5:02	1	1:57
Las Vegas	1:10[4]	--[2]	3:09	1	:59
Miami	5:05	--[2]	6:47	1	1:42
Milwaukie	3:45	--[2]	5:15	1	1:30
Minneapolis	--[2]	2:50	3:55	1	1:05
Ontario	1:05[4]	--[2]	3:00	1	:55
Philadelphia	5:00	--[2]	6:25	1	1:25
Pittsburgh	4:30	--[2]	5:29	1	:59
Tampa	--[3]	6:27[3]	8:40	3	2:13
Wash., D.C.		4:35	6:50	1	2:15

---

[1] Choice of flights: At least leaving all weekdays allowing departure from approximately 7:00 A.M. - 12:00 P.M. and arrival from approximately 12:00 P.M. - 9:00 P.M. These are flights business travelers are likely to take--flights allowing reasonable departure so their arrival concurs with "business hours", or if not possible, early evening departure.

[2] No non-stop service.

[3] No non-stop service, all flights require at least one stop.

[4] Time lost is not the total differential between SFO and PDX. Non-stop flights in each case from PDX are expected to be 1 hour less than the difference.

SOURCE: Official Airline Guide, North American Edition, A Guide to Scheduled Air Carrier Services, vol. 17, no. 15, Aug., 1973.

The average time loss per passenger is 1 hour and 30 minutes at a value of $10.15.

It appears that on the basis of the number of trips for 1971, the year of the survey, that a certain number of non-stop flights per week between Portland and 5 to 8 of the cities listed would likely be justified on the basis of commercial profitability in addition to the time saving of business travelers. Undoubtedly in 1973 and future years there are larger numbers of trips between these cities and the time penalties are increased. There is also the matter of the additional convenience to non-business travelers. The value of their time loss has not been calculated but it is certainly not zero. A consideration of this additional factor would add to the time loss.

Table 3

Number of Business Trip to and From PDX by Selected Domestic Cities

City	Outbound	Inbound	Total
Atlanta	2,580	3,242	5,822
Baltimore	2,795	3.072	5,867
Boston	3,864	4,585	8,449
Cleveland	2,115	2,450	4,565
Dallas-Ft. Worth	5,351	6,131	11,482
Kansas City	4,543	5,011	9,554
Las Vegas	3,666	4,421	8,087
Miami	2,330	2,993	5,232
Milwaukie	1,731	1,860	3,591
Minneapolis	7,809	8,423	16,232
Ontario	6,437	6,904	13,341
Philadelphia	3,806	4,382	8,188
Pittsburgh	1,598	1,782	3,380
Tampa	953	969	1,922
Washington, D.C.	6,089	7,061	13,150
Total[1]	717,573	806,953	1,524,526

---

[1] Port of Portland, Air Activity Report, 1971, to all points, See Table 1.

APPENDIX F

PUBLIC INTEREST, REVIEW AND PUBLIC HEARING

TABLE OF CONTENTS

PAGE #

Press Releases - August 8, 1973 / November 21, 1973 . . . . F-1

Draft EIR Distribution List . . . . F - 15

Public Meetings, EIR Review Sites & Legal Notice Newspapers . . . . F - 22

Public Hearing Notice . . . . F - 24

Public Hearing - November 30, 1973 . . . . F - 29
  Opening Remarks (Procedures for Public Comment). . . . . F - 30
  Summary of the Hearing . . . . F - 35
  Response to Comments . . . . F - 46

DECEMBER 1973

PRESS RELEASES

AUGUST 8, 1973/NOVEMBER 21, 1973

Port of Portland News Release
Box 3529 Portland, Oregon 97208

No. 51 August 8, 1973

The Port of Portland today retained Haworth & Anderson, of Spokane, Washington to prepare an environmental impact report for the extension of the south parallel runway (10R/28L) at Portland International Airport, for an amount not to exceed $32,000.

The Haworth & Anderson firm has prepared about 50 environmental impact statements and reports in the past three years and is presently developing a management/administration environmental impact statement system for use by Washington state, county and city agencies.

In preparing the report, Haworth & Anderson will work closely with the Boeing Company team recently engaged by the Port to plan the south parallel runway extension. Thus environmental effects will be considered during the planning of the extension.

Russel Dawson, a Portland economic consultant, and Wyle Laboratories, of Los Angeles, will respectively conduct the economic and noise impact studies for Haworth & Anderson.

In selecting the Spokane firm, the Port contacted 17 consultants to determine their interest and ability. Proposals were requested from eight and four submitted specific offers to prepare the report.

Haworth & Anderson was selected as "the most qualified."

The retention of Haworth & Anderson today by the Port of Portland follows a July decision by the Port Commission to have consultants prepare the plan for the extension of this runway and accomplish the necessary and associated environmental impact report.

The extension of this runway is to be completed by late 1974.

****

Port of Portland News Release
Box 3529 Portland, Oregon 9720

No. 73

October 1,1973

PORT SEEKS COMMUNITY INPUT ON AIRPORT DEVELOPMENT

Three community meetings have been announced by the Port of Portland in order that Portland and Vancouver residents may furnish comments on various alternatives for lengthening the south parallel runway at Portland International Airport.

Information received during the three sessions will then be considered during the development of an environmental impact report on the project.

The three community meetings will be held:

Tuesday, October 9, 7:00 p.m.
Fremont Junior High School Cafetorium
11800 N.E. Shaver Street
Portland

Wednesday, October 10, 7:00 p.m.
Columbia School Cafetorium
716 N.E. Marine Drive
Portland

Thursday, October 11, 7:00 p.m.
Fort Vancouver Regional Library
1007 E. Mill Plain Blvd.
Vancouver

Options to be discussed during the sessions will include both easterly and westerly extensions. Any eastward extension would also involve the relocation of the north end of 82nd Avenue, to the east of its present alignment.

Briefings or additional community meetings on this project may be arranged by calling the Port of Portland, 233-8331.

****

Port of Portland News Release
Box 3529 Portland, Oregon 97208 503/

October 1, 1973

No. 73a

PORT SEEKS COMMUNITY INPUT ON AIRPORT DEVELOPMENT

Several community meetings will be held by the Port of Portland in order that Portland residents may furnish comments on various alternatives for lengthening the south parallel runway at Portland International Airport.

Information received during the sessions will then be considered during the development of an environmental impact report on the project.

Community meetings already scheduled will be held:

Tuesday, October 9, 7:00 p.m.
Fremont Junior High School Cafetorium
11800 N. E. Shaver Street
Portland

Wednesday, October 10, 7:00 p.m.
Columbia School Cafetorium
716 N. E. Marine Drive
Portland

Options to be discussed during the sessions will include both easterly and westerly extensions. Any eastward extension would also involve the relocation of the north end of 82nd Avenue, to the east of its present alignment.

Briefings or additional community meetings on this project may be arranged by calling the Port of Portland, 233-8331.

****

Port of Portland News Release
Box 3529 Portland, Oregon 97208

October 29, 1973

FOR FURTHER INFORMATION
CONTACT: BILL PROCTOR
PHONE: 233-8331 EXT. 271

No. 88

The Port of Portland has completed an Environmental Impact Report on extending Portland International Airport's south parallel runway (10R-28L) and has scheduled a series of public meetings for briefings, discussions and hearings on the project.

Port officials state the alternatives covered by the report include extending the south runway 2200 feet to the east, extending it 2200 feet to the west, extending it 2000 feet to the west and 700 feet to the east, or doing nothing. Any eastward extension of the runway will involve and include the rerouting of the northern end of 82nd Avenue between Columbia Boulevard and Airport Way.

According to the report, an 11,000 foot runway will provide Portland with the facilities to accommodate those long-haul requirements that Portland International Airport cannot presently handle with its 8000 and 8800 foot runways.

An open public hearing will be convened on Friday, November 30, 1973 at 9:00 a.m. at the Bonneville Power Administration Auditorium, 1002 N. E. Holladay Street, Portland, Oregon, to provide interested agencies, groups and persons an opportunity for public consideration of the economic, social and environmental effects of this airport development project and its consistency with the goals and objectives of such urban planning as has been carried out by the community.

Port officials said that interested parties may present written or oral testimony of their views concerning these matters at the scheduled hearing.

In addition, written statements and other exhibits relating to the runway expansion will be incorporated into the transript of the meeting, provided these statements or exhibits are submitted to Public Hearing Administrator - South Runway Project, Port of Portland, Box 3529, Portland, Oregon 97208, prior to November 22, 1973. Such written statements or other exhibits may be submitted whether or not an individual participates in the actual hearing.

To guarantee all persons an opportunity to express their views at the hearing, each speaker should limit his oral presentation to five minutes or less. If this time allocation will not provide an adequate opportunity for a fair presentation of views, the speaker is urged to contact the Public Hearing Administrator - South Runway Project in advance of the hearing and present his reasons for requiring more time.

All persons intending to make presentations at the hearing should either write or telephone (503-233-8331) the Public Hearing Administrator - South Runway Project and make known their requests to be heard.

In order to provide the public with adequate opportunity to review and study all the details of the runway lengthening project, copies of the draft environmental impact report will be available for inspection from October 30 to November 30 at 13 locations in Portland, Gresham, Oregon City, Beaverton, Hillsboro, Vancouver and Camas and three or more public briefings sessions will be conducted by Port of Portland personnal prior to the scheduled hearings.

Copies of the draft report will be available for public inspection and review at:

Aviation Information Office
Port of Portland
12th Floor
Lloyd Building
700 N.E. Multnomah Street
Portland, Oregon
(Mondays through Fridays 9:00 a.m. to 4:00 p.m.)

Reference Library
Port of Portland
11th Floor
Lloyd Building
700 N. E. Multnomah
Portland, Oregon
(Mondays through Fridays 9:00 a.m. to 4:00 p.m.)

Reference Section
Fort Vancouver Library
Vancouver, Washington
(Mondays through Thursdays 10:00 a.m. to 9:00 p.m.)
(Fridays and Saturdays 10:00 a.m. to 6:00 p.m.)

Reference Desk
Social Science Department
Multnomah County Library
801 S. W. 10th Avenue
Portland, Oregon
(Mondays through Thursdays 9:00 a.m. to 9:00 p.m.)
(Fridays and Saturdays 9:00 a.m. to 5:30 p.m.)

Beaverton City Library
4900 S.W. Hall Boulevard
Beaverton, Oregon
(Mondays through Thursdays Noon to 8:30 p.m.)
(Fridays and Saturdays 10:00 a.m. to 5:00 p.m.)

Hillsboro City Library
209 E. Lincoln
Hillsboro, Oregon
(Mondays through Thursdays Noon to 9:00 p.m.)
(Fridays and Saturdays 10:00 a.m. to 5:00 p.m.)

Peninsula Park Community Center
6400 N. Albina
Portland, Oregon
(Mondays through Fridays 10:00 a.m. to 10:00 p.m.)

Montavilla Park Community Center
8219 N. E. Glisan
Portland, Oregon
(Mondays through Fridays 9:00 a.m. to 10:00 p.m.)

Oregon City Public Library
606 John Adams Street
Oregon City, Oregon
(Mondays through Wednesdays 9:30 a.m. to 8:00 p.m.)
(Thursdays through Saturdays 11:00 a.m. to 5:30 p.m.)

Gresham Branch Library
410 N. Main Street
Gresham, Oregon
(Tuesdays through Thursdays 10:00 a.m. to 9:00 p.m.)
(Fridays and Saturdays 10:00 a.m. to 5:30 p.m.)

Rockwood Branch Library
17917 S. E. Stark
Portland, Oregon
(Tuesdays through Thursdays 10:00 a.m. to 9:00 p.m.)
(Fridays and Saturdays 10:00 a.m. to 5:30 p.m.)

Gregory Heights Branch Library
7921 N. E. Sandy Boulevard
Portland, Oregon
(Tuesdays through Thursdays 10:00 a.m. to 9:00 p.m.)
(Fridays and Saturdays 10:00 a.m. to 5:30 p.m.)

Camas High School Library
1612 N. E. Garfield Street
Camas, Washington
(Mondays through Fridays 9:00 a.m. to 3:00 p.m.)

Public briefing sessions have thus far been scheduled for the following dates, times and locations:

Wednesday, November 7, 7:00 p.m.
Fort Vancouver Regional Library
Vancouver, Washington

Tuesday, November 13, 7:00 p.m.
Fremont Junior High School
11800 N. E. Shaver Street
Portland, Oregon

Wednesday, November 14, 7:00 p.m.
Columbia School
716 N. E. Marine Drive
Portland, Oregon

Port spokesmen indicate they would welcome the opportuntiy to meet with additional groups prior to the hearings to discuss this airport development project. Requests for such meetings may be submitted in writing or by telephone to the Public Hearing Administrator - South Runway Project, Port of Portland, Box 3529, Portland, Oregon 97208, or (503) 233-8331.

Port of Portland
News Release
Box 3529 Portland, Oregon 97208

No. 89 November 1, 1973

A Port of Portland exhibit of the environmental impacts on several plans to extend the south runway at Portland International Airport will be on display at the Fort Vancouver Regional Library on November 5, 6 and 7.

In addition, the exhibit will be used in the public meeting downstairs at the library at 7:00 p.m., November 7.

For further information
call Bill Proctor
(503) 233-8331 Ext. 271

WGP:K936/6-5

Port of Portland News Release
Box 3529 Portland, Oregon 97208

No. 90

November 1, 1973

A Port of Portland exhibit of the environmental impacts on several plans to extend the south runway at Portland International Airport will be on display at the Gregory Heights Branch Library, 7921 N. E. Sandy Boulevard, from Thursday, November 8 through Tuesday, November 13.

The Gregory Heights Branch Library is open Tuesdays through Thursdays, 10:00 a.m., to 9:00 p.m., and Fridays and Saturdays, 10:00 a.m., to 5:30 p.m.

For further information
call Bill Proctor
233-8331 Ext. 271

WGP:K936/6-5

Port of Portland News Release
Box 3529 Portland, Oregon 97208

November 5, 1973

FOR FURTHER INFORMATION
CONTACT: BILL PROCTOR
PHONE: 233-8331 EXT. 271

No. 92

Two public briefing sessions in Northeast Portland have been arranged by the Port of Portland on the Port's Environmental Impact Report pertaining to extending Portland International Airport's south runway.

The meetings will be held at 7:00 p.m. on Tuesday, November 13 at Fremont Junior High School, 11800 N.E. Shaver Street and at 7:00 p.m. on Wednesday, November 14 at Columbia School, 716 N.E. Marine Drive.

Additional meetings may be scheduled by calling the Public Hearing Administrator - South Runway Project at 233-8331 Extension 244.

* * *

Port of Portland News Release

Box 3529 Portland, Oregon 97208

FOR FURTHER INFORMATION
CONTACT Bill Proctor
Phone: 233-8331, Ext. 271

No. 102 November 21, 1973

PORT COMMISSION TO CONDUCT PUBLIC HEARING

Port of Portland commissioners will conduct the November 30 public hearing on the environmental impact report pertaining to the Port's proposed plan to extend Portland International Airport's south runway.

In announcing administrative details for the meeting, Alan Green, Jr., Vice President of the Port of Portland Commission, indicated that several members of the board would constitute the hearing body.

Interested parties are reminded, added Green, that they may present either written or oral testimony of their views at the hearing. In addition, statements and exhibits will be incorporated into the transcript of the meeting provided they are submitted to Public Hearing Administrator - South Runway Project, Port of Portland, Box 3529, Portland, Oregon 97208, prior to the hearing. Such statements or exhibits may be submitted by any interested party, whether or not such party participates in the actual hearing.

The meeting, to be held in the Bonneville Power Administration auditorium, 1002 N. E. Holladay Street, Portland, will start at 9:00 a.m.

****

DRAFT EIR DISTRIBUTION LIST

COMPLETE EIR DISTRIBUTION LIST

Port Commissioners: Joseph M. Edgar John M. Fulton Walter Gadsby Raymond Kell Glen Odell James Burdett Thayer Alan Green, Jr. Robert J. Rickett Robert F. Wallace	9
City Commissioners: Mayor Neil Goldschmidt Connie McCready Mildred Schwab Francis J. Ivancie Lloyd Anderson City of Portland City Hall Portland, Oregon 97204	5
Multnomah County Commission: James Gleason, Chairman Dan Mosee Ben Padrow Donald E. Clark Mel Gordon Multnomah County Courthouse Portland, Oregon 97205	10
Robert Baldwin Multnomah County Planning Department 1107 S. W. 4th Avenue Portland, Oregon 97204	6
William C. Kramer, Supervisor Local Government Relations Division 240 Cottage Street, S. E. Salem, Oregon 97310	8
Thomas D. Telford, Chairman Clackamas County Commissioners Clackamas County Courthouse Oregon City, Oregon 97045	5
Eldon Hout, Chairman Washington County Commissioners Washington County Courthouse Administrative Building Hillsboro, Oregon 97123	10

Hardy Myers, Jr., President 3
Portland City Planning Commission
424 S. W. Main Street
Portland, Oregon 97204

Department of Environmental Quality 1
1234 S. W. Morrison
Portland, Oregon 97205

Columbia Region Association of Governments 5
6400 S. W. Canyon Court
Portland, Oregon 97204

Allen Harvey, City Manager 5
City of Vancouver
Vancouver City Hall
Vancouver, Washington 98660

Dean Cole, Chairman 3
Clark County Commissioners
Clark County Courthouse
Vancouver, Washington 98660

Robert Archer, Chairman 5
Clark County-City Regional Planning Commission
2400 "T" Street
Vancouver, Washington 98661

Oregon Environmental Council 1
2637 S. W. Water
Portland, Oregon 97201

Federal Aviation Administration 3
(Randy Perkins delivered)

Art Caven, President 1
Progressive Businessmen's Club
975 Boise Cascade Building
1600 S. W. 4th
Portland, Oregon 97205

Parkrose Chamber of Commerce 1
9015 N. E. Humboldt
Parkrose, Oregon

Commercial Club of Portland 1
710 N. E. 21st
Portland, Oregon

Portland Board of Realtors 1
321 S. W. 4th Avenue
Portland, Oregon

Bob Bryant, Manager & Executive 1
Vice President
Gresham Chamber of Commerce
280 N. E. Roberts
Gresham, Oregon 97230

Associated General Contractors 1
1008 N. E. Multnomah
Portland, Oregon

Hollywood Boosters 1
4035 N. E. Sandy Boulevard
Portland, Oregon

Bill Isotalo, President 1
Columbia Aviation Country Club
5506 N. E. Marine Drive
Portland, Oregon 97211

Harry K. Stevens, President 1
Oregon Building Congress
900 S. W. Fifth Avenue - 16th Floor
Portland, Oregon 97204

Craig Adams, World Trade and 1
Transportation Manager
Portland Chamber of Commerce
824 S. W. 5th Avenue
Portland, Oregon 97204

Mr. Heyes Peterson 1
7117 East Evergreen
Vancouver, Washington 98661

Mr. Vernon L. Bowman 1
14620 N. E. Broadway
Portland, Oregon 97230

Western Environmental Trades Council 1
620 S. W. 5th
Portland, Oregon

Dr. Carl Petterson 1
2612 S. E. Evergreen Boulevard
Vancouver, Washington 98664

Ms. Virginia Young 1
804 S. E. 94th
Vancouver, Washington 98664

Mr. Harold Kern 1
111 West 37th Street
Vancouver, Washington 98660

William Hanson, Supervisory Auditor 1
General Accounting Office
527 East Burnside
Portland, Oregon 97201

Bill Proctor distributed the EIR to the following:

Vancouver Library	2
Camas High School Library	1
Montavilla Community Center	1
Port -- 12th Floor	1
Gregory Heights Library	1
Port -- 11th Floor	1
McCann-ERickson	1
Multnomah County Library	2
Beaverton Library	1
Hillsboro Library	1
Peninsula Park Community Center	1
Oregon City Library	1
Gresham Library	1
Rockwood Library	1
Camas City Library	1

Dennis Lundblad, Section Head State of Washington Department of Ecology Olympia, Washington	1
Herb Claire, Deputy Regional Administrator U. S. Environmental Protection Agency Region X 1200 Sixth Avenue Seattle, Washington 98101	1
Walt Jaspers, Environmental Empact Statement Coordinator U. S. Environmental Protection Agency Region X 1200 Sixth Avenue Seattle, Washington 98101	1
Portland International Airport Facilities Planning Committee	8
Art Slack, Senior Planner Washington County Planning Department County Courthouse Hillsboro, Oregon	1
Brig. General Gordon Doolittle Commander, OANG Portland Air Base Portland, Oregon 97220	1
David Hinson Flightcraft, Inc. 7505 N. E. Airport Way Portland, Oregon 97218	1
Larry Fortier PIA Tower Office 7000 N. E. Airport Way Portland, Oregon 97218	1
Ralph Cole Western Airlines 7000 N. E. Airport Way Portland, Oregon 97218	1
Robert W. Stark United Air Lines 7000 N. E. Airport Way Portland, Oregon 97218	1
A. E. Long Pan American Airways 7000 N. E. Airport Way Portland, Oregon 97218	1

F. A. Faist 1
Northwest Airlines
7000 N. E. Airport Way
Portland, Oregon 97218

Terry H. Hunter 1
Hughes Airwest
7000 N. E. Airport Way
Portland, Oregon 97218

Robert A. Beckman 1
The Flying Tiger Line
7000 N. E. Airport Way
Portland, Oregon 97218

Jesse Wedding 1
Eastern Air Lines
7000 N. E. Airport Way
Portland, Oregon 97218

K. R. Hastings 1
Continental Air Lines
7000 N. E. Airport Way
Portland, Oregon 97218

Ray Reeves 1
Braniff International
7000 N. E. Airport Way
Portland, Oregon 97218

PUBLIC MEETINGS, BRIEFINGS, EIR REVIEW
SITES AND LEGAL NOTICE NEWSPAPERS

PUBLIC MEETINGS

Public Input Meetings - Planning Stage

Fremont Junion High School	October 9
Columbia School	October 10
Fort Vancouver Regional Library	October 11

Public Briefings for November 30 Hearing

Fort Vancouver Regional Library
Fremont Junior High School
Columbia School

EIR Review Sites November 30 Hearing

Port of Portland (2)
Fort Vancouver Regional Library
Multnomah County Library
Beaverton City Library
Hillsboro City Library
Peninsula Park Community Center
Montavilla Park Community Center
Oregon City Public Library
Gresham Branch Library
Rockwood Branch Library
Gregory Heights Branch Library
Camas High School Library
Camas Public Library

Other Briefings on EIR

Beaverton Kiwanis
Hillsboro League of Women Voters
Hillsboro Optimists
Vancouver Chamber of Commerce
Hillsboro Kiwanis
Oregon Travel Industry Conference
Cedar Hills Kiwanis
Oregon Enginerr Technicians
Western Airlines Marketing Seminar

Publication of Legal Notice of November 30 Hearing

Portland Oregonian
Oregon Journal
Hillsboro Argus
Gresham Outlook
Vancouver Columbian
Oregon City Enterprise Courier

PUBLIC HEARING NOTICE

NOTICE OF OPEN PUBLIC HEARING

CONCERNING PROPOSED AIRPORT DEVELOPMENT

AT

PORTLAND INTERNATIONAL AIRPORT

PORTLAND, OREGON

On Friday, November 30, 1973, at 9:00 a.m. an open public hearing will be convened on the following proposed airport development:

> The construction of an extension to the existing south parallel runway (10R-28L); additional parallel taxiway to serve the lengthened runway; the installation of necessary supplementary lighting, marking and Category II equipment; and, if necessary, the relocation of N.E. 82nd Avenue.
>
> Alternatives to be considered at the hearing will include but need not be limited to the following:
>
> Extending the south runway 2200 feet to the east; extending it 2200 feet to the west; extending it 2000 feet to the west and 700 feet to the east; or doing nothing. Any eastward extension of the runway will involve and include the rerouting of the northern end of 82nd Avenue between Columbia Boulevard and Airport Way.

The hearing, to be held in the Bonneville Power Administration Auditorium, at 1002 N.E. Holladay Street, Portland, Oregon, will afford interested agencies, groups and persons an opportunity for public consideration of the economic, social and environmental effects of this airport development project and its consistency with the goals and objectives of such urban planning as has been carried out by the community.

At the hearing, interested parties may present written or oral testimony of their views concerning these matters. In addition, written statements and other exhibits relating to these matters will be incorporated into the transcript of the meeting, provided such statements or exhibits are submitted to Public Hearing Administrator - South Runway Project, Port of Portland, P. O. Box 3529, Portland, Oregon 97208, prior to November 22, 1973. Such written statements or other exhibits may be submitted by any interested party, whether or not such party participates in the actual hearing.

Although it is not mandatory, the Port of Portland Commission requests that each person intending to make a presentation at the hearing notify the Public Hearing Administrator - South Runway Project in writing or by telephone (503-233-8331) by November 22, 1973. In order to afford all persons desiring to express their views an opportunity to be heard, each speaker should plan to limit his oral presentation to five minutes. If this time allocation will not provide an adequate opportunity for a fair presentation of his views, the speaker should contact the Public Hearing Administrator - South Runway Project in advance of the hearing.

The Port of Portland is required, pursuant to Section 102 (2) (a), (b), (c), National Environmental Policy Act of 1969; ~~Section 4 (f),~~ Department of Transportation Act; Sections 16 (c) (3), 16 (4) and 16 (d), Airport and Airway Development Act of 1970, to prepare an environmental impact report relating to the proposed airport development. Such a report and other relevant documents relating to the airport and this project are available for public inspection and review during the period of October 30 through November 30 at the following offices and locations at the times indicated:

Aviation Information Office
Port of Portland
12th Floor
Lloyd Building
700 N.E. Multnomah Street
Portland, Oregon
(Mondays through Fridays 9:00 a.m. to 4:00 p.m.)

Reference Library
Port of Portland
11th Floor
Lloyd Building
700 N.E. Multnomah
Portland, Oregon
(Mondays through Fridays 9:00 a.m. to 4:00 p.m.)

Reference Section
Fort Vancouver Library
Vancouver, Washington
(Mondays through Thursdays 10:00 a.m. to 9:00 p.m.)
(Fridays and Saturdays 9:00 a.m. to 6:00 p.m.)

Reference Desk
Social Science Department
Multnomah County Library
801 S.W. 10th Avenue
Portland, Oregon
(Mondays through Thursdays 9:00 a.m. to 9:00 p.m.)
(Fridays and Saturdays 9:00 a.m. to 5:30 p.m.)

Beaverton City Library
4900 S.W. Hall Boulevard
Beaverton, Oregon
(Mondays through Thursdays Noon to 8:30 p.m.)
(Fridays and Saturdays 10:00 a.m. to 5:00 p.m.)

Hillsboro City Library
209 E. Lincoln
Hillsboro, Oregon
(Mondays through Thursdays Noon to 9:00 p.m.)
(Fridays and Saturdays 10:00 a.m. to 5:00 p.m.)

Peninsula Park Community Center
6400 N. Albina
Portland, Oregon
(Mondays through Fridays 10:00 a.m. to 10:00 p.m.)

Montavilla Park Community Center
8219 N.E. Glisan
Portland, Oregon
(Mondays through Fridays 9:00 a.m. to 10:00 p.m.)

Oregon City Public Library
606 John Adams Street
Oregon City, Oregon
(Mondays through Wednesdays 9:30 a.m. to 8:00 p.m.)
(Thursdays through Saturdays 11:00 a.m. to 5:30 p.m.)

Gresham Branch Library
410 N. Main Street
Gresham, Oregon
(Tuesdays through Thursdays 10:00 a.m. to 9:00 p.m.)
(Fridays and Saturdays 10:00 a.m. to 5:30 p.m.)

Rockwood Branch Library
17917 S.E. Stark
Portland, Oregon
(Tuesdays through Thursdays 10:00 a.m. to 9:00 p.m.)
(Fridays and Saturdays 10:00 a.m. to 5:30 p.m.)

Gregory Heights Branch Library
7921 N.E. Sandy Boulevard
Portland, Oregon
(Tuesdays through Thursdays 10:00 a.m. to 9:00 p.m.)
(Fridays and Saturdays 10:00 a.m. to 5:30 p.m.)

Camas High School Library
1612 N.E. Garfield Street
Camas, Washington
(Mondays through Fridays 9:00 a.m. to 3:00 p.m.)

In order that persons and groups may receive information on this project, public briefings have been scheduled as follows:

Wednesday, November 7, 7:00 p.m.
Fort Vancouver Regional Library
Vancouver, Washington

Tuesday, November 13, 7:00 p.m.
Fremont Junior High School
11800 N.E. Shaver Street
Portland, Oregon

Wednesday, November 14, 7:00 p.m.
Columbia School
716 N.E. Marine Drive
Portland, Oregon

The Port of Portland welcomes the opportunity to meet with additional groups prior to the hearing to discuss this airport development project. Requests for such meetings should be submitted in writing or by telephone to the Public Hearing Administrator - South Runway Project, Port of Portland, P. O. Box 3529, Portland, Oregon 97208, or (503) 233-8331.

Port of Portland Commission

BY: John M. Fulton
President

PUBLIC HEARING - NOVEMBER 30, 1973

OPENING REMARKS - PRODEDURES FOR PUBLIC COMMENT

SUMMARY OF HEARING

RESPONSE TO COMMENTS

OPENING REMARKS AT THE PUBLIC HEARING 11/30/73 ON THE ENVIRONMENTAL IMPACT REPORT PERTAINING TO THE EXTENSION OF THE SOUTH RUNWAY AT PORTLAND INTERNATIONAL AIRPORT

This hearing will come to order.

Good morning, ladies and gentlemen. I would like to take this opportunity to welcome you to this public hearing on a proposed project by the Port of Portland that would basically extend Portland International Airport's south runway 2,200 feet.

I will preside over this hearing as hearing officer. My name is Alan Green. I am vice president of the Port Commission. With me are Walter Gadsby, Glen Odell and Robert Rickett, all Port of Portland Commissioners.

It is my purpose to insure that everyone here has an opportunity to participate in this hearing.

Remember, this is your hearing. I am here to see that you have a chance to make your statements and to present your views on the project.

This hearing is being held by the Port of Portland pursuant to Section 16(d) of the Federal Airport and Airway Development Act of 1970. Section 16(d) provides, in part, that no project involving the extension of a runway may be approved by the Secretary of Transportation unless there has been afforded the opportunity for public hearings for the purpose of considering the economic, social and environmental effects of the project and its consistency with the goals and objectives of such urban planning as has been carried out by the community.

The purpose of this hearing is to consider those social, economic and environmental effects of the project and its consistency with local urban planning. "Social, economic and environmental effects" mean the direct and indirect benefits or losses to the community as a result of the proposed development. These may include but are not limited to--

1. Safe and efficient air transportation.
2. Economic activity.
3. Public health and safety.
4. Property values.
5. The human and natural environment as effected by:
    a. Noise, air and water pollution.
    b. Neighborhood character and location.
    c. Aesthetics, parks and recreation areas.
    d. Natural and historic landmarks.
    e. Conservation (erosion, sedimentation, wildlife and general ecology of the area).

Now, ladies and gentlemen, I have here a copy of the public notice of this hearing, describing the purpose and scope of this hearing. It is rather lengthy and I will not read it at this time. It will, however, appear in the records of this proceeding.

I also have lists of those persons or agencies who received direct notices of this hearing, the names of the newspapers that published legal notices of this hearing, and individuals and groups to whom we've furnished copies of a paper on this project. Again, to save time I will not read these lists, which will appear verbatim in the records of this proceeding.

Pertinent materials describing the project and an Environmental Impact Report have been made available for public inspection and review at 13 locations throughout the area for the past 30 days. These materials and copies of the published notice of this hearing and the distribution lists are now on display at the table in the back of the auditorium. Part 25, Department of Transportation Regulations, requires that a plan for the relocation of persons occupying property involved be available for discussion and comment. Port of Portland's plan has been approved by the Federal Aviation Administration and is also available at the table in the rear of the auditorium.

At this hearing interested parties, both proponents and opponents of the project, may present oral or written statements of their views. In addition, written statements and other exhibits will be incorporated into the transcript of the hearing. The record of this hearing, including all materials and exhibits submitted, will be forwarded to the Northwest Regional Office of the Federal Aviation Administration, along with the Environmental Impact Report prepared for this project dated October 31, 1973, for FAA's use in determining whether or not to give financial aid to the Port for this airport development project. Such written statements or other exhibits may be submitted by any interested party whether or not such party participates in the oral hearings. Oral statements presented today may also be supplemented by written statements. Any written statement or exhibit to be presented today should be given to the hearing assistant at the table in the rear of the room. A transcript of the hearing is being made pursuant to the requirements of the Airport and Airway Development Act of 1970. Mr. Gordon Rude is our reporter, and his notes when typed will become a part of the transcript of this proceeding.

As stated in the notice of the hearing, it is requested that speakers limit their oral presentations to about five minutes so that all persons desiring to express their views can be afforded a fair opportunity to be heard.

In the interest of an orderly hearing, each person desiring to speak or ask any questions at this hearing should fill out a card which will identify such person and the organization which he represents, if any. If you are interested in participating and have not yet completed such a card, please do so. Cards are available at the table near the entrance to this room and are being distributed and collected in the aisles. Separate cards are available for those who would like to ask questions only. I will be in charge of the procedural matters at this hearing. The Port and its consultants will first make brief presentations describing the project. I will then recognize those persons who have given advance notice of their desire to speak as requested in the published notice of this hearing. Next I will recognize the other speakers in the order of their card number.

After these presentations have been completed, I will recognize persons who desire to ask questions only, once again in the order of their card numbers. If a person desires and would prefer to ask a question in writing rather than orally from the lectern, please write the question on your numbered card. Your written question will then be presented orally for you in the order of your card number.

All questions should be directed to me. I will then refer each proper question to the appropriate person for an answer. I will not refer any questions that are irrelevant, immaterial or repetitive.

Each person must speak or ask questions at the lectern in front of the room. A microphone is placed there for each person to use, and in order for your remarks or your questions to become a part of the record, it is necessary that those questions and remarks be made from the lectern. In your introductory remarks please state your name and address.

Now, ladies and gentlemen, that is my presentation. We intend to conduct this meeting fairly so that all of you have an opportunity to speak and to express your views.

JRP/L218/LT

PUBLIC HEARING SUMMARY

The Port of Portland held a public hearing on November 30, 1973, for the purpose of considering the economic, social, and environmental effects of Portland International Airport's south runway extension project and its consistency with the goals and objectives of community urban planning. Oral testimony and questions were presented by 15 persons or organizations and additional written testimony was received from 6 organizations.

Written testimony received on or prior to December 7, 1973, is included herein.

SUMMARY

Mr. Roy Strandberg, of the Boeing Company and Dr. Anthony Anderson, of Haworth and Anderson began the hearing by giving statements concerning their respective contributions to the Environmental Impact Report. After their report and the Port of Portland's follow-up by Ken Weber, testimony began.

The following is summary of all testimony received during or following the public hearing:

Mr. Richard Close, Columbia South Shore Study Association:

1. Maps 14, 15, 16, 17, 18 and 19 are inaccurate because they show little or no industrial development north of Sandy Boulevard east of the airport and very little west of the airport. This space is identified as "Agricultural, Forest & Other Open Space."

(See response 1)

2. The statement, "Note: Due to lack of significant change in land use patterns, this map is a fair representation of current land use," typed on the maps mentioned in #1 show that the Port of Portland, again, is guilty of attempting to, by inference, keep private owners from proceeding with any use of their property that conflicts with possible future plans of acquisition.

(See response 1)

3. The Port alluded to no significant change when they were actually a party to an implied moratorium resulting from their participation in the South Shore Study that prohibited any major change from 1970 to May 3, 1973.

(See response 1)

4. The Port is aware of the industrial growth in the area because this was a major issue in the South Shore Study that ended in the County Commission hearing on May 3, 1973.

(See response 1)

5. Mt. Hood Community College, Rockwood Grade School, Columbia View, Parkrose Summer and Shaver schools are all in the affected area and not evaluated.

(See response 2)

The Columbia South Shore Study Association urges the Port of Portland to improve its public relations with citizen-owners around the airport.

(See response 13)

7. We support the project as long as no excess land is acquired to go into competition with private industry. (See response 3)

Question from Harold S. Jeans, South Shore Study Association:

1. In the event that an extension of said runway should cause a reduced usage potential or other adverse effect to presently owned property in the surrounding area, will the Port of Portland compensate the owners for the reduced value or usage?

(See response 4)

Mr. Edward J. Whelan, director of the Economic Development Department of the State of Oregon:

1. PIA is vital to the healthy economic growth of Oregon, and to the region.

(No response required)

Mr. Kenneth Puttkamer, manager of Pearson Air Park in Vancouver, Washington and representing Harold Kern, Chairman of the Vancouver City Aviation Advisory Committee:

1. A study of the report revealed no adverse affects to Pearson Airpark or downtown Vancouver from any of the alternatives presented.

(No response required)

2. The most logical extension would be to the west and we approve.

(No response required)

3. We are disappointed both runways were not rotated 7½ degrees to the south.

(No response required)

4. The Vancouver City Council also approved this letter November 27, 1973.

(No response required)

Mr. Harry W. Erickson, concerned citizen:

1. I am against going to St. Paul; I want the airport to remain where it is at.

(No response required)

2. I am concerned about the industrial development around the airport and would rather see agricultural land.

(No response required)

3. I favor the 2,200 foot extension to the west.

(No response required)

4. I am against the I-205 Freeway.

(No response required)

Mr. Chris Hess, concerned citizen:

1. I am against inflation brought to Oregon residents due to methods of deficit debt financing used by the Port of Portland to make provisions for pleasure travel through PIA.

(See response 5)

2. Will the Port of Portland pay back to the Multnomah County monies the runway extension may cost the taxpayer?

(See response 5)

3. I am concerned that Multnomah County roads have been neglected because of PIA.

(No response required)

Mr. R. C. Guimary, Distribution Manager of the Oregon Chain Saw Division of Omark Industries.

1. Due to shipping and receiving a large volume of air freight, Omark supports extension of the runway.

(No response required)

Mr. Dean Arehart, President of the Aviation Committee of the Portland Chamber of Commerce:

1. The Chamber of Commerce (PCC) identifies with the Boeing Report and supports it because interest is in the commercial aspects of this expansion.

(No response required)

2. The PCC was also in favor of the original expansion program.

(No response required)

3. We support Plan 1, the westerly extension of 2,200 feet.

(No response required)

4. The PCC is not in favor of expansion for the sake of expansion, but wants to be at least in a competitive position with other west coast airports.

(No response required)

5. The extension will eventually give Portland an FAA Category II status allowing for increased navigational aids to operate with lesser minimums, of visibility and ceiling.

(No response required)

Greater Gresham Chamber of Commerce, Robert T. Bryant, Executive Vice President:

1. We support expansion to handle growth of the metropolitan area as well as accommodate modern aircraft.

(No response required)

Dr. Carl Petterson, Citizen's Committee for the Columbia River and the Columbia River Group, Sierra Club Waterways Committee.

1. We approve extension of the south runway, but oppose the EIS in its present form because the final EIS must be authored by the responsible federal agency.

(See response 6)

2. Port bias is too frequently present in the D.E.I.S., especially in the historical review of the previous master expansion plan.

(See response 7)

3. The Port could have accomplished what it now proposes 5 years ago with millions of dollars saved.

(No response required)*

4. The Citizen's Committee for the Columbia River wants a clearing of litigation relating to the previous master expansion plan.

(No response required)*

5. The Port has two "game plans," one for public consumption and one for the courtrooms and by this, the Port will never gain credibility.

(No response required)*

6. We are concerned about the lack of coordination between the Port and the Highway Departments in the planning of the I-205 Bridge.

(See response 9)

7. We feel the Port is holding back facts from the public about dredge fill that the I-205 Bridge is still being planned to be built on. We desire the Port to lay all their cards on the table to prevent any further litigation.

(No response required)*

*Relates to a previous Master Expansion Plan project that has been deferred indefinately.

8. We want a PIA Master Plan to be developed now.

(See response 8)

9. In the Master Plan, the river islands would be committed to a particular type of use.

(See response 8)

10. We find the Wyle Noise Impact Study more realistic and believable than the previous BBN Studies.

(No response required)

11. We feel that noise patterns for 1980 and 1990 are conjectural due to yet undeveloped quiet aircraft.

(See response 16)

12. We feel that piece-mealing the airport development deliberately escapes discussion of impacts of runway 2-20 and that the Wyle predictions as to NEF contours and the table on page III-1 are in error, but would be correctable by use of the physical measurements recently recorded by FAA and secreted as sensitive data.

(See response 17)

13. We believe the statement on page VII-4 beginning with, "Another technique may be applicable. . .," should exist as defined corridors that would avoid noise sensitive areas and permit intelligent land use planning instead of just promises which may never be kept.

(See response 18)

14. We request that FAA require the present EIS to be expanded into a full Master Plan.

(See response 8)

Mr. Manuel Garcia, Manager of CF Air Freight and with the Portland Air Cargo Association:

1. I support the runway extension of 2,200 feet westerly because the increased demand for air freight service and the competition Portland has with other northwest airports mandates the aircraft capability realized by this runway extension.

(No response required)

Mr. Cliff Sroka, Noise Control Engineer for the Oregon State Department of Environmental Quality:

1. In general, DEQ is in concurrence with the report's conclusion that Plan 1 will have the least amount of impact in relation to air and noise pollution.

(No response required)

2. Of primary concern in relation to the adoption of Plans II and III is the relocation of N.E. 82nd Avenue, the projected increase in emission density in the vicinity of the 82nd Avenue south runway climbout corridor and the projected adverse noise impact upon northeast Portland residents.

(No response required)

3. DEQ concurs that Plan I should have little significant air impact on air quality at PIA or within the Portland Metropolitan area as a whole.

(No response required)

4. The report's concern with possible violation of hydrocarbon ambient air standards is minor since a recent major program to reduce vehicular emissions through transportation control and automotive emissions reduction strategies has been undertaken.

(No response required)

5. Concerns expressed in the EIR dealing with projected oxides of nitrogen air standards violations in the climbout box should not prove to be a problem.

(No response required)

6. DEQ finds the D.E.I.R. deficient because the impact of coarse particulates emitted from aircraft during climbout has not been projected.

(See response 24)

7. An evaluation of the impact of the south runway extension at the time of its completion should also be included in the final report.

(See response 10)

8. Noise levels and annoyances generated from PIA operations are excessive in some areas - 35 schools exceeding Federal guidelines and significant numbers of hospitals and churches subjected to excessive noise.

(No response required)

9. The "Two segment landing approach" should be an effective noise reduction procedure and should be implemented as soon as practical.

(See response 18)

10. All aircraft using PIA are proposed to be retrofitted with acoustically treated engine nacelles to meet FAA regulations by 1980. DEQ questions the economic feasibility of the retrofitting of existing turbofan engines with modified front end fans to reduce fan noise.

(See response 16)

11. A specific land use plan should be prepared and adopted to include acquisition of residential property and control of development within the NEF 35 contour.

(See responses 19 and 23)

12. The Port should implement a flight scheduling program to encourage only daytime use of the noisiest aircraft types - DC8 series 61, DC8 series 63, Boeing 707-320B.

(See response 20)

Mr. William J. Pruvis, Vancouver Chamber of Commerce:

1. We endorse the westwardly expansion of the south runway.

(No response required)

2. We are concerned about close adherence by aircraft to the exit and entrance corridor patterns.

(See response 18)

3. We recognize that the Port of Portland has adequately fulfilled the requirements of Section 16-C of the Airport and Airway Development Act of 1970.

(No response required)

Mr. Harry Stevens, president of Oregon Building Congress:

1. Because there is a need for an end to further costs to the taxpayer in delays for the upgrading of PIA to a competitive level with other airports and because the project is most progressive, logical and necessary, the OBC approves the westerly extension of the south runway.

(No response required)

2. The dogmatic positions taken by both the environmental and industrial extremists must cease in order to eliminate any further needless private and tax dollar expenditures.

(No response required)

Mr. Richard Barnum, Regional Planning Council of Clark County, representing Clark County, all of the cities in Clark County and several other agencies such as the Southwest Washington Air Pollution Control Authority (SWAPCA):

1. We unanimously approve the proposed 2,200-foot south runway extension to the west.

(No response required)

2. We favor the expansion plan because it does not intrude into the Columbia River and yet meets the emerging aviation demands.

(No response required)

3. We want an evaluation, in terms of impact on ambient air quality, of the Port's proposals for increased commercial and related activities, which will increase emissions to the surrounding airshed. SWAPCA feels that some of the data used is out-dated, incomplete, and misleading.

(See response 25)

4. SWAPCA is worried that significant short-term excesses might be obscured by the use of annual, geometrically-smoothed averages.

(See response 26)

5. We question the adequacy of the simple box model used for analysis in the Impact Report.

(See response 27)

6. We question the Port's assumption that ground vehicles can be controlled to reduce the extent of airport-associated photochemical smog.

(See response 28)

7. SWAPCA questions air transportation which uses up so much of the metropolitan area's air pollution "allowances;" and whether an increased rate of air transport growth should be solicited.

(See response 29)

8. We encourage any policies and operational procedures that will reduce acoustical intrusions suffered by Clark County.

(See response 18)

9. We also favor a reduction in the use of and related noise impact from the crosswind runway.

(No response required)

10. We desire an indication in the body of the report as to which noise abatement strategy is to be associated with future airport operations.

(See response 18)

11. The energy consumption section might have explored in greater detail the secondary surface transportation generated by accelerated airport activities.

(See response 30)

12. We need a projected impact of airport-associated traffic upon our most current concepts of what the highway system and public transportation systems will be in the future.

(See response 15)

13. How will airport-generated traffic affect Clark County?

(See response 15)

14. We urge adoption of alternative II Plan I, the 2,200 foot westerly extension project.

(No response required)

Multnomah County Board of Commissioners:

1. We concur with the conclusion and we are for the westerly extension due to its having the least adverse environmental impact.

(No response required)

2. Nothing has been given in the report to suggest that the general economic growth of the airport is dependent upon a runway extension. If the dependancy doesn't exist, the no build alternative would be the least expensive.

(See response 11)

3. What is the net tonnage increase as a result of the runway extension project compared to the no build alternative?

(See response 11)

4. The Port should amend the final report with full documentation of fuel consumption by side-bodied aircraft as it relates to payload and related air pollution because it would probably lend additional support to the runway extension.

(See response 31)

5. Do the projected noise contours reflect the use of the two-step glide approach, the new aircraft designs and a full payload? If not, how will these factors modify the noise levels?

(See response 21)

6. If the no build alternative is selected, what happens to the fill on both ends of the south runway? Remain? Moved? Impact? Should recontouring and screen planting take place?

(See response 12)

Additional written testimony:

Mr. John Neilson and Susan Tornquist, Oregon Environmental Council:

1. We are against the expansion into the Columbia River.

(No response required)

2. We concur that the 2,200-foot extension to the west of the south runway should take place because with this plan environmental quality is protected.

(No response required)

3. We are against the 82nd Avenue relocation because of added air quality degradation.

(No response required)

4. We urge the Port adoption of all operational and technical noise abatement procedures outlined in the EIS.

(See response 18)

Mr. David R. Hinson, President, Flightcraft, Incorporated:

1. I agree with staff recommendation to proceed with Plan I.

(No response required)

Mr. Hurlon C. Ray, Assistant Regional Administrator for Management, U.S. Environmental Protection Agency, Region X:

1. We need a count of houses impacted which lie in the NEF 40-30 contours.

(See response 22)

2. More emphasis should be placed on land acquisition of noise sensitive property for right-of-way purposes.

(See response 19)

3. The EIR does not discuss land acquisition of the most severely impacted areas.

(See response 19)

4. A more in-depth discussion of land acquisition and land use planning should be included in the final statement.

(See response 19)

Mr. Neil Goldschmidt, Mayor, City of Portland:

1. The City of Portland supports the South Runway Extension and endorses Plan I.

(No response required)

Mr. R. H. Blower, Vice President, South Shore Study Association:

1. We support PIA's improvements.

(No response required)

2. We were not on the South Runway Extension mailing list, why?

(See response 13)

Mr. Quinton Bowman, Oregon State Water Resources Board:

1. The changes in drainage should be discussed with the Multnomah County Drainage District #1.

(See response 14)

This concludes the summary of all testimony received for the Public Hearing held November 30, 1973, on the South Runway Extension of Portland International Airport.

RESPONSE TO COMMENTS

A response to all written and oral testimony received at or following the public hearing is presented herein. All questions and comments have been categorized in order to facilitate a response and avoid needless repetition.

GENERAL COMMENTS:

1. COMMENT: The maps identified as numbers 14, 15, 16, 17, 18, and 19 are inaccurate as they indicate little or no industrial development north of Sandy Boulevard or west of the airport.

   RESPONSE: The maps are based on 1970 land uses or identified by the Columbia Region Association of Governments. Additional development has taken place since the land use maps were prepared; however, the amount of development is relatively small, and due to the small scale of the maps, would not represent any significant change in land use patterns.

2. COMMENT: A list of schools within the various NEF contours is incomplete.

   RESPONSE: The listing of schools has been updated to incorporate those schools that were omitted.

3. COMMENT: Will the Port of Portland acquire excess land and go into competition with private industry?

   RESPONSE: No additional land acquisition is required as a result of this proposal.

4. COMMENT: In the event that an extension of the south runway will cause a reduced usage potential or other adverse affect to presently owned property in the surrounding area, will the Port of Portland compensate owners of such property for the reduced value or usage.

   RESPONSE: No significant adverse impact on surrounding lands has been identified and, therefore; there are no plans to compensate land owners. Federal regulations require that the Port of Portland not pursue a policy requiring a citizen to file inverse condemnation proceedings.

5. COMMENT: Will the Port of Portland require any public tax monies to accomplish this project.

   RESPONSE: All monies used to build the South Runway Extension will come from rents paid to the Port for use of airport facilities, landing fees paid by the airlines, or other monies received from the airlines, either directly or indirectly.

6. COMMENT: The environmental impact statement must be authored by the responsible Federal agency.

RESPONSE: The Port of Portland followed the appropriate Department of Transportation guidelines and regulations in preparing this impact report. These guidelines and regulations require that the sponsor of a project prepare the environmental impact report, and therefore; the Port of Portland is complying with all applicable Federal requirements.

7. COMMENT: The historical review section of the environmental impact report is biased and contains deliberate omissions.

RESPONSE: The history section of the environmental impact report is accurate and based upon supporting documentation. The history does not prejudice the environmental analysis and is important only to place the project in its proper perspective.

8. COMMENT: The south runway extension should be incorporated as part of an overall Portland International Airport master plan.

RESPONSE: The proposed south runway extension project relates to a need identified as early as 1965 and must be implemented as soon as possible. A master plan study for Portland International Airport (PIA) will be initiated within the next two years and will use the existing runway configuration as a given. This south runway extension project is consistent with an interim airport layout plan which includes Plan I, the 2,200-foot westerly extension. This interim airport layout plan will be updated as part of the forthcoming master plan study.

9. COMMENT: There is a lack of coordination with the highway departments in the planning of the Interstate 205 bridge proposed to be constructed to the east of the airport.

RESPONSE: On July 11, 1973, the Port of Portland Commission authorized the Port staff to work with the appropriate highway authorities to ensure that a proper configuration of the Interstate 205 bridge is maintained so as not to interfer with Portland International Airport operations. The Port of Portland staff has been in contact with the appropriate highway departments and is actively working with them in the planning of the proposed Interstate 205 bridge.

10. COMMENT: An evaluation of the south runway extension at the time of completion should be included since air quality and noise impacts are likely to be greatest at this time.

RESPONSE: Aircraft operations forecasts done by the Boeing Company indicate that there will be a gradual phase-in of wide-bodied aircraft and there will not be an immediate radical change in aircraft operations as a result of the south runway extension. Therefore, 1972 data and analysis accurately reflects the conditions anticipated upon completion of the south runway extension project.

11. COMMENT: Is the runway extension necessary for the continued economic growth of the Portland region? What will the increase in the net tonnage of air cargo be as a result of the south runway extension project?

RESPONSE: The south runway extension project is necessary to provide Portland International Airport with a balanced air transportation capability. The Boeing Company, utilizing standard aircraft operating methodology, was unable to differentiate the increased air cargo demand as a result of the South Runway Extension; however, they did state that an extended runway is necessary to accomodate changing airline service patterns.

12. COMMENT: What will happen to the filled areas to the east and west of the south runway if the do nothing alternative is adopted?

RESPONSE: The fill area will remain and be used as fill stockpiles for future projects. In the interim, the fill areas will be seeded.

13. COMMENT: Why was the South Shore Study Association and its members not included on the PIA south runway project mailing list?

RESPONSE: The South Shore Study Association was not included on the mailing list through an oversight; however, four public input and informational meetings were held in the area adjacent to PIA. These meetings, as well as the availability of the south runway extension evironmental impact report, were well publicized and the EIR was available upon request.

14. COMMENT: Discuss the increase in drainage with the Multnomah County Drainage District #1.

RESPONSE: The Port of Portland staff has been in contact with and works very closely with the Multnomah County Drainage District #1.

15. COMMENT: A projection of airport associated traffic upon existing and proposed highway systems should be included in the final EIR.

RESPONSE: Projects for PIA indicate that there will be no difference in associated vehicle traffic between the do-nothing and extension alternatives and, therefore, no vehicle impact analysis on the area's highway system was conducted. The Port of Portland staff has been in contact with and works very closely with the Multnomah County Drainage District #1.

NOISE AND LAND USE

16. COMMENT: Are the reduced noise levels project for 1980 to 1990 valid because of the assumption that all aircraft will be retrofitted with noise suppression devices.

RESPONSE: The only assumption used in deriving the 1980 and 1990 noise exposure forecasts contours was that all aircraft in operation at that time will be in compliance with Federal Aviation Administration regulations, Part 36. Wyle Laboratories, authors of the noise analysis, believe that through retirement of existing "noisy" commercial jets and through the requirements of FAR-36 for the construction of all new jets, the noise contours are valid.

17. COMMENT: The Wyle predictions on Runway 2/20 are in error and would be correctable by the use of recently recorded Federal Aviation Administration physical measurements.

RESPONSE: The Wyle projecttions for Runway 2/20 are as accurate as the noise exposure forecast methodology allows. NEF's are average values and, therefore, do not incorporate direct on-site physical noise measurements.

18. COMMENT: Noise abatement procedures are discussed, but there is no listing of those that will be implemented.

RESPONSE: Noise abatement measures are presented in the environmental impact report as a method of mitigating noise impact. These measures are presented for a decision-maker's review. Implementation of noise abatement procedures is beyond the jurisdiction of the Port of Portland alone. The Federal Aviation Administration, the airlines, and the aircraft pilots must be involved with the Port of Portland in determining what noise abatement procedures are practical for Portland International Airport.

19. COMMENT: A specific land use plan should be prepared and adopted that would include acquisition of residential properties within the NEF 30 and above contours and that would control development within these contours.

RESPONSE: The Port of Portland staff is actively working with the local land use planning agencies in insuring that compatible development is conducted within the noise exposure forecast 30 and above contours. Due to a lack of consistant or definitive guidelines, the Port of Portland is unable to adequately assess the level of property acquisition that is needed in significant noise impact areas. In addition, the cost of this type of land acquisition program is prohibitive and must be partially borne through Federal assistance. Federal law does not allow the FAA to participate in this type of land acquisition program.

20. COMMENT: Flight scheduling that would encourage the daytime use of Portland International Airport by the DC8 series 61, DC8 series 63, and Boeing 707-320B should be undertaken.

TABLE A

NO ADDITIONAL RESIDENTIAL GROWTH

(EXISTING RESIDENTIAL CONDITIONS PREVAIL)

NEF Contour Year	Do-nothing People	Do-nothing Houses	Plan I & II People	Plan I & II Houses	Plan III People	Plan III Houses
1972						
NEF 30-35	10,200	3,643	--	--	--	--
NEF 35-40	1,200	429	--	--	--	--
NEF 40+	400	143	--	--	--	--
1980						
NEF 30-35	2,600	928	2,800	1,000	3,000	1,071
NEF 35-40	800	286	800	286	800	286
NEF 40+	0	0	0	0	0	0
1990						
NEF 30-35	2,800	1,000	1,800	642	--	--
NEF 35-40	200	71	200	71	--	--
NEF 40+	0	0	200	71	--	--

TABLE B

PROJECTED RESIDENTIAL GROWTH

NEF Contour Year	Do-nothing People	Do-nothing Houses	Plan I & II People	Plan I & II Houses	Plan III People	Plan III Houses
1972						
NEF 30-35	10,200	3,643	--	--	--	--
NEF 35-40	1,200	429	--	--	--	--
NEF 40+	400	173	--	--	--	--
1980						
NEF 30-35	5,600	2,000	6,600	2,357	7,200	2,571
NEF 35-40	800	286	1,000	357	1,600	571
NEF 40+	0	0	0	0	0	0
1990						
NEF 30-35	8,000	2,857	8,000	2,857	--	--
NEF 35-40	400	173	400	173	--	--
NEF 40+	0	0	200	71	--	--

RESPONSE: DC8 aircraft are presently out of production and any new Boeing 707s are now required to comply with FAR 36 which requires much quieter aircraft engines. These three "noisy" aircraft should be phased out of domestic passenger service in the near future.

21. COMMENT: Do the projected noise contours reflect the use of two-step approach, new aircraft designs, and full payloads?

RESPONSE: The noise exposure forecast contours did not assume a two-step approach; however, new aircraft designs and full payloads were incorporated into these projections. A two-step glide approach will reduce noise exposure from landing.

22. COMMENT: A count of the number of residences impacted within the NEF 30 and 40 contours should be included in the environmental impact statement.

RESPONSE: The following tables delineate the approximate residences and population within the various NEF contours for 1980 and 1990. These tables are based upon existing and projected population distributions as published by the Columbia Region Association of Governments (CRAG) for 1990 and the Metropolitan Planning Commission for 1980. Table A assumes no additional residential growth in the noise impacted areas and Table B assumes continued residential growth.
See Tables A & B, pages F-51 and F-52

23. COMMENT: Land use planning as a method of preventing incompatible land uses should be expanded in the final environmental impact report.

RESPONSE: The environmental impact report provides adequate guidelines for local land use planning agencies to use in determining noise compatible land uses within various NEF contours. The Port of Portland is actively working with and encouraging local land use planning agencies to ensure that various aircraft noise impacted areas. Inclusion of a proposed land use plan for the various noise impacted areas would be usurping the authority and responsibility of the various land use planning agencies.

AIR QUALITY

24. COMMENT: An assessment of existing and future coarse particulate fallout upon residential areas should be included in the final environmental impact report.

RESPONSE: Inclusion of the impact of coarse particulate fallout on residential areas has not been included because Federal Aviation Administration regulations (FAR 27) require that all aircraft in the aircraft fleet serving Portland with the exception of the B707, DC8, and B720 be fitted with smokeless engines by January 1, 1974. The three aforementioned aircraft are required to have smokeless engines by January 1, 1975. Therefore, coarse particulate fallout will cease to be a problem in the near future as a result of Federal regulations.

25. COMMENT: The air quality impact should be evaluated in terms of the impact on ambient air quality.

RESPONSE: Air quality impact is evaluated in the draft environmental impact report in terms of ambient air quality. There is a lack of existing air quality data which precludes projections of air quality at the Portland International Airport; however, the draft EIR does provide an estimate of this impact upon existing air quality.

26. COMMENT: Significant short-term air quality excesses may be obscured by the uses of annual, geometrical-smoothed averages.

RESPONSE: The air quality impact analysis presented in the draft environmental impact report does contain an evaluation of short-term air quality impact. The methodology used in arriving at these figures assumes the worst case condition and therefore, will represent the worst possible impact.

27. COMMENT: The box model used in evaluating air quality may be misleading.

RESPONSE: The box model methodology is considered to represent the worst possible situation. The results, therefore, represent the maximum projected air quality impact.

28. COMMENT: Is the assumption that ground vehicle emissions can be controlled valid?

RESPONSE: This assumption is based upon federal regulations and is, therefore, considered to be valid for the purposes of this report.

29. COMMENT: Should an increased rate of growth in air transportation be aggressively solicited since air transportation uses so much of the metropolitan area's air pollution "allowances"?

RESPONSE: This project is proposed to meet projected air service demands for the metropolitan area. Total PIA air emissions are projected to decrease in the future as compared to existing emissions.

ENERGY

30. COMMENT: Energy consumption should explore in greater detail the consumption of energy by secondary surface transportation and other interdependent activities.

RESPONSE: The environmental impact report assesses energy consumption for all airport related activities including surface vehicle access. The impact report assesses surface vehicle energy consumption only to the intersection of Interstate 80N and 82nd Avenue. Due to the uncertainty of future use of mass transit to and from the airport, the values contained in the environmental impact report reflect maximums in that they assume the same vehicle usage rate as is presently being experienced.

Mass transit usage should increase in the future, thereby reducing the consumption of energy from cars.

31. COMMENT: Fuel consumption will decrease because of the use of wide-bodied jets. What is the decrease?

RESPONSE: The net decrease in fuel consumption as a result of the south runway extension is undetermined because use of the runway extension will be largely dependent upon future route authorities. The following scenario from Portland to Tokyo is included to assist in evaluating the potential impact of the south runway extension project upon fuel consumption. A nonstop Portland to Tokyo flight will consume approximately eight percent less fuel than the present Portland to Anchorage and then to Tokyo flight situation. Extension of the south runway will provide Portland with the capability of staging non-stop long-distance flights; whereas, with the existing runways, fully loaded flights going to distance points must make refueling stops. This results in increased aircraft fuel consumption.

32. COMMENT: The level or degree of kerosene odor has not been addressed in the draft:

RESPONSE: The smell of jet fuel (kerosene) is considered one of the most notable odor problems at large airports. Kerosene is distilled from crude oil at a temperature of 200° to 300° C, and contains 12 to 15 carbon atoms per molecule. One of the most volatile and abundant components of kerosene is "Naphthalene" ($C_{10}H_6$). It is therefore, the odor of naphthalene that is detected in kerosene vapors. The minimum threshold concentration for detecting naphthalene odor by human beings is ten parts per million or 50 micrograms per cubic meter.[1]

It is anticipated that under the worst case conditions of 3.86 micrograms per cubic meter for 1973, 6.08 micrograms per cubic meter for 1980, and 10.38 micrograms per cubic meters for 1990, the concentration of kerosene in the ground operations box, where storage and handling take place, will not exceed the threshold concentrations. Of course dispersion does not take place instantaneously and individuals in the immediate vicinity of storage or handling facilities may detect the kerosene odor for short periods (i.e. fuel handlers may detect the kerosene odor during fueling operations). The general airport users should not ordinarily be able to detect the smell of jet fuel.

Some minor odor problems might occur during the late phases of construction. The odor of tar and asphalt might be noticable in the immediate vicinity of surfacing operations, but should not exist in objectionable concentrations throughout the airport in general. In addition, this occurance will be periodic and temporary. No other mentionable odor problems are foreseen and those discussed above are considered minor. Generally, the air patrons should not be discomforted or offended by adverse odor problems, even under worst case conditions.

---

[1] United States Department of Health, Education and Welfare, Preliminary Air Pollution Survey of Odorous Compounds, APTD 66-42

1979 Columbia R. Br. (N. Channel 890
Superstruc.) I-205
Port of Portland E.I.S. #1

NOTICE OF OPEN PUBLIC HEARING
CONCERNING PROPOSED PORT OF PORTLAND
PORTLAND INTERNATIONAL AIRPORT
RUNWAY 10R/28L EXTENSION

Auditorium, Bonneville Power Administration

Friday, 11-30-73 9:00 a.m.

COMMISSIONERS:

- Alan Green, Jr.
- Robert J. Rickett
- F. Glen Odell
- Walter Gadsby

ALSO PRESENT:

- Dr. Anthony Anderson,
  Haworth and Anderson
- Mr. Roy Strandberg,
  Boeing Co.

Reported by Gordon C. Rude and
Ross Ortega, Court Reporters
Standard Plaza
Portland, Oregon 97204

RECEIVED
DEC 3 1973
BY NW-610

PROCEEDINGS:

COMMISSIONER GREEN: This meeting will please come to order.

Good morning, ladies and gentlemen. I would like to take this opportunity to welcome you to this public hearing on a proposed project by the Port of Portland that would basically extend Portland International Airport's south runway 2,200 feet.

I will preside over this hearing as hearing officer. My name is Alan Green. I am vice president of the Port Commission. With me are Walter Gadsby, Glen Odell and Robert Rickett, all Port of Portland Commissioners.

It is my purpose to insure that everyone here has an opportunity to participate in this hearing.

Remember, this is your hearing. I am here to see that you have a chance to make your statements and to present your views on the project.

This hearing is being held by the Port of Portland pursuant to Section 16(d) of the Federal Airport and Airway Development Act of 1970. Section 16(d) provides, in part, that no project involving the extension of a runway may be approved by the Secretary of Transportation unless there has been afforded the opportunity for public hearings for the purpose of considering the economic, social and environmental effects of the project and its consistency with the goals and objectives of such urban planning as has been carried out by the community.

The purpose of this hearing is to consider those social, economic and environmental effects of the project and its consistency with local urban planning. "Social, economic and environmental effects" mean the direct and indirect benefits or losses to the community as a result of the proposed development. These may include but are not limited to --

1. Safe and efficient air transportation.
2. Economic activity.
3. Public health and safety.
4. Property values.
5. The human and natural environment as effected by:
    - a. Noise, air and water pollution.
    - b. Neighborhood character and location.
    - c. Aesthetics, parks and recreation areas.
    - d. Natural and historic landmarks.
    - e. Conservation (erosion, sedimentation, wildlife and general ecology of the area.)

Now, ladies and gentlemen, I have here a copy of the public notice of this hearing, describing the purpose and scope of this hearing. It is rather lengthy and I will not read it at this time. It will, however, appear in the records of this proceeding.

I also have lists of those persons or agencies who received direct notices of this hearing, the names of the newspapers that published legal notices of this hearing, and individuals and groups to whom we've furnished copies of a paper on this project. Again, to save time I will not read these lists, which will appear verbatim in the records of this proceeding.

Pertinent materials describing the project and an Environmental Impact Report have been made available for public inspection and review at 13 locations throughout the area for the past 30 days. These materials and copies of the published notice of this hearing and the distribution lists are now on display at the table in the back of the auditorium. Part 25, Department of Transportation Regulations, requires that a plan for the relocation of persons occupying property involved be available for discussion and comment. Port of Portland's plan has been approved by the Federal Aviation Administration and is also available at the table in the rear of the auditorium.

At this hearing interested parties, both proponents and opponents of the project, may present oral or written statements of their views. In addition, written statements and other exhibits will be incorporated into the transcript of the hearing. The record of this hearing, including all materials and exhibits submitted, will be forwarded to the Northwest Regional Office of the Federal Aviation Administration, along with the Environmental Impact Report prepared for this project dated October 31, 1973, for FAA's use in determining whether or not to give financial aid to the Port for this airport development project. Such written statements or other exhibits may be submitted by any interested party whether or not such party participates in the oral hearings. Oral statements presented today may also be supplemented by written statements. Any written statement or exhibit to be presented today should be given to the hearing assistant at the table in the rear of the room. A transcript of the hearing is being made pursuant to the requirements of the Airport and Airway Development Act of 1970. Mr. Gordon Rude is our reporter, and his notes when typed will become a part of the transcript of this proceeding.

As stated in the notice of the hearing, it is requested that speakers limit their oral presentations to about five minutes so that all persons desiring to express their views can be afforded a fair opportunity to be heard.

In the interest of an orderly hearing, each person desiring to speak or ask any questions at this hearing should fill out a card which will identify such person and the organization which he represents, if any. If you are interested in participating and have not yet completed such a card, please do so. Cards are available at the table near the entrance to this room and are being distributed and collected in the aisles. Separate cards are available for those who would like to ask questions only. I will be in charge of the procedural matters at this hearing. The Port and its consultants will first make brief presentations describing the project. I will then recognize those persons who have given advance notice of their desire to speak as requested in the published notice of this hearing. Next I will recognize the other speakers in the order of their card number.

After these presentations have been completed, I will recognize persons who desire to ask questions only, once again in the order of their card numbers. If a person desires and would prefer to ask a question in writing rather than orally from the lectern, please write the question on your numbered card. Your written question will then be presented orally for you in the order of your card number.

All questions should be directed to me. I will then refer each proper question to the appropriate person for an answer. I will not refer any questions that are irrelevant, immaterial or repetitive.

Each person must speak or ask questions at the lectern in front of the room. A microphone is placed there for each person to use, and in order for your remarks or your questions to become a part of the record, it is necessary that those questions and remarks be made from the lectern. In your introductory remarks please state your name and address.

Now, ladies and gentlemen, that is my presentation. We intend to conduct this meeting fairly so that all of you have an opportunity to speak and to express your views.

Now, if I may, I would like first to call upon Mr. Roy Strandberg of the Boeing Company. Mr. Strandberg, could you start off this hearing, sir.

MR. ROY STRANDBERG: Thank you. In July the Portland International Airport requested the Boeing Aero System to analyze the effects upon the south runway of aircraft operational capabilities, recognizing that there might be a need for potential extension of these runways. The contract that we had was limited to three aspects: One, the review and update of the existing Air Transport Association forecasts which was made in 1972; the second, aircraft operational capabilities, the range of the aircraft versus the types of aircraft that would be operating from the airport; third, a runway extension analysis, in light of the two previous things what would be recommended if any changes were to be made at the Port of Portland.

Now, not within our contract were such items as environmental study, nor was the noise impact evaluation part of the Boeing study. A couple of limitations were imposed: First, we would concentrate all of our efforts on those things that affected the south runway in Portland. We would not include lighting and electronics in our study, and we would only look at costs from a qualitative standpoint.

The first item in our forecasting effort, we had our forecasters evaluate the AGA study that had been made in 1972, and we did come up with variations from what they had produced, things like the volumes of traffic, the traffic patterns, the competition, the domestic yields of the Transport Association, the rights that the airlines have to operate in and out of Portland were examined.

In addition, population statistics, the employment in the Portland area, the per capita income and gross State product were all included in the analyses that were made by our forecasters.

We had to recognize such constraints as the cost of fuel and materials, labor costs, landing fees, modes of transportation and the investments involved in the transport industry.

Initially to look at any given airport it is necessary to take, first of all, a look at the total domestic traffic that is covering the United States. From this standpoint we evaluated what was the revenue passenger mile demands for the total United States, this then we broke down into that share that is captured by the Portland International Airport operation.

For instance, in 1962 Portland had 1.53 percent of the national domestic travel. In '71 it had grown to 1.67 percent. There is a very slight increase occurring in the Portland area.

We have to also examine the seats per aircraft, the fleet mix, the percentage of movement by types, the number of movements annually, and then looking at the travel habits with the people that travel out of Portland we have to break this annual travel down into the passenger hour demands and operations out of Portland International Airport.

A few pertinent numbers that resulted from this, the emplanements we anticipate -- let me give it to you in total numbers of passengers in and out of Portland. In 1975 we anticipate about 3.3 million, by 1985 we anticipate 6.7 million, in 1990 roughly 8.2 million.

To accommodate this we would anticipate that the difference in the fleets that are developing, the introduction of our wide-bodied aircraft will raise the average seat, the number of seats per aircraft from about 112 in 1975 up to about 172 by the time we reach 1990.

In this turn, then, brings us out to a number of aircraft that operate in and out of Portland, roughly 80,000 in 1975 going up to approximately ninety in 1985 and leveling out to acertain degree from that point on.

From a cargo standpoint our forecast projected that in 1975 it would be handling roughly 50,000 tons of cargo out of the Portland International Airport, reaching approximately 245,000 tons annually by 1990. The aircraft operational performance investigation that we made had to look into the regulatory, the local limiting factors such as the length, elevation, winds, temperatures, radiance of runways, the aircraft characteristics, the take-off and landing requirements and the payloads versus range for each type of aircraft that we anticipated would be operating out of Portland.

Now, to get into the study regarding the runway length requirements, it was necessary to identify not only the existing destinations of the flights that depart from Portland, but also to examine those locations that there was an anticipation that future demand would tie this and link it in nonstop flights to Portland International. These we had to break down then as to the range from Portland required, the aircraft types that were necessary, the payloads associated with these.

We examined them, we found that if we were to utilize the maximum runway lengths this required for any aircraft that would be operating out of Portland, it would require a runway 12,200 feet in length as compared to the 8,800 foot southern runway that we have here today.

In addition we looked at lengths such as 11,000 and 11,005. The results of this study indicated that our 8,800 foot runway as it exists today does have some significant operational limitations.

The 12,200 foot runway which we looked at was only required by two aircraft in the fleets that are being operated by the airlines today. Both of these models are currently out of production, and should not affect the demand in many years to come.

The 11,500 foot meets the maximum for take-off of all of the advanced intercontinental airports, but when we considered the payload range requirement, we could very significantly meet all the demands out of Portland by utilization of the 11,000 foot runway.

Partial limitations would be imposed upon six aircraft by the 11,000, and there would be a very small reduction in passenger payload, particularly at certain points in the year.

However, we did consider this to be a very acceptable compromise: An 11,000 foot runway, which was 1,200 feet less than the maximum, with still providing a very adequate service out of Portland International. From the qualitative cost standpoint, site preparation of paving for runways and taxiways are strictly dependent upon the number of feet of runway that is required. Additional runway and taxiway lighting is again dependent strictly upon the amount of runway that you have. Relocation of navigation aids were looked at.

In addition, potential relocations of access highways and utilities were considered in our study.

Our recommendation resulting from this analysis was that the Port of Portland provide an 11,000 foot runway. In addition our recommendation stated that we would recommend it be added to the west a 2,200 foot extension to the west. Thank you.

R-1

COMMISSIONER GREEN: Thank you very much, Mr. Strandberg.

COMMISSIONER ODELL: Mr. Strandberg, I want to outline to myself and for the public what we're about with the extension of the runway. Is it fair to state that the reason that the Port of Portland is entering into this project is primarily if not solely to allow for the longer take-off patterns that are required for the wide-bodied aircraft that will come in and out of Portland International with full loads of passengers and cargo? I just want to verify what is my understanding from reading our report.

MR. STRANDBERG: Not necessarily just associated with the wide-bodied aircraft. Many of the aircraft other than the wide bodies which are operating out of Portland today have to operate off this 88-foot runway with limitations as to their payloads. Less than 100 percent capacity exists for quite a number of the existing aircraft that operate.

COMMISSIONER ODELL: But we are looking at payload capabilities?

MR. STRANDBERG: Payload capabilities, which is very significant, recognizing that as we proceed into the future in the industry and the growth which is occurring throughout the industry, and the desire to limit, let's say, the number of aircraft movements that do occur, the only way you can meet the demand then is use additional payloads, approaching hopefully the capacities that these aircraft are able to handle.

COMMISSIONER ODELL: And it was your conclusion that among the alternatives studied, the 2200-foot extension was neither too short nor too long? It was not the longest alternative that you looked at in terms of runway length, but you determined that it was the optimum in terms of the economic study?

MR. STRANDBERG: I considered the 2200 feet to be optimum. It didn't meet all the requirements for maximum capacity, does not serve all aircraft, but in relation to the distant cities that are being utilized today, and also in the future, it will give a capability to the aircraft to operate out of Portland at load factors that are well within the economic capabilities of the airlines.

COMMISSIONER ODELL: One other question. From an aviation and/or economic standpoint, can you very briefly tell us, is there any difference among the three alternatives that we are looking at? Let me rephrase that just a little bit. Between expanding to the east, and expanding to the west, and expanding -- the other combinations, it is going to a total length as far as the project. Is there any difference from an aviation standpoint?

MR. STRANDBERG: From the aviation standpoint, as far as we are aware, there is one significant difference. That is that the extension to the west with the set of parallel patterns that you have in Portland, which as I recall is roughly 3100 feet, this would give you a parallel arrangement to the west, and you have a resulting airfield capacity which is kind of an extra benefit that you would derive by holding the entire extension to the west. The overall capacity of this airfield will be increased above that that would have occurred if you had attempted to put this to the east, or a combination of both east and west.

COMMISSIONER ODELL: And the reason for that capacity increase?

MR. STRANDBERG: The reason for that capacity increase is that staggering the ends of the parallel runs of less than 3500 feet allows you to approach the maximum capabilities that a 3500-foot parallel combination would have if they were applied directly with one another. The additional staggering that you get allows a certain incremental increase in capacity.

COMMISSIONER ODELL: Thank you.

COMMISSIONER GREEN: I would like now to call on

A4

Mr. Anderson of Haworth and Anderson, who wrote the environmental impact report, the draft. Mr. Anderson.

DR. ANTHONY ANDERSON: Thank you, Mr. Green. I would like to first of all thank the Port of Portland for the opportunity of working on this very interesting and quite often very challenging project. The firm of Haworth and Anderson completed this project, the draft of our environmental impact report, under a contract with the Port of Portland dated September 6, 1973. Before I get into the specifics of the details, I would like to introduce the other members of the team that participated in the environmental impact statement, who are here today, first of all Mr. Mosher of our firm, who is responsible for much of this particular project; Russell Dawson, economic consultant, who did the economic study; Mr. Jack Swing of Wyle Laboratories, El Segundo, California. Mr. Swing is head of community projects and was responsible for the analysis that was included in the report. They will each be giving a very short summary of their respective sections at a later point.

This particular report was initiated under the provisions of the National Environmental Policy Act of 1969 under guidelines of the Council on Environmental Quality. There are two very basic, important parts of the report. The first was of course that in any project of significance, of which this is one, you prepare a detailed statement, of which this is one part of the detailed impact statement on the proposed project or action. A second one is that you will give the alternatives to that proposed project or action.

I would like to go into a little bit of the methodology that we used in preparing our impact statement. First of all, we did prepare a detailed impact report. The impact report is in the neighborhood of 250 pages long, with a technological appendix in the neighborhood of 700 pages in addition to that, with very specific technical information included with it. However, this approach is not that of the usual environmental impact report, which contains the one main project, the one project alternative, and then you similarly look at the alternatives to the proposed action. This, we did not do. We looked at two basic alternatives. The first alternative was no action whatsoever, and the second alternative was some type of action on the south runway. Now as to the second alternative, we utilized essentially three plans. The first plan was an extension of 2200 feet to the west. The second plan was an extension of 2200 feet to the west and 700 feet to the east; and the third plan was an extension of 2200 feet to the east totally.

Now within the confines of this No. 1, we start off with a description of the existing facility. Pretty much we have described here the conditions surrounding the particular project and pointed out what the effects will be.

In the second part of the impact statement, the second major portion was a description of the proposed project, itself, the effects on the quality of various aspects, and the effects on the surrounding community.

Now the third and perhaps the most important aspect of the report was the detailed environmental impact analysis, and first of all there was what we call the categorical impact analysis, whereby the categorical impact analysis breaks down into a number of categories, which I will summarize very quickly and then return to them.

The first category is the environmental impact on the quality of the water, quality of the air, the terrain and topography, vegetation and wildlife. Now we will get into these various categories and summaries of what the findings were.

In one category we consider the environmental impact on the terrain and topography. We feel that there would be very limited impact and of very minor significance.

7 The recently filled embankments. There is a very limited impact.

As to vegetation and wildlife that is of a very limited nature. Your wildlife, small birds and wild animals, it may serve to reduce bird-plane strikes. Again, this is impact of no great significance, and as we look into vegetation we have to look at bird nesting and bird-plane strikes under existing conditions.

8 Water is presently carried to the Columbia Slough through a series of storm drains, surface ditches, and small channels. The alternative would create a very minor impact. There was a difference in what the first plan would impact, and the impact as to this plan would be slightly more significant, because Plans 2 and 3 would result in the relocation of 82nd Avenue. The environmental impact, again, would be a very minor impact. There would be very little impact as far as drainage patterns and problems of ground water, as well as surface water. Again it would increase run-offs slightly, which would result in a very minor impact.

Sewage disposal, we did not consider sewage disposal since the category would not result in the increase of the number of emplanements, and therefore would not cause any delay in passengers, and therefore, this would present no problem.

Onto the next category, that's one of the most significant categories, and I would like to use three categories in regard to this, and I might just very briefly summarize these three. Basically we looked at the ambient air conditions in and around the Portland International Airport area. Second, we looked at emissions, and the emissions that would be produced at the Portland International Airport according to the type of emissions, ground access vehicles, access vehicles, cars going to and from the airport, and then of course the planes, themselves. We turned to the emissions, the ambient air, which we did by using a box under certain conditions to measure the total emissions being produced at the Portland International Airport, regardless of an extension plan or no extension plan, from 73 to 80, with a very slight increase from 80 to 90. This was demonstrated by emissions due to the increase or the decrease in access vehicles and ground vehicle emissions brought about by ground control methodologies on those vehicles. There were some potential problems. We did find some potential problems existing in the area of hydrocarbons and possibly in the area of nitric oxides by 1980, with further problems by 1990, potential problem again in the area of nitrous oxides occurring. Again, we cannot predict what's going to happen in the future as to engine technology, and we would have to consider the deviation between a no project alternative and a project which would go 2200 feet to the west and going to the east, as far as the relocation of 82nd Avenue.

It also places the ground proximity and the ground emissions along with the air quality or along with the plane emissions. There is a possibility of ground build-up because of the condition of nitrous oxide that exists in that area.

I would like to now, before I get to my final remarks, have Mr. Dawson summarize very briefly the economic impact that he outlines in his report.

MR. RUSSELL DAWSON: My name is Russell Dawson. I was in charge of the economic analysis of the extension of the south runway.

The analysis basically revolved around the question of the impact of the Portland metropolitan area and partially also in the State of Oregon with runway extension on employment, payroll, and the value of output in the economy. This analysis covers the categories of employment at Portland International Airport and also activities which are functionally related to the activities which occur directly at the airport. These are primarily in the area of service to various degrees of air travelers.

The major categories of air travelers covered were conventions, tourist, and business travel. We also covered in this analysis air cargo users. We related the activity in 1972 to these, direct employment and the functionally related employment category, which I have just mentioned, to consider the total impact on the economy.

By use of a method which is called input-output analysis and a model of the Oregon economy, we arrived at a total value added of all products for the Oregon economy due to the Portland International Airport operations and functionally related activities of $775,000,000. This was in 1972. For future years Boeing's projections of operations, passenger and cargo, were used to estimate these impacts.

Now for instance, growth is inherent generally in passengers and in cargo, and although there's a decline in the number of operations generally because of the wide-bodied aircraft or difference in aircraft types, we do have a growth in the total impact of employed payrolls and value of output of around a figure from 1990.-- the total value added of products in the Portland area, as well as of the State of Oregon generally, would be of the magnitude of approximately $2,300,000,000.

A11

A final category of analysis is a financial feasibility analysis relating to the required rates of growth in aircraft operations to amortize the project costs under various alternatives. These alternatives were that the full project cost includes a substantial portion of federal funds and a local share, relatively low at the local level of the project cost. The cost will depend on whether one or the other of the alternative extensions is adopted. We arrived at a growth rate covering these alternatives of a maximum of approximately 30 percent of air operations to around 80 percent to cover the cost of amortizing the runway extension.

I think that's a summary of my analysis. If there are questions, I shall entertain them presently.

End R1

COMMISSIONER GREEN: Does the panel have a question of the Doctor?

COMMISSIONER ODELL: I have one or two.

COMMISSIONER GREEN: Commissioner Odell has.

COMMISSIONER ODELL: To what extent, Russell, did you look at negative impacts, economic impacts of airport growth, if any. Did you attempt to identify them?

MR. DAWSON: We did attempt to identify certain areas where there might be potential negative impacts. These were possibly in the area of growth of the local economy and associated additional public expenditures. These were not quantitatively identified.

COMMISSIONER ODELL: All right, thank you.

COMMISSIONER GREEN: Thank you, sir, very much.

DR. ANDERSON: Mr. Jack Swing of Wyle Laboratories will give a very brief summary of the impact noise analysis.

MR. JACK SWING: My name is Jack Swing. I'm with Wyle Laboratories in El Segundo, California. I served as a program manager for the acoustic investigations of this program.

In order to provide an objective analysis of the relative noise impact of the proposed airport expansion project, Noise Exposure Forecast, or NEF, contours were generated for the various alternate courses of action as defined in the Boeing Analysis for the years 1980 and 1990.

Additionally, NEF contours were generated for current operations to provide a basis for comparison.

NEF contours are the tool used as the basis for the assessment of noise impact from aircraft operations by the Department of Housing and Urban Development.

Prior to discussion of the noise contours, let us first consider the assumptions and input perimeters required for NEF formulation.

The NEF contours generated for Portland were constructed by an advanced computerized technique which has been developed by Wyle as part of a study of twenty-three major U.S. airports for Department of Transportation.

NEF values are evaluated by determining the average noise exposure from individual aircraft overflights at particular locations and then adjusting these average values for the number of aircraft operations during the daytime and nighttime periods.

Hence NEF is a measure of average noise exposure corrected for the number of daily aircraft operations.

The inputs to the computer program consist of: One, aircraft noise characteristics, two, aerodynamic performance data, three, operational assumptions, that is, definition of standard approach and departure procedures.

Next we considered the aircraft fleet mix at Portland International Airport, and finally we must consider the runway and flight traffic percentages.

There were a number of assumptions made which affect each of these five input items, thus I'd like to briefly discuss some of these assumptions.

Beginning with aircraft noise characteristics, the noise levels used for any NEF contour generation are expressed in terms of the maximum effective percieved noise level, or EPNL, which is a function of the distance between the aircraft and the observer on the ground. The EPNL data used for analysis of current operations represents the most recently available public information which has been developed during the course of the DOT 23 airport study, DOT being the Department of Transportation.

For the forecast time periods of 1980 and 1990, it has been assumed that all aircraft would comply with the Federal Aviation Regulation Part 36, known as FAR 36. This necessitates acoustic retrofite on certain aircraft types, while the three engine wide-body turbofan aircraft, DC-10, L10-11 must comply with FAR 36 before they may enter the airline fleet.

Aerodynamic performance data. These parameters were computed by Wyle based on manufacture supplied data. Take-off profiles for various weights were based upon FAA certified performance characteristics at standard environmental conditions.

Under operational assumptions we assumed ATA standard procedure was assumed for all departures. In addition, standard instrument departure patterns were assumed for all flights in the forecast time periods.

For landing operations, it has been assumed that all final approaches, both IFR and VFR are made at a three degree glide slope.

Next we considered the aircraft fleet mix at Portland, all statistics for current operations were supplied by the Port of Portland. Present schedules air carrier operations were assumed to be 80,000 annually. The current level of military operations used was 18,400 annually.

The forecasted levels of operations used were as reputed by Mr. Strandberg of Boeing.

It has been assumed that F-4 military aircraft will replace the F-102 fleet by 1980 and that the operations level will remain constant at 15,000 annually through 1990.

The distribution of aircraft operations by stage lengths and corresponding gross weights was based upon current city-pair statistics from the official airline guide. For the forecast time periods, the stage length mix for each aircraft type was derived from a previous study conducted for the Port of Portland.

It should be emphasized that the same aircraft mix and number of daily operations was utilized in the noise impact analysis of the various airport expansion alternatives.

However, certain aircraft were shifted to the lengthened south runway and these aircraft were assumed to operate at new maximum allowable weights compatable with the longer runway configuration.

Finally, we considered the runway and flight track utilization was developed based upon discussions with FAA tower personnel at Portland International Airport. The basic runway utilization percentages reported in the previous study for the Port were again utilized in the analysis.

This runway utilization essentially means that for the specific airport modifications considered in this study, that the majority of increased weight aircraft operations would be taking off to the west from the south runway. We assumed that all military operations would be shifted to the south runway by 1980, thus all these are all the factors that were combined to yield NEF noise contours.

I would like to conclude my presentation with a summary of some significant observations which may be drawn from comparison of the noise contours for the various cases studied.

First, due primarily to the shift of the U.S. aircraft fleet to the quieter three-engine wide body commercial aircraft types and the gradual disappearance of four-engine turbojet and turbofan aircrafts, the extent of the noise impact at Portland International Airport would steadily diminish for the existing runway configuration, in spite of the increased levels of activity for the forecast time periods.

Secondly, if we compare the extended runway cases for 1980 and 1990 with the unchanged configuration, the following relative trends occur: First, a slight reduction in size of the northern-most departure controlled contour lobes to both the east and the west may be observed. This here again is due primarily to the shift of heavier traffic to the south runway. And, secondly, you may expect that the landing control segments of these contours will be extended in either the east or west direction by the length of the runway extensions. However, this component may be expected to be partially masked by the departure segments.

Thus it is our conclusion that the proposed expansion will have a minimal effect on the noise impact of operations at Portland International Airport. Thank you.

COMMISSIONER GREEN: Thank you, Mr. Swing, very much. Does the panel have any questions of Mr. Swing? Commissioner Odell?

COMMISSIONER ODELL: I'll save the questions until later.

COMMISSIONER GREEN: Any other panel members? All right, thank you, Mr. Swing, very much.

DR. ANDERSON: For the sake of time, I think we will forego Mr. Mosher's comments and I will very briefly summarize the rest of the impact report. The other three categories of analysis were pesticides and herbicides and energy uses and aesthetics. And I might say in all cases the impact, if any, of pesticides and herbicides will be insignificant, increased use will be expected very lightly. In final perspective to the environmental impact report, I might state that if the proposed project of an extension of the south runway is to go ahead, that the least impact when you take into consideration the total environment, the least impact would be with an extension of 2,200 feet to the west.

Now, I might add that there would be very -- and there is very little difference in the analysis between the two basic alternatives, no extension and extension of the airport runway, the south runway, thank you.

COMMISSIONER GREEN: Thank you very much, sir. Regarding the time element, this is kind of a loose thing, and having been put in charge of this hearing, I want to make sure that everyone is heard. For the benefit of those who did come late, I would ask that you complete your comments in about five minutes, and let's be reasonable about it. But we want everybody to be heard. If we have to, we will be here as long as is necessary to get a fair and complete hearing.

I now would like to call on Mr. Ken Weber of the Port of Portland.

MR. KENNETH WEBER: My name is Ken Weber and I am an aviation projects manager with the Port.

The purpose of the extension of the south runway is to provide the capability of Portland International Airport to accommodate aircraft presently entering service without reducing airport capacity. These aircraft, the so-called jumbo jets, have the capability to carry greater loads in terms of passengers and cargo over longer distances. Under a maximum load situation, the jumbo jets are unable to accomplish this utilizing PIA's existing runways. This results in inadequate long-range air service from Portland to international points and distant domestic points.

The economy of the Portland-Vancouver metropolitan area requires this extended capability in order to remain competitive with other West Coast areas. Failure to extend the south runway will seriously jeopardize Portland's ability to service expanding European and Far East markets and to open trade with China and Russia. Failure of Portland International Airport to adequately meet the needs of the area's economy will result in existing area business and industry being placed at a competitive disadvantage. In addition, this will limit the ability of the metropolitan area to attract highly desirable industries and to expand its distribution center potential.

Changing patterns of air service require longer runways. Some of these are continuations of historical trends such as increasing emphasis towards larger aircraft and the increasing length of the average flight. New factors such as environmental concerns and energy restrictions have placed additional emphasis on consolidating flights. This leads to more heavily loaded aircraft requiring longer runway length. The current trend toward limiting competition through airline "capacity agreements" also tends to consolidate traffic to fewer and more heavily loaded flights.

A longer runway at PIA will allow year around operational capability for long distance flights to be staged from Portland. These could include not only scheduled service to the Far East and Europe by U.S. carriers, and reciprocal authority by foreign carriers, but also increase cargo and charter capabilities. Several air carriers hold authority to fly from Portland to distant domestic and international destinations but do not presently exercise those authorities. Also, many carriers have requested new or additional long distance authority.

Air cargo in recent years has been shifting from all-cargo aircraft to containers carried in the lower compartment of wide-body aircraft. While cargo represents additional revenue for airlines passenger operations, the additional weight requires a longer takeoff runway. Another trend is the increasing popularity of reduced cost, long distance charter flights. This type of operation also results in heavily loaded aircraft both from the large number of people and the fuel load for the long flight.

Port of Portland Staff Recommendation

The Port of Portland staff recommends that the Port of Portland Commission adopt Plan 1, the 2,200-foot extension to the west. This is based on the considerations presented in the Boeing Report which identified the optimum runway length for anticipated operations, the location of the extension for the most efficient aircraft ground movements and maintenance of existing PIA capacity. The westerly extension project provides near optimum capability, is the least expensive and the environmental consultants have identified this alternative as having the least overall environmental impact. Thank you.

COMMISSIONER GREEN: Thank you, Mr. Weber, very much. Does the Commission have any questions of Mr. Weber?

Now I will call on Mr. Dick Close of the Columbia South Shore Study Association. Mr. Close.

MR. RICHARD CLOSE: My name is Dick Close. My address is 6625 N. E. 82nd Avenue. I have been asked by Mr. R. J. Frank, Jr., President of the South Shore Study Association, Post Office Box 20204, to read the following statement. For the benefit of this hearing and others that may review the record, let it be known that the South Shore Study Association was formed at an organization meeting on August 14, 1972 with over 75 people in attendence; at which time, a Steering Committee was selected of the following eighteen individuals:

R. J. Frank, Jr.
Walt Ferris
George Mead
Jack L. Hoffman
Leo F. White
Bennett Welsh
Helen Wegener
Al Bullier, Sr.
M. A. Jubitz
H. Roberts Blower
Win Sivers
Arthur Spada
Geo. W. Clarke
Harry Venema
W. L. Potts
Clyde O. Durham
Harold Wagner
Harold Jeans

The purpose of the organization was to: 1) Give the local citizens and property owners a voice in the planning of their property that is now being considered by the Multnomah County Planning Commission; and 2) keep local and affected property owners notified and informed as to hearings, etc.

The organization was formed in response to a plan being considered which affects the area between Union Avenue on the west, the Sandy River on the east, the Columbia River on the north and, roughly, Sandy Boulevard on the south. An important thing to keep in mind is that this is a joint planning effort by the Port of Portland and the Multnomah County Planning Commission, principally paid for by the Port of Portland.

As a result, on May 3, 1973 the Multnomah County Commission voted to accept the goals and objectives prepared by the South Shore Study Association (copy attached).

The current membership of the South Shore

Association approximates 250.

The South Shore Steering Committee met on Wednesday, November 14, 1973 and passed a resolution to endorse the airport expansion as long as in so doing, they were not acquiring excess ground to go into competition with private industry for whatever purpose. The Committee felt they could not favor one plan over another as they lacked the technical knowledge to study the particular plans.

An analysis was made of the environmental impact statement which was done for the purpose of the expansion and the following is found to be in error in the basic data.

(A) Maps, identified as 14, 15, 16, 17, 18 and 19 are grossly inaccurate as they indicate little or no industrial development north of Sandy Boulevard east of the airport, as well as very little west of the airport. This space is indicated in white which is further identified as "Agricultural - Forest and Other Open Space".

(B) A statement is typed on the above referenced maps: "Note: Due to lack of significant change in land use patterns, this map is a fair representation of current land use". Who placed this statement on the map is a matter of conjecture.

If the Port of Portland, then they again are guilty of attempting to, by inference, keep private owners from proceeding with any use of their property that conflicts with the Port's plans until such time as they get around to acquisition. Also, how could the Port allude to no significant change when they were a party to an implied moratorium resulting from their participation in the South Shore Study that prohibited any major change from 1970 to May 3, 1973. Further, they themselves are fully aware of the industrial growth in the area as this was one of the major issues of the confrontation in the South Shore area that ended in the hearing before the County Commissioners on May 3, 1973. A copy of the record of that May 3, 1973 meeting is attached for the record to show the action of the County Commissioners with appropriate areas underlined.

1-2
A12

(C) Mt. Hood Community College, Rockwood Grade School, Columbia View, Parkrose Summer and Shaver Schools are all in the affected area and are not evaluated.

In conclusion we again strongly urge the Port of Portland to improve its public relationship with citizen-owners surrounding the airport.

COMMISSIONER GREEN: Thank you, Mr.Close. I wonder, Dr. Anderson, would you care to make any statement in response to that?

DR. ANDERSON: Tom, since you worked with the maps specifically, why don't you respond to that?

MR. TOM MOSHER: My name is Tom Mosher, employed with Haworth and Anderson in Spokane, Washington. I would be happy to respond if you would repeat in the order that you did, and I will respond to them that way.

MR. CLOSE: All right.

(A) Maps, identified as 14, 15, 16, 17, 18 and 19 are grossly inaccurate as they indicate little or no industrial development north of Sandy Boulevard east of the airport, as well as very little west of the airport. This space is indicated in white which is further identified as "Agricultural - Forest and Other Open Space".

A13

MR. MOSHER: The map that we used is a map that is from CRAG, Columbia River Association of Governments, and it's very small scale, as I'm sure you know, one inch equals 8,000 feet, so it's hard to look at anything less than probably 15 or 20 acres and have it show up in a photocopy. We're sure that there are areas of land use other than industrial, but certainly your point is well taken.

We have been working on a larger scale, and we don't want to in any way leave off areas that would imply that we are not looking at that kind of thing.

MR. CLOSE: I might comment here that we are faced with the same problem in preparing their interim policy that they mentioned in the report, in that the data that they have used for development of that policy is so badly out of date that it's very questionable that that policy will be accepted. So we are concerned from that standpoint, that the basic data is being used is erroneous.

The other comment that we have is that the other major public and semipublic facilities, such as the Mt. Hood Community College, with over 11,000 enrollment, Rockwood Grade School, Columbia View School, Parkrose, two schools in the Parkrose District -- they are all in the affected area as indicated by the book;

and incidentally, the maps in the book do not correspond to the maps in the auditorium here. But these school facilities are in the impacted area, and there's no indication made ----

DR. ANDERSON: We're aware of the fact that these were left out of the analysis. That was also an oversight on our part, and they will be included in the final report. One of the problems when you have an impact report of this length and complexity is, there are sometimes those oversights, but they will be included for analysis in the final report.

MR. CLOSE: Thank you.

COMMISSIONER GREEN: Mr. Odell?

COMMISSIONER ODELL: Mr. Close, before you go, did I understand correctly that the association for which you speak represents about 250 people? Is that right?

MR. CLOSE: That's correct.

COMMISSIONER ODELL: Would you just make a guess for me if you can as to the property that's owned by the members, and what percentage of that property is currently developed?

MR. CLOSE: Very difficult to say what ----

COMMISSIONER ODELL: The order of 10, 15, 75?

15

MR. CLOSE: At a public meeting it was discussed what portion of it was developed. For instance, Mr. Sivers, who is on the steering committee, owns an industrial park right next to the airport. And the firm of R. J. Frank and Associates owns a potential development next to the airport, but we also have land that is not currently developed. There are other potential property owners. I would estimate that probably the 250 property owners represent about, by number, 20 percent of the total property owners in that South Shore area. However, I would say that these 20 percent of the property owners represent substantially more than 20 percent of the land area.

So there are substantial property owners. Some of them are farming the property, some are developing it, and some of them are holding it for development.

COMMISSIONER ODELL: To what extent is there a mix between land uses of the property that's represented among commercial, and industrial, and residential? How many members of the association, for example, live in this area?

MR. CLOSE: Well, there's very few of them live in the area, and some of them on the steering committee -- I believe Mr. White does -- let's see -- Mr. Spada does, Mr. Clarke does, Mr. Venema does -- that I know of of my own knowledge. I don't know of any others, other than that, that do, but this -- this organization covers

A16

a spectrum of the property owners in the area. They represent the industrial developers, property developers, they represent the farming community, they represent the property owners that are in the process of developing the properties.

COMMISSIONER GREEN: Thank you very much, Mr. Close.

Our next scheduled speaker -- I don't see him. Why don't we take -- would it be satisfactory to take one of these situations right here? I have a Mr.Jeans, Harold S. Jeans, of 8505 Northeast Fremont, Portland, Oregon, of the South Shore Study Association. That's the reason I thought to bring it up now, and the question is this: "In the event that an extension of said runway should cause a reduced usage potential or other adverse effect to presently owned property in the surrounding area, will the Port of Portland compensate owners of such property for reduced value and/or usage?"

Who from the Port of Portland would like to tackle the answer to that question? I think it's been kind of directed a little this morning -- Mr. Weber?

MR. WEBER: Would you repeat the question?

COMMISSIONER GREEN: "In the event that an extension of said runway should cause a reduced usage potential or other adverse effect to presently owned property in the surrounding area, will the Port of

Portland compensate owners of such property for reduced value and/or usage?" This is a question for Mr. Jeans.

MR. WEBER: Well, first of all I have to say of course the question is hypothetical, but I'm not sure I can speak for the Port of Portland on compensation of the public or ----

COMMISSIONER GREEN: The Chairman doesn't want to answer it.

MR. WEBER: I really can't -- I can't respond to the question today, because there should be no adverse impact on any surrounding land, there should be no change in the existing situation at the time, only be an improvement, based on the records that I have seen.

COMMISSIONER GREEN: Well, I will say this to Mr. Jeans, who is in the audience, that we'll certainly record this question, and it will be taken up more fully in the final study.

I notice that the blue card is numbered 004. Is there an 001, 2, and 3? There's not? That also applies to the people who wish to make a statement, 004, 5, and 6. Is there an 001, 2, and 3? O.K.

Mr. Jeans, that might not have satisfied you, but nevertheless, it will be so noted and addressed in the final study.

I notice that Mr. Ed Whelan just walked in, 118 and Mr. Whelan is the Director of the Oregon State Department of Economic Development. We are delighted to welcome Mr. Whelan. Would you limit your remarks to approximately five minutes, and state your name and address for the record?

MR. EDWARD J. WHELAN: Mr. Chairman, my name is Ed Whelan. I am the Director of the Economic Development Department of the State of Oregon. This statement will be noted for its brevity.

The Oregon State Department of Economic Development has as its long-range goal the enhancing of the quality of living in Oregon through planned growth which will protect the environment, support education and other essential public services and ensure a level of economic activity that will steadily improve the per capita income of Oregonians.

Progressive, planned and unimpeded expenasion of Oregon's major aviation facility - Portland International Airport - is vital to the healthy economic growth of Oregon, and to the region.

It is for that reason that I am pleased to appear here today as the director of the Department of Economic Development and indicate concurrence with this project of the Port of Portland to extend the south runway at Portland International Airport.

I have submitted a copy to the clerk.

COMMISSIONER GREEN: Thank you very much, Mr. Whelan.

Do we have a Mr. Harold Kern, the Chairman of the Vancouver City Aviation Advisory Committee? Mr. Kern?

MR. KENNETH PUTTKAMER: Mr. Chairman, I am Kenneth Puttkamer. I am representing Mr. Kern this morning. I manage Pearson Air Park in the City of Vancouver. Mr. Kern was called away suddenly and asked me to come and read a letter which he would like to make part of the record. Mr. Kern has been associated with aviation in the area for the past several years as chairman of a nine-man committee which advises the City Council and the Mayor of Vancouver on aviation matters. Mr. Kern says:

> "The purpose of this presentation is to report that our committee has reviewed the environmental impact report concerning the proposed south runway extension (10 R/28 L).
>
> A study of the report indicates neither of the proposed alternates for the extension of the runway would adversely affect Pearson Airpark or cause additional noise levels in downtown Vancouver.
>
> Reviewing the possible alternates, it would appear that the most logical method of extending the runway would be to the West. This plan we approve.

A20

> Our committee is somewhat disappointed that rotating both runways 7 1/2° to the South was not incorporated in this work. However, we wish to say that we do whole heartedly support the Port of Portland in its expansion of Portland International.
>
> We thank you for the opportunity of offering this brief report and if we can be of additional assistance, kindly let us know."

Mr. Kern read this letter to the City Council on November 27th, last Tuesday night, and the Council -- I quote:

> "Motion made by Councilman Westbrook, seconded by Councilman Onslow, and carried to approve the letter to be submitted by the Aviation Advisory Committee at the public hearing to be held Friday, November 30, 1973, regarding the Environmental Impact Study."

Are there any questions that I might be able to answer? I'm sort of a recorder, legman for this committee.

COMMISSIONER GREEN: Does the committee have any particular questions to ask him?

We appreciate very much your taking the effort to come here, making the effort to come here, sir.

MR. PUTTKAMER: Thank you.

COMMISSIONER GREEN: Now actually we're almost on schedule. I think what we might do is intersperse this with a -- with some of the people from the audience who wish to make a statement. I would ask people again to

A21

keep in mind to please keep to approximately five minutes in length and relative to what this meeting is about.

Mr. Harry W. Erickson, 4416 Northeast 71st Avenue. Mr. Erickson is in the audience and wishes to make a statement at this hearing.

MR. HARRY W. ERICKSON: Mr. Chairman and members of the board ----

COMMISSIONER GREEN: Will you state your name, sir?

MR. ERICKSON: My name is Harry W. Erickson. I was born and raised in the City of Portland, 1896, on the east end of the Broadway Bridge. I live now at 4416 Northeast 71st Avenue. I know the history of the airport. We paid $300,000 for it. I traveled all through this country, so I know this country like a book. So every once in awhile they go up in an airplane, up to 10,000 feet in a helicopter, and fly in that -- and I'm self-educated. I do it, myself. I find this out and find that out.

Now I know all about the port. I was against dredging, and I have been against what Multnomah County was going to do to Marine Drive, was going to build it one way east, down below the dike, and then they was going to build west. Also during the 1948 flood I had a crew, one of the last to leave, so we had that dike

A22

all the way from Blue Lake on down, but I'll never forget, when that began my men disappeared, and I had to come out with the Army. So I know all about the history.

The only object that I have, I can't -- I think pulling out of the beautiful airport -- I don't care what anybody -- you come into Portland, where you come in on a good, clear day, it's a beautiful view. It's a good location. Why go out to St. Paul? Here we are, right in close to the port, beautiful and all that.

But I don't like what I've seen, where industry has come in and all that through here, and ruined the beautiful sights, like I -- you take Marine Drive. See, all that used to be farmland, beautiful. They should have left it.

In my opinion, what I know, when you come up here, plan No. 1 and down here -- I know all about that. That used to be owned by the Army. That was during the war. I helped build them ferries during the wartime. They was going to put that freeway down 47th, and they was going to take that bridge over here, to make this part here to be the bridge, because it's not going in here, anyway, and you're only going 2200 feet, that's all you're going, and I've been following this all the way through. You know, there have been two planes, wrecked planes, and since that Portland hasn't had any

13

23

wrecked planes, which we are proud of, see? So therefore, I think that would be the best plan.

Now those are the main points. As planes come in -- now where they talk about a jet was coming in, so you got to have a hundred thousand feet for the plane to go off -- well, you go down and look. Here comes down the plane, all of a sudden goes up in the air. You only need a thousand feet. Don't tell me anything.

So here's -- this here -- just then, as you come down this way, you see this, and you take 700 feet down here ----

COMMISSIONER GREEN: Mr. Erickson, I've got to caution you on your remarks, sir. The time element is becoming a factor with your presentation, so if you could wrap it up within 30 to 60 seconds ----

MR. ERICKSON: Now when it comes down here, three -- when it comes to three -- I'm absolutely against it. I'm against the 205 freeway. I can't see no way, where you're going down a freeway, down 205, and when you get down this far, here you got a curve, and here you go over, and I seen it coming down 96th -- how the Sam Hill can anybody get an idea of putting that highway down? Why can't they go out and build that bridge over there? Phooey.

I think further they can stay away from that

A24

205, from being built -- the one down here is the best one. It's not going to hurt the port. It's not going to hurt anything.

The only objection I've got, and other people, why do you want them planes to fly so you can leave them up in the air? That's why I don't like -- the National Guard comes in here -- phooey, other planes come in -- the only drawback I've got against the airport.

COMMISSIONER GREEN: Thank you very much, Mr. Erickson.

2r

MR. ERICKSON: I won't object getting that -- I'm self-educated, so I'm for that ----

COMMISSIONER GREEN: Well, believe me, your remarks will be -- they have been so noted by the court reporter. As a matter of fact, gentlemen, when this thing appears would you mind showing me your mark for "phooey"?

End
R-2

COMMISSIONER GREEN: I have another person that would like to make a statement, I believe it's Chris M. Hess, is that correct? Mr. Hess wishes to make a statement.

MR. CHRIS HESS: My name is Chris Hess, 5746 N. E. 105th Avenue, Portland, Oregon, 97220, 254-2595. Regarding the future runway expansion, God sees quite a percentage of the airport travel through Portland International Airport as pleasure travel, "Lovers of pleasure more than lovers of God." Second Timothy in the Bible.

Many Oregon residents and others have had inflation brought to them becuase of the methods of deficit debt financing used in and accepted for use by the Port of Portland. Much of this financing attributes to making provisions for pleasure travel, so as to say one man pays for another man's pleasure. God is not pleased with this. That was Adam, Item No. 1.

Item No. 2, does God see that the Port of Portland will pay their way, pay back or return to Multnomah County any monies which runway expansion extension may richly cost the taxpayer of Multnomah County? I cite as examples the fact that God sees deficits left in the Multnomah County budget or budgets because of the Port of County Commissioners favoring the

Port of Portland providing sewer lines and pumping station for the Port of Portland, Portland International Airport, with the consent of you people on the Board on the Commission of the airport.

Various Multnomah County roads have been neglected because of the Port International Airport. So as to say getting funds for sewers, God is not pleased with that, which has been done and no correction has been made. "Neither is there any creature not manifest in his sight but all things are naked and open unto the eyes of him with whom we have to do." Hebrew's 414, Bible.

I could review -- because of time I could review these various matters as having been presented at past meetings and the County Commissioners' meetings. However, they could be written or as God leads. Thank you kindly, gentlemen. Any questions?

COMMISSIONER GREEN: Thank you very much, Mr. Hess. In lieu of time your remarks will be so noted officially and we appreciate having taken time to come to this meeting, sir, thank you.

I have one more from a Mr. Ray Guimary.

MR. R. C. GUIMARY: Mr. Chairman, and Board members, I have a prepared statement I'd like to present. My name is Ray Guimary. I am Distribution Manager of the Oregon Saw Chain Division of Omark Industries. I am appearing on behalf of Omark Industries.

Omark is an Oregon corporation located in Milwaukie, Oregon. The company started in the Portland area about twenty-five years ago and has grown to the extent that we now do business in practically every State in the nation. We also sell to over 100 countries on the international market. Our corporate headquarters and two manufacturing plants are located in Milwaukie, where approximately 750 persons are employed.

The ability of our people to travel by air visiting distant markets and our various facilities here and abroad has been a contributing factor to our growth. Conversely, we have invited customers and suppliers to visit us and the distances involved have required air travel. In addition, we ship and receive a large volume of air freight.

For these reasons Omark supports extension of the runways as proposed by the Port of Portland. We feel the additional facilities will improve air service, providing additional convenience and economic benefit to the community. Thank you.

COMMISSIONER GREEN: Thank you, Mr. Guimary, we appreciate the time of Omark coming here. Mr. Dean

Earhart of the Portland Chamber of Commerce. Mr. Earhart.

MR. DEAN EARHART: Mr. Chairman, gentlement of the Commission, my name is Dean Earhart. I live at 808 N. E. 39th Avenue, employed by National Builders Hardware and appearing here as President of the Aviation Committee of the Portland Chamber of Commerce. We had a prepared statement to make, but in the interest of brevity, time and redundancy, we are departing from that prepared statement.

The Portland Chamber of Commerce identifies with the Boeing Report and which I will draw on extensively in some of these following remarks. We don't want to quote it verbatim, but we do want to support it. We want to look at it primarily from a commercial endeavor, because the business community of the Portland Chamber of Commerce, of course, is interested in the commercial aspects of this expansion.

There are many problems to be spoken to in connection with this expansion. The Aviation Committee has historically been in favor of expansion. It was in favor of the original expansion program that has since been aborted, and now would like to go on record as supporting the Plan 1, the extension westerly of 2,200 feet.

There are several aspects of that that must be spoken to that are advantageous and that are extremely desireable. Many things change in the economy today, but there are some things that aren't changing, like for instance from Portland to Tokyo it's still 4,719 nautical miles, to London it's still 4,229 nautical miles at our present facility whether completely loaded aircraft, freight, passengers, baggage and its graded capacity you cannot get from here to there directly from Portland.

We are not in favor of expansion for the sake of expansion. We recognize that Los Angeles, San Francisco, Seattle, Salt Lake City and even Denver have a greater potential international capability than Portland does because of the size of their facility. And we are not seeking this expansion merely because these other people have it and we don't, but we would like at least to be in a competitive position.

The flag carriers, foreign flag carriers that are seeking to come into the United States on a bilateral negotiation with American flag carriers are looking to the idea of coming into Portland. They can get in here but they can't get out. They come in here to a very crowded situation. And I think in the interest of our ability to move freight out of here by air rather than truck it to Seattle as is being done now, and in many, many instances, I think we should, without any further delay and any more delay than necessary, initiate and implement the action to increase this runway, south runway to 2,200 more feet.

Now, there is another advantage that comes along with this, and I don't think that's been mentioned, that this will by way -- this expansion will eventually give Portland an FAA Category-2 status. By that it increases our navigational aids to the point that we can operate with lesser minimums, visibility and ceiling-wise than we have now been able to operate.

The number of days out of the year that Portland International Airport is closed because of weather can be minimized by going to a Category-2 status.

Now, this involves training of air crews, equipment of aircraft as well as equipment of the Port itself.

And in conversation with representatives of United, they indicated that many of their aircraft are so equipped but it is a long ongoing program for the training of crews, equipping of aircraft to accommodate a Category-2 operation.

This is desireable, this will make it possible to get graded utility out of this facility, and we would like at this time to go on record as favoring the immediate expansion of Portland International Airport, the southern runway, the westerly extension of 2,200 feet.

COMMISSIONER GREEN: Thank you, Mr. Earhart. I believe, sir, that Commissioner Odell does have one question he wants to ask you.

COMMISSIONER ODELL: Mr. Earhart, your committee has studied the Boeing Report, I take it?

MR. EARHART: Yes.

COMMISSIONER ODELL: Probably the abortion of the previous plan and the adoption of this one, in my mind anyway, hinges on the projection by Boeing based on the Air Transport Association's revised forecast that in 1990 the level of the number of aircraft taking off from Portland International Airport carrying a great many more people will be no greater or not substantially greater than in 1973, that is, the curve, which I am sure you have seen in the report, which shows increasing number of aircraft for 1980 and then a downturn as we get wider-bodied aircraft. Has your committee studied that and do you have any major reservations of the validity of that Air Transport Association forecast?

MR. EARHART: No, we agree with this. The whole concept, I think, bears on the capacity of bodies that can be carried. The activity as far as departures and arrivals in the number of passengers and the total amount of freight is going to increase without an increase in the number of operations of aircraft. We recognize this.

But we also recognize that these aircraft actually cannot be loaded to their complete structural capacity, it just isn't physically possible to do it. But they can carry an awful lot more than they have been carrying out of Portland in the past. But we feel this way, that we cannot go out as a business community and solicit this international activity that we feel we should have a right to without having the facility to support it.

And it can't be a matter of which came first, the chicken or the egg, in this case we know what has to come first, and we strongly recommend it.

COMMISSIONER GREEN: Thank you very much, sir. I would like to read into the record just a very brief statement, as I think it's appropriate, because we have just listened to the support from the Portland Chamber of Commerce. This is from the Greater Gresham Chamber of Commerce, and I will just read one sentence, which is the key. "We support the concept of an expanded airport to handle the growth of the metropolitan area as well as to accommodate modern aircraft", and is signed by Mr. Robert T. Bryant, Executive Vice-President. And I just wanted that read into the record, if I may, thank you.

I'm going to call the next speaker, Dr. Carl Petterson of the Citizens' Committee for the Columbia River. Dr. Petterson, in lieu of your prominence into this, sir, the chair is going to allow you ten minutes instead of five minutes.

DR. CARL PETTERSON: Thank you, sir. I was going to ask for that. In addition to the Citizens' Committee for the Columbia River, I have signed this prepared statement as an Executive Board Member, Columbia River Group, Sierra Club Waterways Committee.

I am Carl Petterson, 2612 S. E. Ellsworth Road in Vancouver, Washington. I appear in behalf of all of the individual and organizational plaintiffs in the legal opposition to the 1968 P.I.A. Expansion Plan. Contrary to public opinion, that legal battle continues because of the unwillingness of the Port to relinquish its toe-hold in the river, regardless of its claims in its present plan to have abandoned any riverward expansion.

We are placed in a position of approving in general the principle of airport expansion by lengthening the South Runway but in opposing the acceptance of the

E.I.S. in its present form.

To be acceptable, the final E.I.S. must be authored by the responsible federal agency. Much of the material in the D.E.I.S. has been assembled by impartial consultants and would be acceptable for inclusion in that final report. However, the Port's sponsoring bias is too frequently present. This is most apparent in the historical review where only one side of the story is told. Deliberate omissions are conspicuous in their absences. To list these, as well as factual errors, would exceed my allotted time and lead to accusations of nit-picking. I would be pleased to work with anyone sincerely interested in producing a bipartisan history.

Perhaps we should be grateful that an enlightened Port allegedly abandoned its expansion into the river on July 11, 1973 for several face-saving reasons. But we have reason to be bitter that the enlightenment came after five years of willful blindness that has been costly to us in time and money. It is even more bitter, knowing that the Port could have accomplished what it proposes today five years earlier, with millions of dollars of saving to the tax-paying public. The same prideful arrogance which prevents the Port from admitting error may still be the reason that could halt construction of a basically desireable plan.

What is needed now is a clearing of the slate of past litigation by accepting offers which the Port categorically rejects. The Port can never gain creditibility when it has two gameplans, one for the public consumption and one for the court rooms.

On July 11, 1973 the Port resolved to contract for a new P.I.A. Master Expansion Plan with an E.I.S. Instead, we are now being offered about 95 percent of such a plan under the title of "So Runway Extension". We are concerned about the 5 percent omissions that would make the present study into a complete Master Plan.

We are concerned about the lack of coordination with the Highway Departments in planning I-205 Bridge. Or conversely, if there has been covert planning it should be made public. As recently as last Monday, the FHWA thru the Justice Dept., filed notice in the 9th Circuit Court that the OSHC is still considering building I-205 Bridge on a "fill under the original plan as if the airport fill was also continuing". If the Port is playing a role in that decision-making process, it should either confess or denounce it both publicly and in court. Such a fool-hardy decision by the OSHC would rekindle another five years of litigation - a preventable situation if the Port would lay all of its cards on the table now in a Master Plan.

We are concerned about the Port's aggressive attempt to retain its challenged titles to the river islands without even voluntary constraints on their usage. A Master Plan would require a committment for usage of these Port acquired lands adjacent an expanding airport.

We find the Wyle noise impact study more realistic and believable than the previous BBN studies. However, we do not share the industry's optimism for quiet skies from yet undeveloped quiet aircraft and caution all that the shrinking noise pattern of 1980 and 1990 are highly conjectural. I feel that one of the reasons for piece-mealing the airport development is to deliberately escape the discussion of the impacts of runway 2-20. I think the Wyle predictions in this regard, both in its NEF contours and the table on page III-1 are in error and would be correctable by use of the physical measurements recently recorded by the FAA but secreted as sensitive data. The FAA should know that it is upon such arbitrary and capricious action that lawsuits are built.

An example of the ineffectiveness and insincerity of this or other EIS is the description of a mitigation measure offered as a benefit with no promise of execution. On page VII-4 is this statement: "Another technique may be applicable, particularly in the case of PIA, since there is a fairly long corridor of a river, running approximately parallel and adjacent to the two runways. This is an operational procedure to keep the planes in the corridor as long as possible on westward take-offs, until they have flown westward past Vancouver and the mouth of the Willamette River. After passing this point, the planes could then turn and go either north or south.

As recently as last Tuesday I advised the Vancouver City Council that they should require this procedure to be a condition for acceptance of the EIS. Regardless of their action, if the Port really wanted to be a "good neighbor" it could initiate the required agreement between the Port, FAA, Airlines, Pilots and local government officials that would define these corridors that would avoid noise sensitive areas and permit intelligent land use planning.

I would then request that the FAA require the present EIS be expanded into a full Master Plan, with airport layout plan, hazard, obstruction and airspace determinations with regard to natural terrain and proposed bridge. If left unchallenged in this regard the Port will piece-meal together an airport without ever having submitted a Master Plan, saving the most undesireable elements for the last, after the development has become an accomplished fact. Such an approach was not the intent of NEPA and has been the frequent subject of environmental lawsuits.

I will believe that the Port intends to give more than lip service to its EIS when environmentalists are invited to partake in planning sessions as friends instead of adversaries. During the next week I will be sitting with an attorney writing yet another brief to the 9th Circuit Court relative to the allegedly abandoned old Master Plan at the insistance of the Port's attorneys who have refused conciliatory offers. The Port has a long way to go to become the responsible public servant that it should be, rather than the self-serving bureaucracy that it has evolved. This EIS could be a step in the right direction if the Port could be believed to be sincere; its future actions could and should reflect that sincerity. Thank you.

P-3
1:25

COMMISSIONER GREEN: Thank you, Dr. Petterson. Your remarks will be so noted, and they will be in the final draft to be given to the FAA.

We will now adjourn to a quarter of -- let's make it five of eleven, a ten-minute break.

(At this point a recess was taken,
after which the proceedings were
resumed.)

COMMISSIONER GREEN: I want to again say that anybody that wants to ask a question or make a statement, that the cards are back there, and we're not going to entertain questions or statements without the card.

We're going along rather rapidly. Are all the witnesses present? I wonder -- I see where Mr. Garcia, Manuel Garcia, Portland manager for CF Air Freight -- Mr. Garcia, are you in the audience, sir?

Mr. Garcia, were you here when I made my remarks about the approximately five minutes and stating your name and address?

MR. MANUEL GARCIA: Yes, sir. I reside at 2721 Southwest Plum Court, Portland, and I'm a resident of the City of Portland for eighteen years now. I am manager of CF Air Freight, and I am also with the Portland Air Cargo Association, which is a related group of people that deal with air freight in this area. It's a group composed of airline people, agencies related with air movement, the movement of air cargo.

My remarks today will be directed primarily to the air freight in the City of Portland and the competition in this situation. My four years in the freight business have been in Portland, here in Portland with the exception of one year with the City of Miami, and I am very, very close to this area. I've seen a lot of growth in airlines, and especially locally, and my company has invested many dollars in the development of this facility here.

I am interested in the progress, the capabilities for the next 15 to 20 years. I believe that the port will in years to come grow, and we believe in the report for the extension of the runway on the westerly side for 2200 feet. We subscribe to that idea. In fact, if there are any more studies, further studies -- but since I'm not an expert on environmental, I am not expert in anything else, I will limit it to that, to the 2200 feet in the westerly direction.

My knowledge is strictly air freight. We have to be realistic. The Portland Airport was built there for one reason and one reason alone, and that was passenger movement, passenger movement through the City of Portland, to the city and throughout the world, the air freight being a stepchild of the passenger movement through the airport. They didn't build the airport for air freight. They didn't build that airport for freight. Anybody knows that for passengers we have a big problem now. The energy crisis we're going through today, we are just beginning to face this problem. In fact, under the present conditions, we don't know the freight situation that's available out of Portland. Therefore, it's the same as before, that some of this cargo is going to be going through to Seattle.

The question is why this freight is going to Seattle, and stop getting all upset about it. It's moving there. Now why is it moving there? Because the Seattle Airport allows a longer runway, so there is more justification to take a larger payload than you will have in Portland.

Let's forget about that one for a minute, and let's talk about the port's problem in Portland. We're going to have less freight with this energy crisis. We're going to have less flights up in the air, and without this longer runway we're going to have less and less freight being moved by land. There is already an airplane crisis, the flights for Portland being reduced. It can only now come in with a good load, 40,000 pounds.

A28 As we have fewer flights, we're going to have to cancel more freight, we put more passengers on the aircraft, as the passengers have their baggage -- you're talking about 200 pounds per passenger, you're talking about fuel -- if you talk about fuel, and you add to that the priority of mail that has come -- in fact, in addition to the air mail we have the first-class mail, which adds 10 percent in air cargo. Then there comes the general freight that goes into the belly of an aircraft. What do you have left? Very little. You're talking about in excess of 380,000 pounds. Out of the 380,000, just about a hundred eighty thousand moves out of Seattle. This is just about the situation you're going to have in the future.

We are experimental right now. There's going to be a 10 percent reduction in United Air Lines, effective January 7th. We are talking about a contemplated reduction by the end of January. We know this is going to be pretty good to save lots of fuel, but what are you going to do with your cargo people, your manufacturers?

I would recommend the 2200-foot statement, because this will carry the DC-10, the L10-11, the 747 capability. We feel the freight is going to go moving out of Portland in the wide-bodied aircraft. We feel that we need the 2200 feet, because we want to load up those airplanes fully.

Mr. Chairman, I am not an expert in environmental. I'm not an expert on what you've been talking about. I just know my business, and I've been successful at it, and we've got a lot of people that make a good living at it. We know what we need. We know what we have to have.

We strongly recommend that you take that direction. Thank you.

COMMISSIONER GREEN: Thank you very much. We appreciate your taking your time. Now Mr. Gadsby has a question for you.

COMMISSIONER GADSBY: Mr. Garcia, I'm in the ocean freight business, and I want to be sure I understand one question. We're losing freight because it is being trucked to a larger airport north of here, is that correct?

MR. GARCIA: That's correct, sir.

COMMISSIONER GADSBY: And our participation from the airport, direct participation in air freight is reduced considerably ----

MR. GARCIA: That is correct.

COMMISSIONER GADSBY: -- because of an inadequate runway?

A30

MR. GARCIA: Basically that's correct, yes, sir.

COMMISSIONER GADSBY: And the extension of the runway would greatly improve our participation in air freight, both domestic and overseas?

MR. GARCIA: This is correct, and I would like to expand on this, Commissioner.

COMMISSIONER GADSBY: Thank you very much.

MR. GARCIA: My feeling and others, it is my feeling -- it is my personal feeling in this case that we are in a position as to the airport to the north of us that by economic justification, you can fly a plane just as well as put it in the truck, and concentrate the manpower, the equipment, and the capability into one area, and it is more economical to run it through with 40,000 pounds sitting empty on the ground than it is to make a stop in Seattle, then come down and get it in the City of Portland. This to a businessman is economical for the future. They take the easiest way out, which is to go to aircraft, therefore eliminating the trip to Portland.

My question is, let's stop beating around the bush. Let's eliminate the competition up north. Let's make it more competitive through the airport. Make our runway more feasible, make it better than Seattle, because this is a competitive thing. Let's make it through the port, rather than take it to Seattle.

COMMISSIONER GADSBY: Do you consider that the air carriers would make more freight space available if we had the longer runway?

MR. GARCIA: This is so, and more so with this fuel crisis that we have now. It's happening today.

For an example, we have right now one airline that runs a long distance, from Portland quite a long distance with a 727 aircraft. They have four lines going to the city. We have difficulty getting into those planes. Why? Because they're 727's. Whenever they get over a 75 percent load of passengers, they're going to require 100, 200 pounds, 300 pounds. We've got, on account of them going to that -- what do we have to do? We have to divert our freight from Portland and back here again. We do have an efficient passenger service, which I have no quarrel about this, that way, but let's move to the larger air traffic, that will make money for them. Let's get those airplanes larger, being able to put more cargo in the pit of the aircraft. This is happening today, and it's happening in Seattle, too, but we need a lot -- we need the freight, or we're not going to be in the market, we might as well fold up here, and make this a transfer point, and move everything up to the city up north. Thank you.

COMMISSIONER GREEN: Thank you, Mr. Garcia.

I would like to call now -- I hope I pronounce this name -- Mr. Cliff Sroka? How close am I?

MR. CLIFF SROKA: My name is Cliff Sroka.

COMMISSIONER GREEN: Sroka?

MR. SROKA: That's close enough.

COMMISSIONER GREEN: Thank you.

MR. SROKA: And I am an engineer in the Noise Control Section of the Department of Environmental Quality.

The Department of Environmental Quality has reviewed the Portland International Airport South Runway Extension EIR draft report submitted to the Department by the Port of Portland. Our review has been directed toward the projected environmental impact of the south runway extension upon air quality and noise environmental degradation in the vicinity of the airport.

We find that in general, we are in concurrence with the report's conclusion that the least air and noise quality degradation will occur if the extension of the south runway (10R/28L) follows Plan I, to add approximately 2,200 feet of paved runway to the west end of runway 10R/28L with no easterly extension. Our primary concern in relation to adoption of Plans II or III is the relocation of N. E. 82nd Avenue, the projected increase in emission density in the vicinity of the 82nd Avenue-south runway climbout corridor and the projected adverse noise impact upon residents of northeast Portland.

Air Quality Impact

The Department concurs with the report's conclusion that adoption of Plan I should have little significant impact on air quality at PIA or within the the Portland Metropolitan Area as a whole. Examination of existing information relative to air pollutant emissions affecting the air quality of the PIA and available air quality measurements (although admittedly limited) suggest that air quality ambient air standards are not being exceeded within the study area, with the possible exception of photochemical oxidants.

The report's concern relative to possible current violation of hydrocarbon ambient air standards is not viewed as a major problem since the Department has implemented a major program to reduce vehicular emissions through transportation control and automotive emission reduction strategies.

Further concerns expressed in the report dealing with projected oxides of nitrogen air quality concentrations exceeding adopted ambient air standards within the climbout dispersion model box should not prove to be a problem since the adopted ambient air standard applies only to nitrogen dioxide rather than total oxides of nitrogen and relates only to an annual average concentration. Even assuming that all of the nitric oxide emissions were quickly converted to nitrogen dioxide within the box volume, annual average ventilation conditions would result in much lower concentrations than predicted in the report under worse case (stagnant wind) conditions.

The Department finds deficiencies in the draft EIR in relation to the projected emission and impact of coarse particulates emitted from aircraft during climbout. An assessment of existing and future particulate fallout emission resulting from aircraft operations and their impact upon residential areas in the vicinity of PIA should be included in the final report. An evaluation of the impact of the south runway extension at the time of its completion should also be included in the final report since it is at this time that the air quality impact is likely to be the greatest.

Noise Impact

Noise levels and annoyances generated from current PIA operations are excessive in some areas. Presently there are 35 schools located in areas where noise levels exceed Federal guidelines. There are also

A35

a significant number of hospitals and churches located such that they are subjected to excessive noise from PIA operations.

Proposed runway extension will increase existing noise levels unless effective countermeasures are taken. The greatest impact will occur immediately after completion of the runway extension because the scheduling of the larger aircraft is proposed to begin before noise control countermeasures can be implemented.

The Department concurs with the conclusion of the Draft Environmental Impact Report, namely, that Plan I, the 2200 foot westward extension of the south runway would cause or create the least impact on noise pollution of the three expansion plans considered.

Countermeasures which are proposed in the report should be effective in reducing noise levels to the extent they are implemented. These include:

1. The "Two segment landing approach". This should be an effective noise reduction procedure and should be implemented as soon as practicable. However, this will not totally solve existing noise problems.
2. All aircraft using PIA are proposed to be retrofitted with acoustically treated engine nacelles to meet Federal Aviation Regulations

36

(FAR-36) by 1980. The cost of this modification is estimated to be from $60,000 to one million dollars per aircraft.

It has not been demonstrated that the retrofitting of existing turbofan engines with modified front end fans to reduce fan noise, as suggested in the report, would be economically feasible. The cost of this modification has been estimated to be from two to four million dollars per aircraft.

In addition to the above proposed countermeasures the Department recommends:

1. A specific land use plan should be prepared and adopted that would include acquisition of residential property and control of development within the NEF 35 contour.
2. Implementation of a program of flight scheduling that would encourage only day time use of the noisiest aircraft types to improve the sleep interference problem.

I might add parenthetically that we have three aircraft in mind, the DC-8 Series 61, the DC-8 Series 63, and the Boeing 707-320B.

Maximum effective use of the above countermeasures should allow the proposed airport expansion and still achieve a quieter facility for the future.

Thank you, gentlemen.

COMMISSIONER GREEN: Thank you, Mr. Sroka, and Mr. Odell has one question.

COMMISSIONER ODELL: That's my quota for you. Did I hear you properly, correctly, did you suggest to us that the port should purchase residential property within the NEF 35?

MR. SROKA: Yes, 35.

COMMISSIONER ODELL: Do you have a feel for how many residences that includes that are not currently within our area of land acquisition?

MR. SROKA: I have a general feel of statistics. I do not have it with me offhand.

COMMISSIONER ODELL: You have a general feel?

MR. SROKA: Yes.

COMMISSIONER ODELL: I'm just trying to get a feel of the number of actual homes you're talking about. We're buying everything between the airport and I-205 at the present time, and I'm trying to get a feel for the implication of your remarks.

MR. SROKA: I think I can't come up specifically on numbers at this time. I have to return to the office.

COMMISSIONER ODELL: Fine. Thank you.

MR. SROKA: Thank you.

COMMISSIONER GREEN: Mr. William Purvis, of the

138

Vancouver Chamber of Commerce. Mr. Purvis.

MR. WILLIAM J. PURVIS: Mr. Chairman, my name is William J. Purvis, and I live one traffic jam north of here, in Vancouver, Washington.

There seems to be a budding recognition in Vancouver for the necessity of an orderly expansion of an International Airport to assure the continued economic stability of the community in which we live. Representatives of the Roads and Transportation Committee of the Chamber of Commerce have reviewed the latest proposal by the Port of Portland and submitted their endorsement for the entire chamber to consider. The executive board of the Chamber in Vancouver considered this expansion proposal and offered their endorsement of this westward extension of the south runway as proposed.

With the entrance and exit corridors generally following the Columbia River, the people in Vancouver are most concerned that a close adherence to this pattern by the aircraft be strictly adhered to.

Representatives of the Vancouver Chamber of Commerce wish to recognize that the POrt of Portland, has adequately fulfilled the requirements of Section 16-C of the Airport and Airway Development Act of 1970. The charts, the drafts, the descriptions, the written and

A39

visual presentations of their proposal surely have been very complete and well distributed throughout the community.

For these reasons I submit this letter of endorsement in an effort to promote the needed expansion of airport facilities.

Thank you, gentlemen.

COMMISSIONER GREEN: Thank you very much, Mr. Purvis. We appreciate that.

End

COMMISSIONER GREEN: I will now call on Mr. Harry Stevens of the Oregon Building Congress. Mr. Stevens.

MR. HARRY STEVENS: Gentlemen, I am Harry Stevens, President of the Oregon Building Congress. The Congress is in its fifty-second year and it's a service organization composed of over two hundred members who represent all phases of the building construction industry. I would like to read into the record this resolution by the Oregon Building Congress dated November 28, 1973.

Port of Portland, et cetera, Public Hearing Administrator, South Runway Project. Resolution: Whereas the Port of Portland has been delayed more than five years in its program to expand Portland International Airport with millions of dollars of both public and private monies lost during the iterim, as, for example the costs of inflation, and

Whereas during those periods of delay -- caused not by the Port of Portland, but by external group pressures -- Seattle has developed its great airport, cutting into the trade and commerce that should go through Portland International Airport and thereby placing our facility in a relative non-competitive secondary position; and

Whereas now the Port of Portland Commission has indicated its desire to extend the south runway at Portland International Airport in order to allow the airport to compete more equitably with the other major aerial gateways on the West Coast; and

Whereas such a project is most progressive, logical and necessary.

Therefore be it resolved that the Oregon Building Congress of Portland, whose membership of over 200 represents all phases of the construction industry, go on record as approving the extension of the south runway of Portland International Airport as recommended by the Port of Portland and urging speedy completion of the project. Signed, Harry K. Stevens, President.

COMMISSIONER GREEN: Thank you very much, Mr. Stevens.

MR. STEVENS: Also, gentlemen, I would like to also add comments as a citizen for many years in the Portland area and as an architect with the firm of Skidmore, Owens & Merrill, I would like to read these personal observations into the record of this hearing.

Situation: The citizenry realize that, by law, the means for preserving our ecology is a fact accomplished: Much of its impact still to be interpreted and tempered by deliberate judgments. Its effect with respect to the economy, likewise, must be considered in the same context, and with similar weight.

What must be accomplished: Dogmatic positions taken by the extremists of both parties - ecologists and commerce/industry - must cease. Each must learn to work in harmony, be validly responsible for their statements/actions - and the selfish special interest pressure groups subordinated. This present lack of rapport is costing the public untold losses in both private and tax dollars, plus stagnation of their just right to expect balanced progress. The time is now to get together and work out viable solutions.

Personally, and by talking with friends, I get a grass roots feeling that the public is fast assuming a jaundiced opinion of the strife concurrent with, say, construction and its impact on the ecology - and vice-versa. Too much is at stake and we the public are paying very dearly for these unnecessary delays.

I believe the foregoing general observations, if you please, apply directly to today's specific hearings. Thank you, gentlemen.

COMMISSIONER GREEN: Thank you, Mr. Stevens, for your official position and your personal position, sir.

I now would ask Mr. Dick Barnum to approach the rostrum. Mr. Barnum represents Clark County Regional Planning.

MR. RICHARD BARNUM: Thank you. The Regional Planning Council of Clark County, representing Clark County, all of the cities in Clark County and several other agencies, has carefully reviewed the Draft Environmental Impact Report - South Runway Extension as submitted by the Port of Portland. The Council has unanimously approved the proposed 2,200 foot runway extension to the south runway in a westerly direction. In addition, Council members commended the Port of Portland for developing an airport expansion plan that does not intrude into the Columbia River, and that seems to be closely tailored to emerging aviation demands.

The Draft Impact Report is informative and generally thorough. There are, however, a few areas of special interest to both the Regional Planning staff and to the Council. The Southwest Washington Air Pollution Control Authority (SWAPCA) has also registered their analysis with this office and find certain portions of the report potentially bothersome. Among SWAPCA's concerns are the Port's proposals for increased commercial activity and related activities, which will increase emissions to the surrounding airshed and should be evaluated in terms of impact on ambient air quality. SWAPCA feels that some of the data used is out-dated, incomplete and misleading. They are worried that significant short-term excesses might be obscured by the use of annual, geometrically-smoothed averages. They indicate that persons with respiratory disabilities will be quick to observe that short, intense periods of pollution are more burdensome than smoothed annual average values. They question the limitations of the simple box model used for analysis in the Impact Report, and report that its validity may be restricted with results misleading in many cases. They also question the Port's assumption that ground vehicles can be controlled to reduce the extent of airport-associated photo chemical smog. SWAPCA has further indicated, while only hinted at by the report, air quality standards for suspended particulates will also be exceeded. Generally, SWAPCA is questioning air transportation using up so much of the metropolitan area's air pollution "allowances" and whether an increased rate of growth in air transportation activities should be aggressively solicited.

Regional Planning is pleased that the proposed project has the potential of reducing the noise impact of airport operations upon Vancouver and the Evergreen School District. We would strongly encourage any policies and operational characteristics by the Port, the airlines and the pilots that will reduce the acoustical intrusions suffered by Clark County. The Impact Report has indicated that extension of the south runway should relieve the crosswind runway of some future aircraft operations, and this also is applauded. Again, any activities or procedures designed to reduce noise impact should be implemented as soon as possible. A number of noise abatement strategies have been reviewed as an appendix to the Impact Report. Perhaps it would have been more proper to have indicated within the body of the report which of these strategies are to be associated with future airport operations so that individuals and organizations reviewing the proposals might have a firmer sense of the implications of each alternative.

The section on energy consumption might have explored in greater detail the secondary surface transportation generated by accelerated airport activities. Activities that are interdependent with the airport will consume amounts of energy not adequately noted in the Impact Report. The report also should indicate the projected impact of airport-associated traffic upon our most current concepts of what the highway system and public transportation systems will be like in the future. We are, of course, especially interested in how the airport-generated traffic will affect Clark County.

In general, the Regional Planning Council has found the Environmental Impact Report to be acceptable and complete. The Council urges the Port of Portland Commission to adopt Alternative II Plan I as the Airport Master Plan for Portland International Airport, and to expeditiously implement that plan. Thank you very much.

COMMISSIONER GREEN: Thank you very much, Mr. Barnum. I should like now to read a very brief statement. The Multnomah County Board of Commissioners on November 27th, 1973, adopted the following statement on the south runway extension project. The Preliminary Draft Environmental Impact Report by the Port of Portland establishes very well that the western extension of the south runway is the better of the three alternative extension plans offered. Multnomah County concurs with this conclusion and believes that the westerly extension would result in the least adverse environmental impact.

It has not been clearly established, however, that an airport runway extension is in fact necessary for continued economic growth of the Portland metropolitan area. There are five subjects of which should be expanded upon in the final environmental impact report and addressed specifically to the question of whether or not runway expansion is necessary. The subjects are: One, the economic impact on the community of build versus no build has not been fully documented in the report. While the predicted general economic growth of Portland has been clearly shown, nothing has been given to suggest that this growth is dependent upon a runway extension. If there will not be this dependency, the no build alternative would clearly be the least expensive.

Two, it is stated throughout the report that the number of flights will not change directly because of the extension, but that larger jets will be able to use the runway, thus resulting in an increase in net tonnage. What will this tonnage be and what increase will it be over the no build alternative?

Three, research, outside the Runway Report indicates that fuel consumption per ton of cargo and/or passenger mile will decrease through the use of wide-bodied aircraft. The Runway Report discusses fuel consumption and suggests that tonnage and passenger miles projected for the future are not dependent on the runway extension. Thus these larger planes could accommodate this unchanging need with less fuel consumption.

In light of the current fuel shortage and concern for pollution, this could be an important question relating to the proposed runway extension. Full documentation of fuel consumption by wide-bodied aircraft as it relates to payload and related air pollution would probably lend additional support to the runway extension. Therefore this seems a reasonable amendment to the final report.

Four, do the projected noise contours reflect the use of the two-step glide approach, the new aircraft designs, and the full payload expected to be carried? If not, how will these factors modify the noise levels?

Five, what will happen to the filled area on either end of the south runway if the no build alternative is decided upon? Will the fills remain, or will they be removed? What will the impact be? Should they be recontoured and screen planting installed to minimize runway lighting effects on adjacent vehicular traffic?

With the inclusion of answers to these comments, one will be better able to make a decision not only on where to extend the south runway but whether or not to extend it at all.

This, I say again, is a written statement by Multnomah County Division of Land Use Planning and it's their staff report and should be incorporated in this hearing.

The chair has no more written questions, no more statements, no more witnesses, and I therefore declare the meeting adjourned. Thank you very much for showing your interest in coming.

Hearing adjourned at 11:30 o'clock a.m.

- - - -

005

I wish to ask a question before the Port of Portland Commission about the proposed extension of Portland International Airport's Runway 10R/28L. The question is:

The South Shore Study Assoc. has by written notice inform'd the P.D.O. its interest – but ~~[illegible]~~ is not on the mailing list – neither are its 250 members – neither are the approx 900 land owners in the South Shore Study Area.
Question Why.

We do support the P.D.O. improvements

R.H. (Bob) Blower
Name
5510 N.E. Stanton St
Address
Portland 97213
City
Vice Chairman South Shore Study Assoc
Organization Representing

STATEMENT BY THE OREGON ENVIRONMENTAL COUNCIL CONCERNING PROPOSED SOUTH RUNWAY EXTENSION AT PORTLAND INTERNATIONAL AIRPORT

November 30, 1973

The Oregon Environmental Council is a coalition of 85 environmental, conservation, sportsman, and planning groups, and over 2000 individuals throughout the state.

The OEC takes considerable pleasure in having the opportunity to review an impact statement which does not advocate a grandiose scheme for paving over the Columbia River. It was less than a year ago that the Port of Portland was pressing very hard for a 5000 foot separation of the runways with a massive dredge and fill operation proposed for the Columbia River. At that time, the OEC and other citizen groups strongly opposed this propos al and challenged the assumptions and projections which the Port used in trying to establish the need for its massive expansion plan.

At long last, projections for aircraft operations and required support facilities have been re-evaluated.

The South runway extension (Plan 1) as described in the EIS appears to satisfy the air transportation needs of the region into the forseeable future and still provides reasonable protection to the natural and urban environment. Citizen and environmental groups have long argued that such expanded air transportation services and protection of environmental quality were not incompatible.

We would concur with the Port Staff recommendation that the extension be built 2200 feet to the west. A western extension would have the least noise impact on people and would not entail the degradation of air quality involved with the relocation of 82nd Avenue. We also strongly urge that the Port of Portland adopt all operational and technical noise abatement procedures outlined in the EIS in an effort to improve environmental quality in the area affected by their operations.

John Neilson
Susan Tornquist
Oregon Environmental Council
2637 S.W. Water
Portland, Oregon 97201
222-1963

[illegible] 8

OREGON PROJECT NOTIFICATION AND REVIEW SYSTEM

STATE CLEARINGHOUSE

Local Government Relations Division
240 Cottage Street S.E., Salem, Oregon 97310
Bill Kramer, Supervisor Ph: 378-3732

PNRS STATE REVIEW

Project #: 7311 2 060 Return Date: NOV 23 1973

To Agency Addressed: If you intend to comment but cannot respond by the return date, please notify us immediately. If no response is received by the due date, it will be assumed that you have no comment and the file will be closed.

PROGRAM REVIEW AND COMMENT

To State Clearinghouse: We have reviewed the subject Notice and have reached the following conclusions on its relationship to our plans and programs:

( ) It has no significant effect. ( ) We have no comment.

( ) Effects, although measurable, would be acceptable.

(X) It has no adverse effect.

( ) It has adverse effects.

( ) We are interested but require more information.

( ) Additional comments for project improvement.

- - - - - - - - - - - -

REMARKS

RECEIVED
STATE HWY ENGR
NOV 13 '73
REFER TO
FOR

RECEIVED
NOV 13 1973
OFFICE ENGINEERING SECTION

ORIGINAL SIGNED BY
R. D. ASBURRY

Agency Hwy By

OREGON PROJECT NOTIFICATION AND REVIEW SYSTEM

NOTIFICATION OF INTENT TO APPLY FOR FEDERAL AID

For Internal Use Only — 1-8] PNRS # 7311 2 060 — 9] CARD TYPE: — Page One

02 — 12] APPLICANT [45: Port of Portland — 46] DIVISION [79: Aviation

03 — 12] APPLICANT ADDRESS STREET [45: P. O. Box 3529 — 46] CITY [60: Portland — 76] ZIP [80: 97208

04 — 12] CONTACT PERSON [45: J. R. Perkins — 46] AREA CODE [48: 503 — 49] PHONE [55: 233-8331 — 56] EXTENSION [59: 251

01 — 12] PROJECT TITLE [71: Runway 10R-28L Extension

11 — 12] PROJECT LOCATION CITY [45: Portland International Airport-Portland — 46] PROJECT LOCATION COUNTY [79: Multnomah

05 — 12] SUMMARY PROJECT DESCRIPTION (ATTACH SUPPORTING DOCUMENTS AS NECESSARY) [71: See attached.

06 — 12] [71

07 — 12] [71

08 — 12] [71

09 — 12] [71

10 — 12] [71

METROPOLITAN ENGINEER
RECEIVED
NOV 14 1973
☐ ME ☐ AME ☐ AME ☐ MOE ☐ MDE ☐ MTE

12

FEDERAL FUNDS		NON-FEDERAL MATCHING FUNDS		OTHER	TOTAL
12] (A) Grant [19	20] (B) Other [27	28] (C) State [35	36] (D) Local [43	44] (E) FUNDS [51	52] (F) FUNDS [60
$2,922,150			$577,850		$3,500,000

13 — 12] TYPE OF OTHER FEDERAL FUNDS (See 12B) [45 — 46] TYPE OF OTHER NON-FEDERAL FUNDS (See 12E) [79

14 — 12] FEDERAL PROGRAM TITLE [71: Airport Development Aid Program

15 — 12] FEDERAL AGENCY NAME [45: Department of Transportation — 46] FEDERAL SUB-AGENCY NAME [79: Federal Aviation Administration

17

(A) TYPE OF APPLICANT: (Check (X) the single most applicable box)

STATE ☐ 12 — INTER-STATE ☐ 13 — COUNTY ☐ 14 — CITY ☐ 15 — SCHOOL DISTRICT ☐ 16 — SPECIAL DISTRICT ☒ 17 — COMMUNITY ACTION ☐ 18 — SPONSORED ORGANIZATION ☐ 19 — OTHER ☐ 20

(B) TYPE OF ACTION: (Check (X) as many boxes as apply to this action)

NEW GRANT ☒ 21 — CONT. GRANT ☐ 22 — SUPPL'T GRANT ☐ 23 — INCREASE DURATION ☐ 24 — DECREASE DURATION ☐ 25 — CANCELLATION ☐ 26 — INCREASE DOLLARS ☐ 27 — DECREASE DOLLARS ☐ 28

(C) IS THERE A COMPREHENSIVE PLAN?

STATE: Yes ☒ 29 No ☐ 30 — REGIONAL: Yes ☒ 31 No ☐ 32 — LOCAL: Yes ☒ 33 No ☐ 34

(See IV, Page 2)

(D) REVIEW REQUIRED by A-95: Yes ☒ 35 No ☐ 36

(E) ENVIRONMENTAL IMPACT: Yes ☒ 37 No ☐ 38

(F) HOUSING RELOCATION REQUIRED: Yes ☐ 39 No ☒ 40

(G) ESTIMATED APPLICATION FILING DATE: 41] MONTH [42: January — 43] DAY [44: 2 — 45] YEAR [46: 1974

ADDITIONAL INFORMATION — ALL APPLICANTS

I. FEDERAL CATALOG NUMBER (OR PUBLIC LAW NO. AND TITLE) 20.102

II. HAS DISTRICT CLEARINGHOUSE BEEN NOTIFIED? No ☐ Yes ☒ Date:

III. HAS FUNDING AGENCY BEEN NOTIFIED? No ☐ Yes ☒ Date: March 7, 1973

IV. IF PROJECT INCLUDES STATE FUNDS (12C), IDENTIFY AGENCY No

V. LIST PERTINENT PLANNING DOCUMENTS OR PROJECT STUDIES (See 17C) Oregon State Airport System Plan, Portland Regional Airport Study, PIA Airport Layout Plan

VI. EXPLAIN DEVIATIONS (IF ANY) FROM PERTINENT PLAN None

VII. (a) Federal Congressional District(s) Number(s) 1

(b) State Representative District(s) Number(s) 8 through 23

(c) State Senatorial District(s) Number(s) 5 through 12

STATE AGENCIES ONLY

VIII. (a) IS PROGRAM BUDGETED ☐ NON-BUDGETED ☐

(b) STATE SHARE

GENERAL FUND CASH	OTHER FUND CASH	IN KIND
$	$	$

(c) FUNDING METHOD

	FEDERAL SHARE		STATE SHARE		TOTAL	
First Year	%	$	%	$	%	$
Second Year	%	$	%	$	%	$
Third Year	%	$	%	$	%	$

(d) WILL PROGRAM REQUIRE HIRING OF NEW STATE EMPLOYEES? No ☐ Yes ☐ Number

(e) Will accounting for this grant be administered by the Executive Dept. Accounting Division? Yes ☐ No ☐

METROPOLITAN ENGINEER
RECEIVED
NOV 14 1973
☐ ME ☐ AME ☐ AME ☐ MOE ☐ MDE ☐ MTE

REMARKS

NOTICE OF INTENT TO APPLY FOR
FEDERAL FUNDS - RUNWAY 10R/28L EXTENSION

The lack of runway facilities capable of supporting long-haul international carriage is detrimental to the Portland area's economy, and its competitive position as an international West Coast port. This condition was foreseen as early as 1962, when the Port first formalized a plan for a westerly extension to Runway 10R/28L at PIA. In 1967, an 1,800-foot westerly extension to Runway 10R/28L was the subject of a proposed FAAP project. This proposal resulted in a grant agreement, dated January 11, 1968, Contract FA68WE-3905, Project 9-35-034-C826. By letter dated August 1, 1968, FAA asked the Port to modify that agreement so as to delete the portion providing for the extension of Runway 10R/28L. By letter dated August 21, 1968, copy attached, the Port declined to so modify the agreement. The FAA persisted in seeking deletion of the before-mentioned extension based on the reasoning that large amounts of money should not be expended on extending Runway 10R/28L, since a new expansion plan indicated the desirability of broader airport configuration changes, not necessarily consistent with the extension of said runway. The FAA apparently dismissed the possibility of not being able to implement the new expansion, in spite of the Port's reservations with respect thereto, the Port acceded to FAA's desires to delete the Runway 10R/28L extension project.

On July 11, 1973, the Port Commission formally announced abandonment of that expansion plan as it appeared to be inconsistent with public desires at this time. In view of the still critical need for a longer runway at PIA, the Port is attempting to construct such a facility with all deliberate speed. The Port recently circulated a Notice of Intent to apply for Federal funds for a project to extend Runway 10R/28L to the east. A-95 approval has been received from the State Clearinghouse. However, the draft of the Environmental Impact Report for the easterly extension was withdrawn for rewriting.

This Notice of Intent concerns a proposed extension of Runway 10R/28L 2,200 feet to the west. Earlier this year, the Port placed 700,000 yards of fill material in position to be settling so that a runway extension could be accomplished, if environmentally acceptable. This project would increase the length of Runway 10R/28L to 11,000 feet. As a part of this construction, the runway would also receive touchdown zone, centerline and approach lights and new radio navigational aids. The final system would meet Category II ILS requirements. This would permit landings when visibility is as low as 1,200 feet along the runway. This capability is considered highly desirable for reliable airline operations. Currently, this runway meets only Category I criteria, with landing visibility minimums of 2,400 feet along the runway. Well over 100 airline flights per year (from October through April) are unable to operate to or from PIA because visibility is below minimums.

Attached is a sketch and an aerial photograph showing the location of the proposed extension.

The proposed project schedule is as follows:

Publication of Draft Environmental Impact Report	October 29, 1973
Public Hearing Regarding Proposed Extension of Runway 10R/28L	December 6, 1973
Submission of Final EIR to FAA	December 1, 1973
Begin Construction	April 1, 1974
Complete Construction	October 11, 1974

In 1967 this runway extension was justified primarily on daily flight schedules which could not be accommodated by the present 8,800-foot runway length without range and/or pay load penalties. Specific reference was made to direct Portland/Hawaii flights by Pan American and Northwest Airlines, and and to nonstop Portland/New York flights by United Air Lines which were scheduled to commence in 1967. Reference was also made then to the United Air Lines' operation of DC-8-60 series aircraft between Portland and New York which were scheduled to commence in 1968.

Additional route authorities since awarded by CAB also cannot be implemented economically because of inadequate runway length. For example, both Northwest Orient Airlines and Flying Tiger Lines have authority to fly nonstop from Portland to Tokyo. Pan American has the authority to fly nonstop Portland to London by way of the Polar Route, and Continental Airlines has the additional authority to fly nonstop to Hawaii from Portland.

Several airlines have applied for extensions of their routes to Japan and People's Republic of China over the North Pacific. Should this additional authority be granted, Portland would seek to be designated as a co-terminus.

The existing route authorities and fleets of specific airlines are as follows:

1. Braniff has nonstop authority to Dallas. Although the largest Braniff aircraft serving PIA is the 727-200 with Pratt & Whitney JT8D engines, Braniff's fleet also contains a 747-100 (P&W JT9D engines) and DC-8-62s with P&W JT3D turbines.

2. Continental Airlines has nonstop authority to Houston, New Orleans and Hawaii. The 727-200 is currently the largest aircraft Continental operates from Portland although on other routes Continental utilizes 747-100s, DC-10-10s (GE CF-6 engines), B-720Bs (P&W JT3D), and 707-320Cs (also P&W JT3D engines).

3. Eastern connects Portland with the southeastern part of the country through the St. Louis gateway. Boeing 727-200s are currently being utilized on this route. Eastern's inventory includes B-747-100s, Lockheed L-1011s (with Rolls Royce RB 211 fans), DC-8-21s (P&W JT4As), and DC-8-61 and 63s powered by P&W JT3Ds.

4. Flying Tiger has nonstop authority from Portland to the East Coast and Asia. Current service consists of a single weekly departure to Seattle by a DC-8-63F (P&W JT3D).

5. Northwest Airlines has CAB nonstop authority to the East Coast, Anchorage, Hawaii and Tokyo, and flies 747-100s, 747Bs (P&W JT9D turbines), DC-10-40s also powered by JT9Ds, 707-320 B/Cs and 720Bs.

6. Pan American holds Civil Aeronautics Board authority to fly nonstop from Portland to Hawaii and Europe. Although Pan Am's fleet relies heavily on the 747-100, the 707-320 B/C is the only equipment serving Portland.

7. United Air Lines has nonstop authority to the east coast. United's fleet includes 747-100s, DC-10-10s, DC-8-61 and 62s, and short-bodied DC-8s. United offers DC-10 service to Chicago and a daily short-bodied DC-8 flight nonstop to New York.

8. Western Airlines' nonstop authority extends to Anchorage, Phoenix and Minneapolis. Western stages their 720Bs from Portland but not their DC-10-10s.

Nonstop stage lengths involved in the routes described above are:

Anchorage	1,537 miles	Miami	2,942 miles
Boston	2,640 miles	New York	2,454 miles
Honolulu	2,602 miles	Tokyo	4,846 miles
London	4,000 miles		

Included with the airlines serving Portland should be the supplemental carriers which operate equipment such as 747s, DC-10s, 707-320Cs, and stretch DC-8s. All of these carriers have authority to operate from PIA.

The relevant questions to ask in trying to economically justify an extended runway at PIA are: (1) would the general public utilize such service that could be offered because of a lengthened runway; (2) would the carriers offer such service; and (3) would the employment of such service be profitable both to the airlines and to the clients? The latter two questions are entirely dependent upon the first. To answer the question of need (the first question), two areas must be investigated, passengers and cargo. First let's look at the passenger side of the ledger -- why passenger service will cause an increasing need for a longer runway, and how this affects Portland International Airport. The traditional reason to lengthen a runway has been, and will be, the increasing affluence of the market with a greater proportion of disposable income being devoted to transportation. Another factor that has historically demanded increased runway lengths has been larger aircraft with higher gross takeoff weights. The third factor that adds to the argument to extend the runway is the beneficial effect on the business community, both in adding jobs in the surrounding area and in keeping local businesses competitive by allowing businessmen to maintain closer contact with distant markets. This is particularly important in Portland which is known as a distribution center for the Northwest. Distribution is a uniquely clean industry in an era of environmental concern and such an industry should be encouraged in the Portland area.

There are four additional factors that have come onto the horizon in the last few years that add emphasis to the need for high gross weight, long stage length routes. The first of these is the fuel shortage. This has tended to encourage government regulatory bodies such as the FAA and CAB to encourage the airlines to fly long stage lengths at high gross weights. This policy cannot be implemented at Portland because of the present runway length.

A second area of consideration that has come into the fore is the Civil Aeronautics Board's concern over profitability. Airline profitability has been dropping. The Civil Aeronautics Board has been pursuing a policy to increase airline rate of return. This has traditionally meant, again, longer stage lengths which tend to be more profitable especially with higher load factors (above the traditional 45-50%). Again, Portland is at a disadvantage. Because of its lack of runway length, it cannot offer the airlines an opportunity to operate such service.

A third and relatively new factor is the emphasis on mass transit. This is only a practical reality in short distance, favorable terrain routes, but the Portland area has unique access to such a route in the Eugene to Vancouver, B.C. sector. In the future there is liable to be an increased emphasis on some form of ground mass transit such as high speed rail in this sector. Such an emphasis would deemphasize traditional air service in this valley corridor. This would put Portland in a very disadvantageous position because this would reduce air access to Seattle, our present main source of wide-bodied, long-range air transportation.

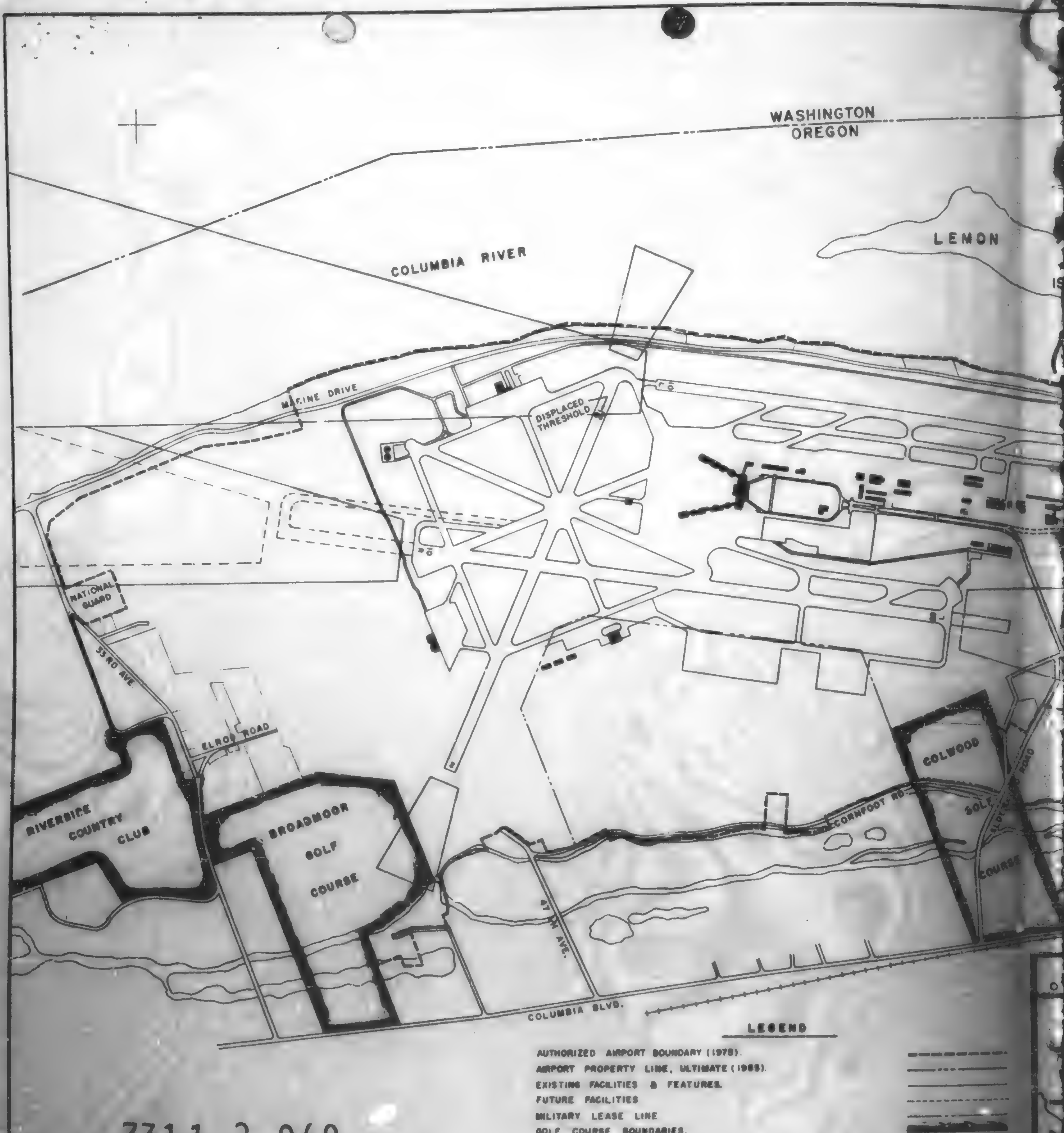
The final reason for passenger service to increasingly be put on long-range aircraft is the changing nature of the tariff structure. Reduced rate air fares first became widespread in the early sixties when the introduction of jet transports created much excess seating capacity. The original emphasis on reduced rate air fares was in giving discounts such as student discounts, clergy discounts, military discounts, and others for persons to fill empty seats in already existing scheduled flights. With the growth of the supplemental air carriers with increasing influence and an interest in travel, and with the advent of the wide-bodied aircraft, the emphasis has been changed from filling seats on scheduled flights to charter and other special flights. These, such as ITCs (inclusive tour charters), TGCs (travel group charters), and demand scheduling are currently being investigated by the Civil Aeronautics Board in an effort to develop a type of low fare alternative available to the general public for recreational travel. Characteristic of this type of travel will be extremely large airplanes (ITCs rarely operate with less than stretch DC-8 equipment). They will be very long-range; from the Pacific Northwest the shortest routes would probably be to Hawaii or to the East Coast. This service will require high load factors in order that the airlines and/or the tour operators will be able to operate such tours or such flights profitably. This reason in particular is applicable to this area because many residents who look at an expanded airport as leading to unwanted growth do not usually consider that the lack of long-range capability from PIA means extra time and expense for them in their recreational travel.

A fifth factor that applies both to passengers and cargo which should be mentioned is that the North Pacific routes are the routes of the future. Across the North Pacific, we are facing booming Japan and booming Korea. Due to recent political initiatives and detentes, we now face untapped markets both in the People's Republic of China and in Soviet Siberia. These will be increasingly important markets in the future and to insure that Portland has an opportunity to take advantage of them we need the capability of direct service.

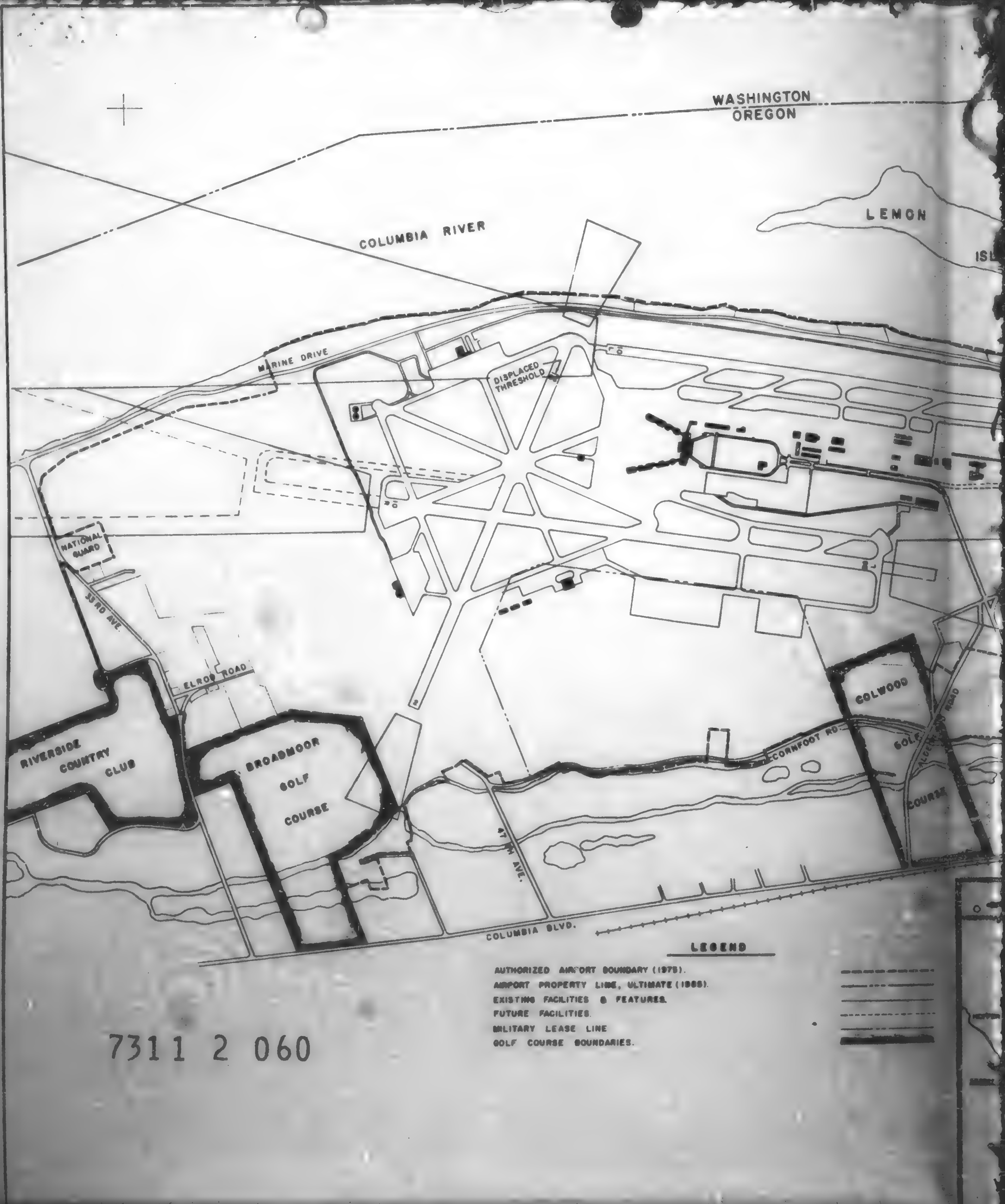
Because of the Pacific Northwest's reputation as a garden spot (i.e. production of such products as nursery items, fruits, berries and other perishables), there is need for air cargo capability in the Portland area. There is concern among the local shippers that with the limited amount of capacity for aircraft, the air cargo demands in the future will not be met.

As a result of an aggressive marketing and trade development program implemented by the Port nearly a year ago, for which a trade development manager was added to Port staff, an increasingly keen interest has been shown by several U.S. and foreign flag carriers. Presently certificated into Portland are a number of carriers with extensive international authority. At this time emphasis has been placed on the potential for trade between the Portland market and the Pacific Rim countries, Europe and Latin America. In some cases a simple modification of a current certificate would allow these carriers to schedule nonstop flights to many distant points. However, it is completely unfeasible economically to establish this kind of route service without the proper runway capabilities.

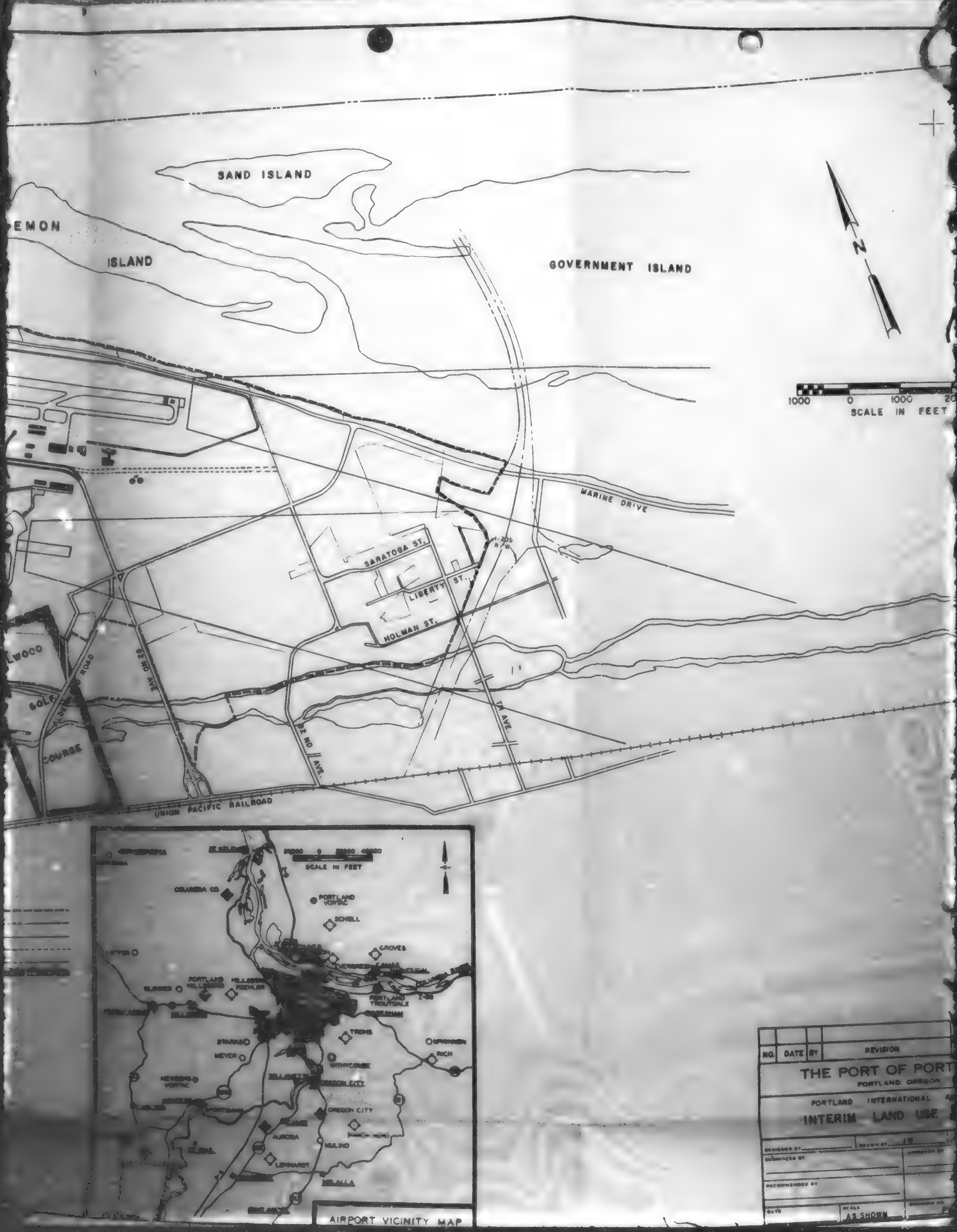
Obviously, the urgent need for a longer runway in 1967 is more urgent now. Therefore, the Port of Portland proposes this project.


WASHINGTON
OREGON
LEMON
IS
COLUMBIA RIVER
MARINE DRIVE
DISPLACED THRESHOLD
NATIONAL GUARD
33 RD AVE.
ELROD ROAD
RIVERSIDE COUNTRY CLUB
BROADMOOR GOLF COURSE
47 TH AVE.
CORNFOOT RD.
COLWOOD GOLF COURSE
ALDERWOOD ROAD
COLUMBIA BLVD.
LEGEND
AUTHORIZED AIRPORT BOUNDARY (1975).
AIRPORT PROPERTY LINE, ULTIMATE (1985).
EXISTING FACILITIES & FEATURES.
FUTURE FACILITIES
MILITARY LEASE LINE
GOLF COURSE BOUNDARIES.

7311 2 060


WASHINGTON
OREGON
COLUMBIA RIVER
LEMON
ISL
MARINE DRIVE
DISPLACED THRESHOLD
NATIONAL GUARD
33RD AVE
ELROD ROAD
RIVERSIDE COUNTRY CLUB
BROADMOOR GOLF COURSE
COLWOOD GOLF COURSE
CORNFOOT RD
ALDERWOOD ROAD
47TH AVE.
COLUMBIA BLVD.
LEGEND
AUTHORIZED AIRPORT BOUNDARY (1975).
AIRPORT PROPERTY LINE, ULTIMATE (1985).
EXISTING FACILITIES & FEATURES.
FUTURE FACILITIES.
MILITARY LEASE LINE
GOLF COURSE BOUNDARIES.

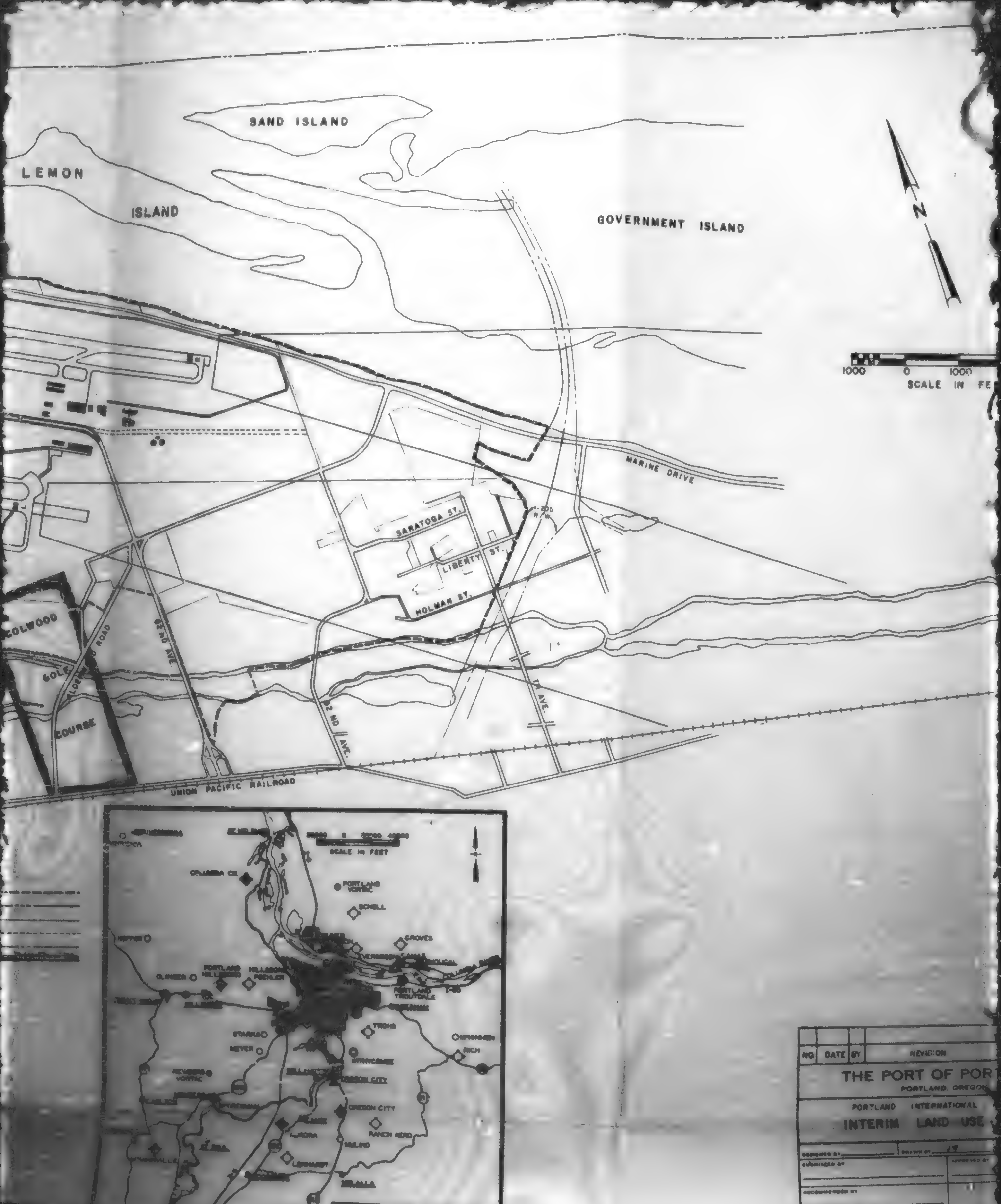
7311 2 060


SAND ISLAND
EMON
ISLAND
GOVERNMENT ISLAND
N
1000 0 1000 20
SCALE IN FEET
MARINE DRIVE
I-205 R/W
SARATOGA ST.
LIBERTY ST.
HOLMAN ST.
LWOCO
GOLF
COURSE
ALDERWOOD ROAD
82 ND AVE.
82 ND AVE.
1?th AVE.
UNION PACIFIC RAILROAD
SCALE IN FEET
COLUMBIA CO.
PORTLAND VORTAC
SCHELL
GROVES
PORTLAND HILLSBORO
PORTLAND TROUTDALE
STARKS
MEYER
NEWBERG VORTAC
OREGON CITY
AURORA
MULINO
MOLALLA
RICH
AIRPORT VICINITY MAP

NO.	DATE	BY	REVISION

THE PORT OF PORT
PORTLAND, OREGON
PORTLAND INTERNATIONAL A
INTERIM LAND USE

DESIGNED BY
DRAWN BY JW
APPROVED BY
RECOMMENDED BY
DATE
SCALE AS SHOWN


SAND ISLAND
LEMON
ISLAND
GOVERNMENT ISLAND
N
1000 0 1000
SCALE IN FE
MARINE DRIVE
SARATOGA ST.
LIBERTY ST.
HOLMAN ST.
I-205 R/W
COLWOOD
GOLF
COURSE
ALDERWOOD ROAD
82 ND AVE.
92 ND AVE.
33 RD AVE.
UNION PACIFIC RAILROAD
SCALE IN FEET
COLUMBIA CO.
PORTLAND VORTAC
SCHOLL
HIPPER
GROVES
EVERGREEN
CAMAS
PORTLAND HILLSBORO
HILLSBORO
PECHLER
PORTLAND TROUTDALE
I-80
STARK
TRONS
MEYER
RICH
WITHYCOMBE
NEWBERG VORTAC
OREGON CITY
AURORA
RANCH AERO
MULINO
LENHARDT
MOLALLA
AIRPORT VICINITY MAP

NO.	DATE	BY	REVISION

THE PORT OF POR

PORTLAND, OREGO

PORTLAND INTERNATIONAL

INTERIM LAND USE

DESIGNED BY

DRAWN BY J T

SUBMITTED BY

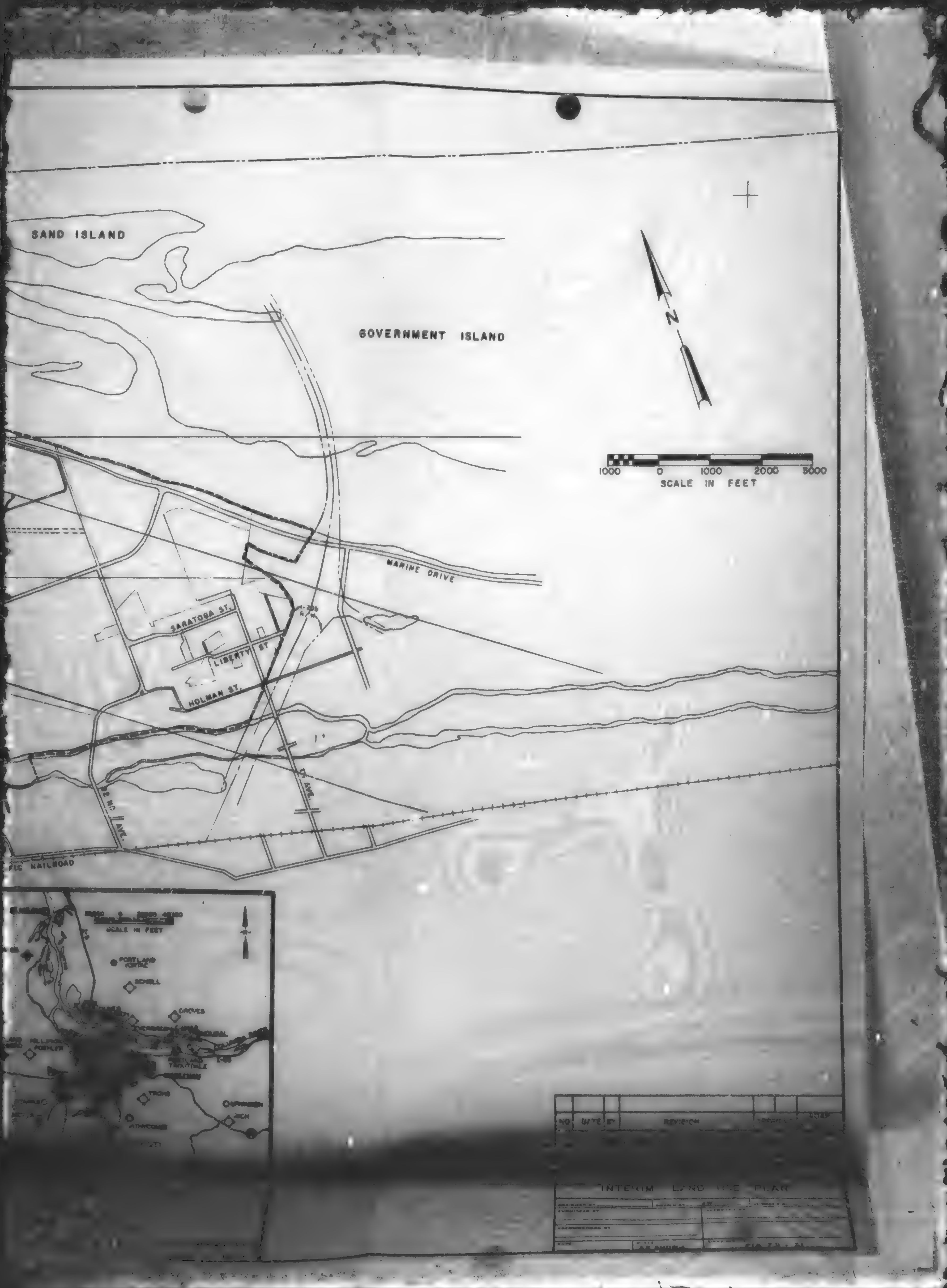
APPROVED BY

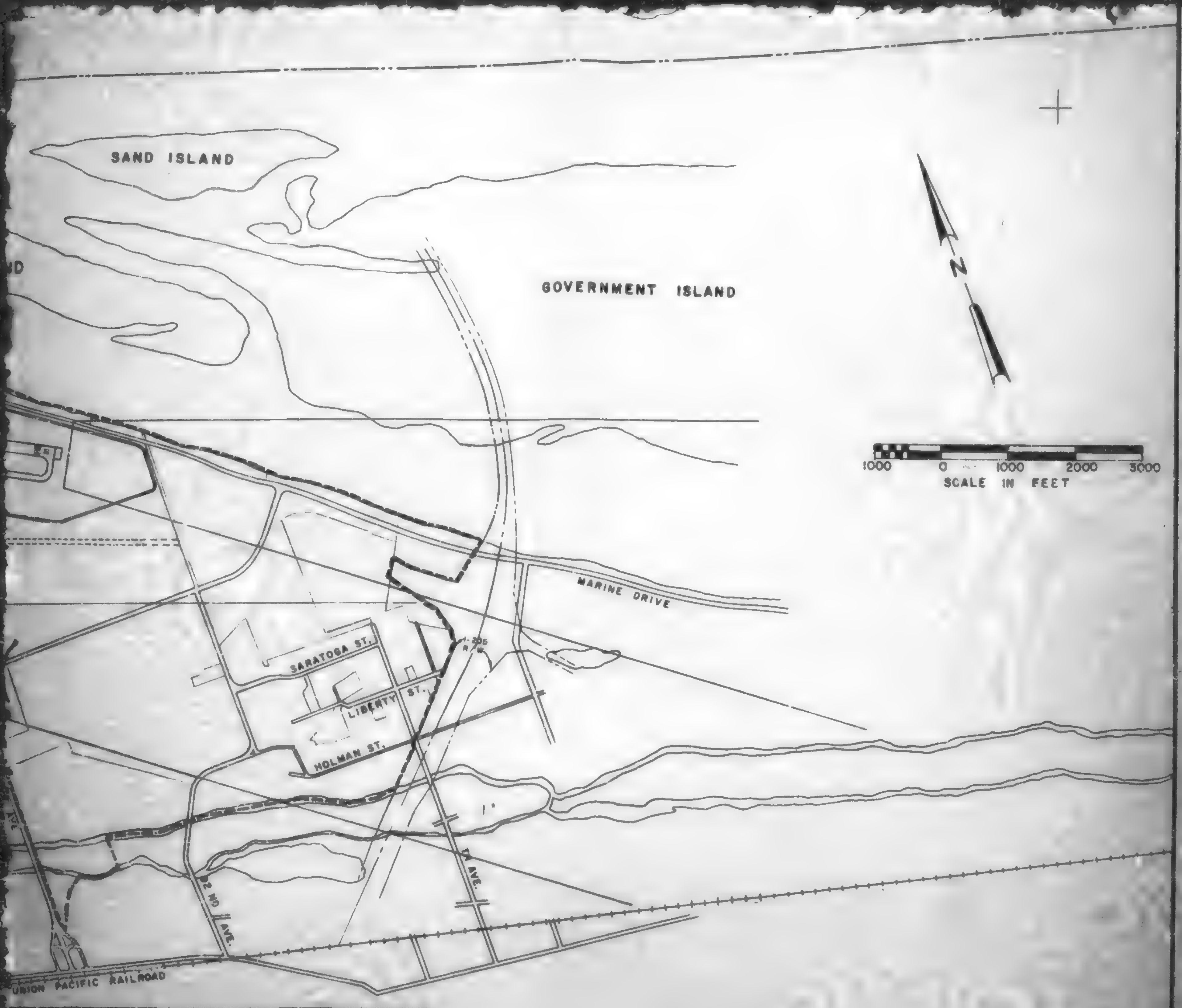
RECOMMENDED BY

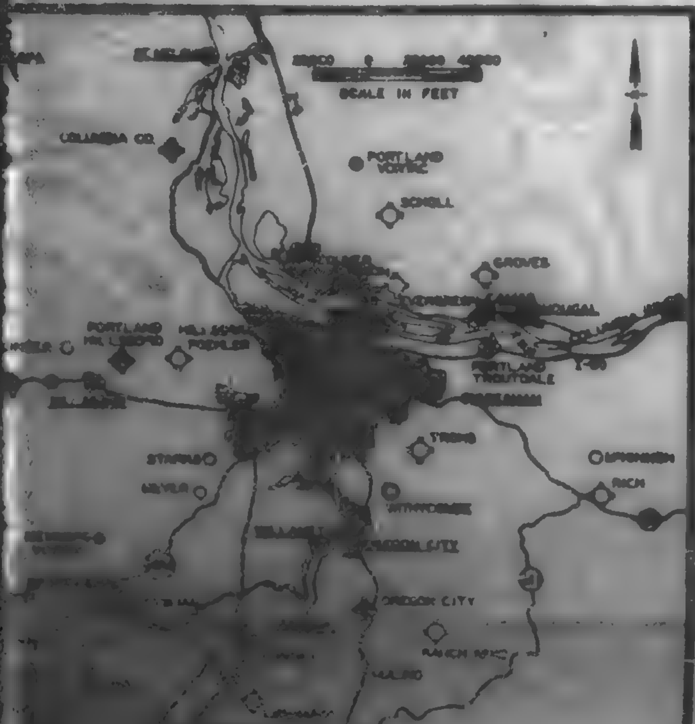
DATE

SCALE AS SHOWN

DRAWING NO.


SAND ISLAND
GOVERNMENT ISLAND
N
1000 0 1000 2000 3000
SCALE IN FEET
MARINE DRIVE
SARATOGA ST.
LIBERTY ST.
HOLMAN ST.
AVE.
AVE.
FIC RAILROAD
SCALE IN FEET
PORTLAND
SCHELL
GROVES
TROPS
NO.
DATE
BY
REVISION
INTERIM LAND USE PLAN


SAND ISLAND
ND
GOVERNMENT ISLAND
N
1000 0 1000 2000 3000
SCALE IN FEET
MARINE DRIVE
SARATOGA ST.
LIBERTY ST.
HOLMAN ST.
I-205 R/W
82 ND AVE.
AVE.
UNION PACIFIC RAILROAD


COLUMBIA CO.
SCALE IN FEET
PORTLAND VORTAC
SCHOLL
GROVES
PORTLAND HILLSBORO
PORTLAND TROUTDALE
I-80
RICH
OREGON CITY
MULINO

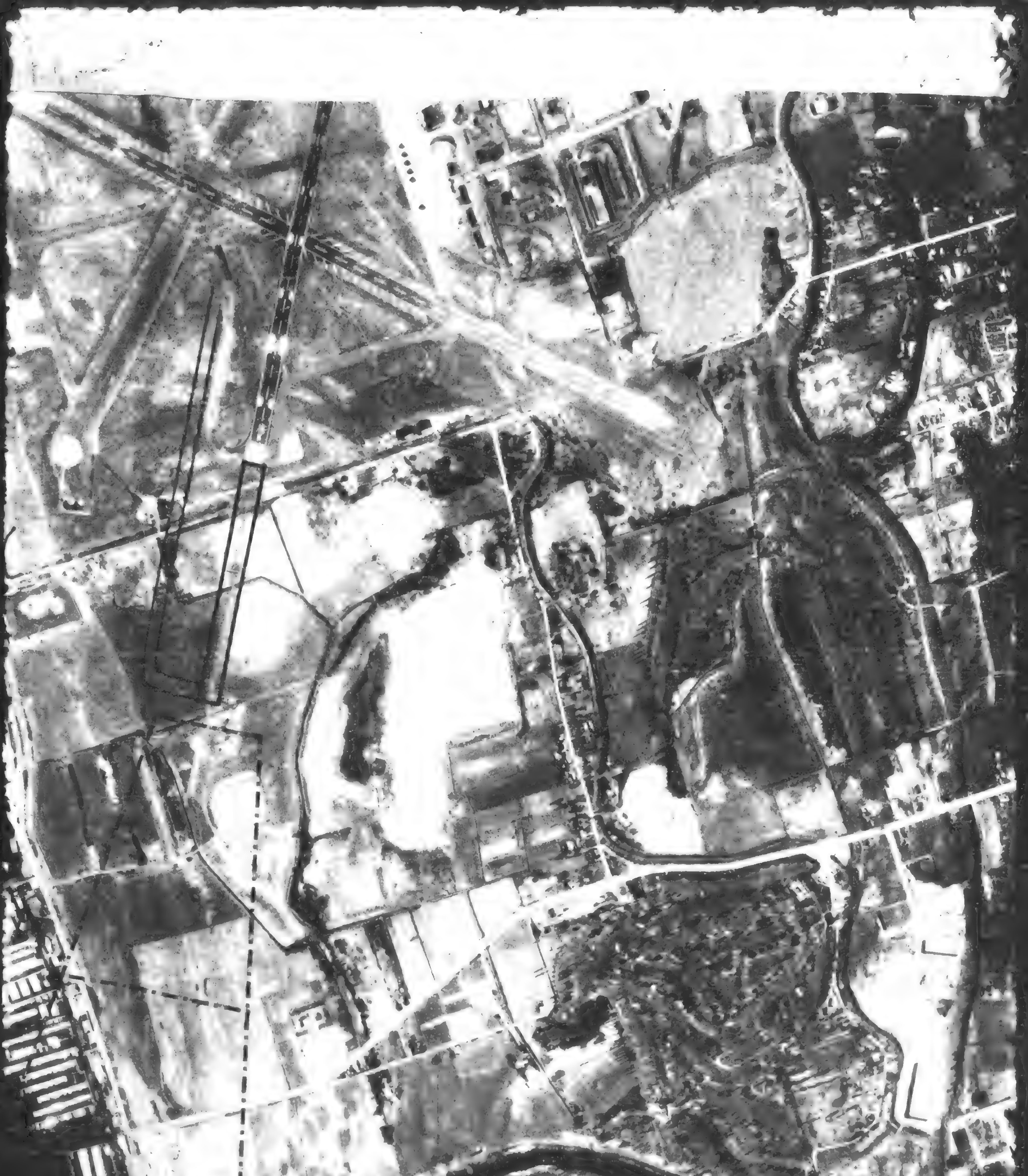
AIRPORT VICINITY MAP

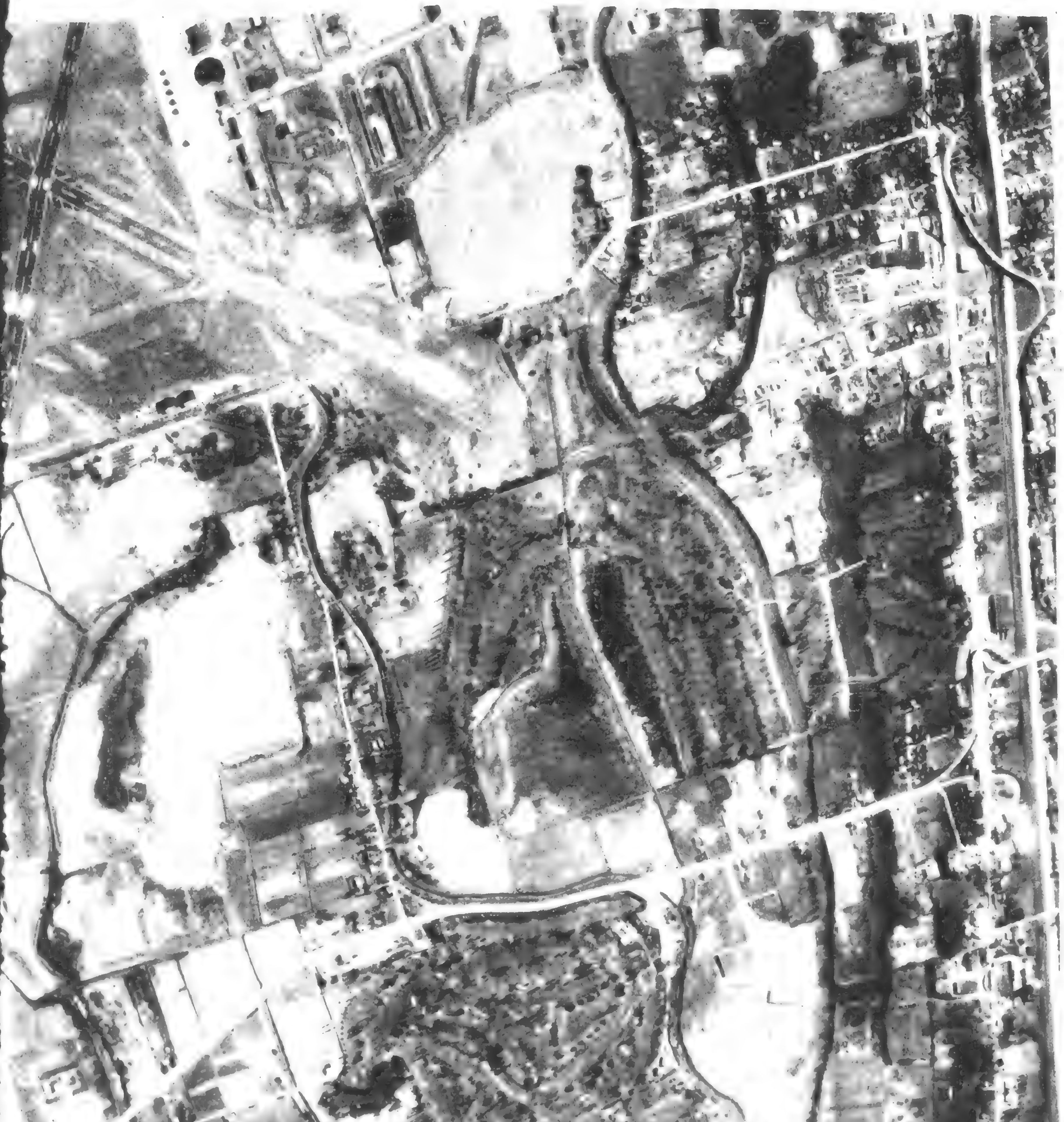
NO.	DATE	BY	REVISION	APPROVED	ADAP APPROVAL

THE PORT OF PORTLAND
PORTLAND, OREGON

PORTLAND INTERNATIONAL AIRPORT
INTERIM LAND USE PLAN

DESIGNED BY
DRAWN BY JW
CHECKED BY
SUBMITTED BY
APPROVED BY
RECOMMENDED BY
DATE
SCALE AS SHOWN
DRAWING NO. PIA 73 - 31





1979 Columbia R. Br. (N. Channel 890
Superstruc.) I-205
Coast Guard #2

8905

MEMO URS Seattle, Wash.

Date

To Mr. E.S. Hunter

From Pete Sturtevant

Somehow the Bureaucracy got mixed up and sent this to me!

NOTED
E. S. HUNTER

RECEIVED
TECHNICAL SERVICES
NOV 3 78
REFER TO
FOR

11-9-78

URS COMPANY

DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

MAILING ADDRESS
COMMANDER (oan)
THIRTEENTH COAST GUARD DISTRICT
915 SECOND AVE
SEATTLE, WASH 98174
PHONE (206) 442-5864

RECEIVED
NOV 1 1978
URS COMPANY

16590
Serial 559
30 October 1978

State of Oregon
Department of Transportation
ATTN: Mr. E. S. Hunter,
Technical Services Engineer
Transportation Building
Salem, Oregon 97310

RE: Falsework Permit Revision
Columbia River I-205 Bridge

Gentlemen:

Your letter of 26 September 1978, requested a revision of the previously approved falsework for construction of the South Channel only of the reference bridge. The revision would include the addition of a temporary low-level work trestle adjacent to the permanent structure with the trestle to be in place only during construction of the permanent bridge.

Your request is approved as submitted. Normal clearance for the navigation channel under the trestle will be 40 feet horizontal and 15 feet vertical above Mean Low Water Elevation 0.00 (Columbia River Datum). Provision will be made to increase the vertical clearance to 33 feet on call. The opening of this work trestle is to be aligned over the navigation channel with the opening in the permanent structure falsework.

The navigation lighting approved for the South Channel shall be placed on the most upstream and downstream extremeties of the falsework in this channel.

Your cooperation is appreciated.

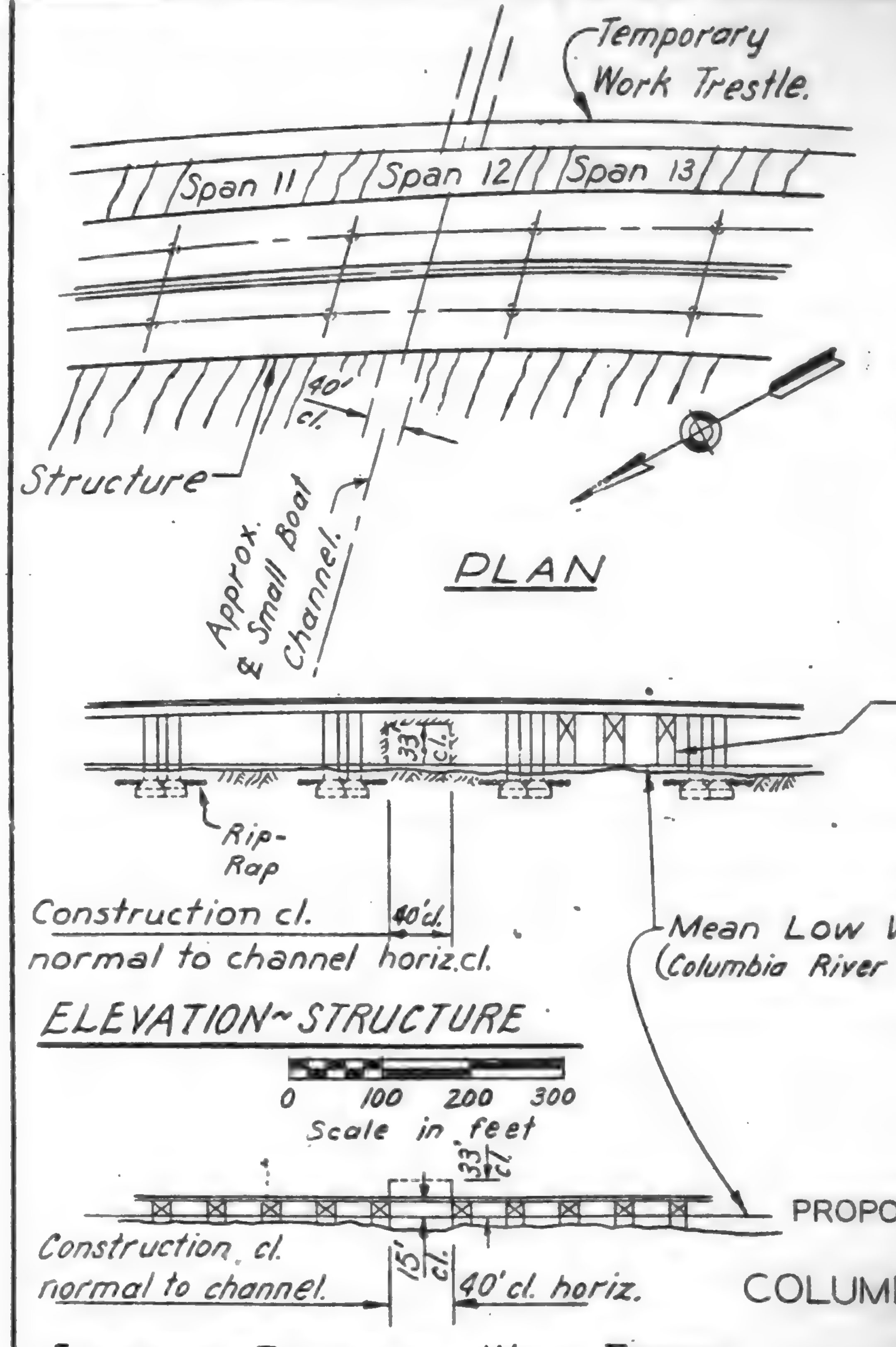
Sincerely,

J. H. Holmead

J. H. HOLMEAD III
Commander, U. S. Coast Guard
Chief, Aids to Navigation Branch
By direction of the District Commander

Encl: (1) Falsework Approval

RECEIVED
TECHNICAL SERVICES
NOV 3 '78
REFER TO
FOR
File
Act
Sign
D/R
R/D
Invest
Info


Temporary Work Trestle.
Span 11
Span 12
Span 13
40' cl.
Structure
Approx. ℄ Small Boat Channel.
PLAN
33' cl.
Rip-Rap
Construction cl. normal to channel
40' cl. horiz. cl.
ELEVATION ~ STRUCTURE
0 100 200 300
Scale in feet
33' cl.
15' cl.
Construction cl. normal to channel.
40' cl. horiz.
ELEVATION ~ TEMPORARY WORK TRESTLE

SOUTH CHANNEL CONSTRUCTION CLEARANCE

A clear minimum navigational channel of 40' horizontal (measured normal to small boat channel) and 33' vertical (above Low Water Datum) will be provided within span 12 under the structure at all times. The vertical clearance (above Low Water Datum) for temporary work trestle in span 12 shall be a minimum of 15' with provisions to increase the clearance to 33' on call for navigation. Horizontal clearance for work trestle shall be 40 feet.

Other spans in south channel may be blocked by falsework during construction.

Typical falsework support may totally block all spans for navigation at some time except for span 12 (small boat channel) which will be open at all times.

Mean Low Water El. 0.00
(Columbia River Datum.)

Plans approved as shown..
Date 30 October 1978

Commander
13th Coast Guard District
915 Second Avenue
Seattle, Washington 98174

J H Holmead
CDR J. H. HOLMEAD III
By direction of the District Commander

PROPOSED BRIDGE
OVER
COLUMBIA RIVER

FALSEWORK
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
REVISED SEPT. 1978 SHEET 2 OF 2

DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

MAILING ADDRESS:
COMMANDER (oan)
THIRTEENTH COAST GUARD DISTRICT
915 SECOND AVE.
SEATTLE, WASH. 98174
PHONE: (206) 442-5864

16591
Serial 344
13 July 1978

NOTED
E. S. HUNTER

Oregon Department of Transportation
ATTN: Mr. E. S. Hunter,
Technical Services Engineer
Transportation Building
Salem, Oregon 97310

RE: Falsework for I-205 Bridge Construction

Gentlemen:

By letter of 23 February 1978 you requested falsework approval for construction of the Columbia River I-205 Fixed Highway Bridge. Our letter of 22 March 1978 approved the proposed falsework, with stipulations, and specified navigation lighting to be displayed at the three falsework openings.

The mariners are experiencing difficulty transiting the construction site during nighttime hours now with the floating construction equipment and the approved fixed dolphins and piers spaced across the waterway. Because of the mariner orientation problems under present conditions it is advisable to provide additional identification of the approved falsework when constructed. This will also assist the mariners during low visibility conditions.

In addition to the normal red and green fixed navigation lights specified in our approval of 20 March 1978 you are directed to add flashing amber lights directly above the red pier lights and horizontal to the green center of channel lights at the two main channel spans. These amber flashing lights shall have a visibility of at least 2000 yards, and shall be displayed along with the regular navigation lighting in accordance with 33 CFR §118.55. Should either of the channels be closed to navigation, then the navigation lighting, including the amber lighting, shall not be displayed on that span.

RECEIVED
TECHNICAL SERVICES
JUL 20 '78
REFER TO
FOR

Info	Inves	R/D	D/R	Sign	Act	File

This for falsework openings only: when falsework piles or posts get to height of green light, install amber light. Green light is placed when beam across navigation channel is placed. Per call to C.G. Ellison 7/19/78

Copy sent to Harwood Reg. 1

RECEIVED
JUL 18 1978
BRIDGE SECTION

NOTED
W. J. HART

RECEIVED
TECHNICAL SERVICES
JUL 17 '78
REFER TO Hart
FOR

Info	Inves	R/D	D/R	Sign	Act	File
		X				

w/schedule for compliance

13 July 1978

Subj: Falsework for I-205 Bridge Construction

All other conditions of the original approval remain in force. Your cooperation in providing this additional safety factor is appreciated.

Sincerely,

A B Christensen

A. B. Christensen
Chief, Aids to Navigation Branch
Acting

GENERAL FILES

CCN 21-2
I-205
Col R. Br.

DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

MAILING ADDRESS
COMMANDER (oan)
THIRTEENTH COAST GUARD DISTRICT
915 SECOND AVE.
SEATTLE, WASH. 98174
PHONE (206) 442-5864

Coast Guard

16591
Serial 129
22 March 1978

Oregon Department of Transportation
ATTN: Mr. E. S. Hunter,
Technical Services Engineer
Transportation Building
Salem, Oregon 97310

RE: Falsework for I-205 Bridge Construction

Gentlemen:

Your letter of 23 February 1978, requesting falsework approval for the I-205 Bridge construction, has been received. The commercial navigation interests using the waterway at the bridge site have been contacted and offer no objection to the proposal.

Your proposal, as submitted, is approved as follows:

a. Falsework openings for spans 12 and 13 of the main channel and span 12 of the south channel shall provide the minimum clearances shown on the drawings. These openings shall be aligned with the navigation channels.

b. Should the falsework in the main channel for span 12 be shifted laterally, the change in location shall be accomplished as expeditiously as possible.

c. Prior approval is required before construction activities could limit the main channel to only one navigation span.

d. Normal bridge navigation lighting shall be provided for the three falsework openings as shown on the approved drawings.

e. At least two weeks prior notice is required before installing each section of the falsework so appropriate notices may be published.

NOTED
E. S. HUNTER

Okay Walt Hart
by Ed Handt
3-24-78

RECEIVED
TECHNICAL SERVICES
MAR 24 '78
REFER TO
FOR

22 March 1978

Subj: Falsework for I-205 Bridge Construction

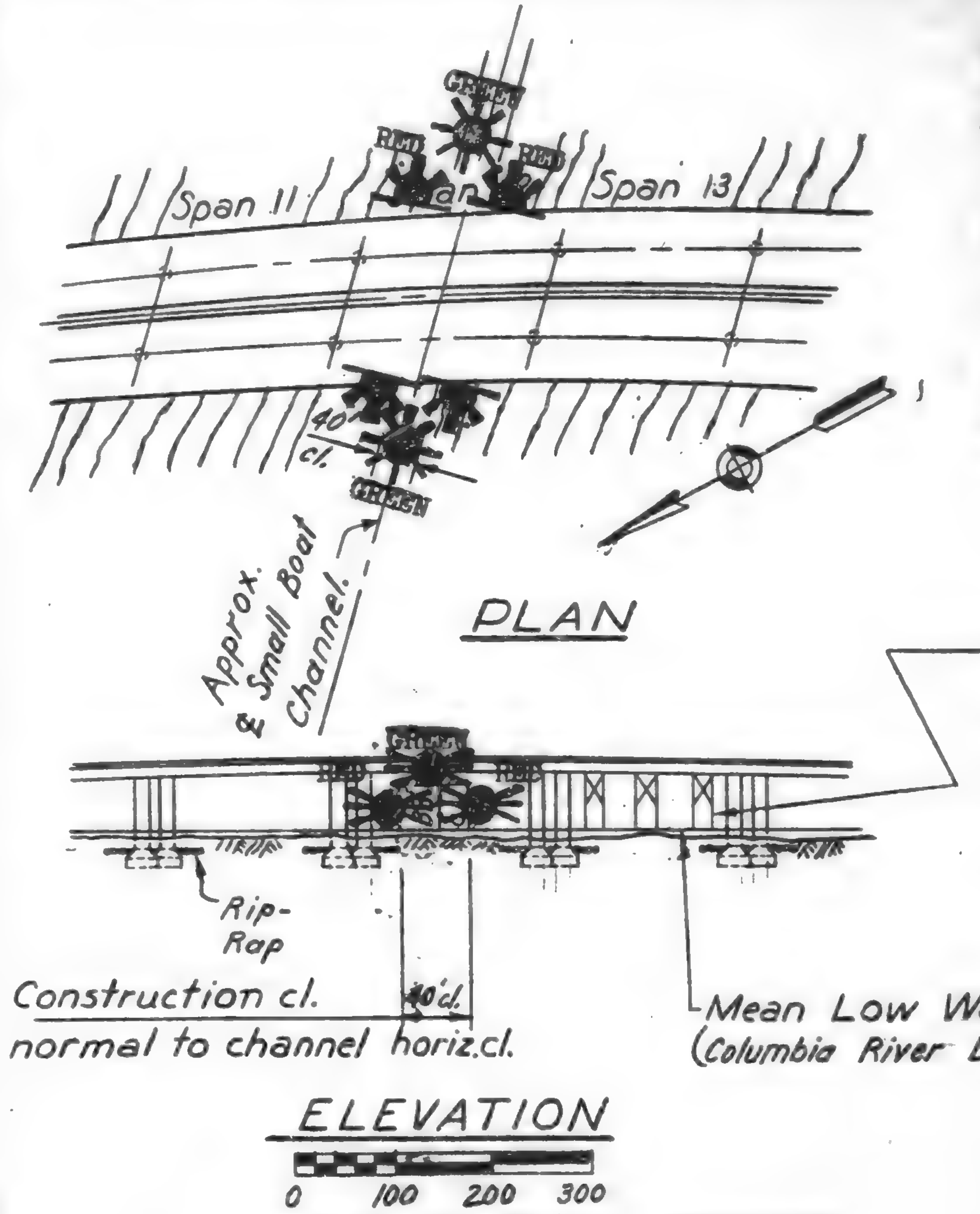
From telephone conversation it is understood the falsework will be started in about 9 months, and parts of the falsework will remain in place for approximately three years. If there is a change in this schedule, please give adequate advance notice.

Your early request is appreciated.

Sincerely,

R. C. Walton
R. C. WALTON
Commander, U. S. Coast Guard
Chief, Aids to Navigation Branch
By direction of the District Commander

Encl: (1) As noted


Span 11
Span 12
Span 13
GREEN
RED
RED
40' cl.
GREEN
Approx. ℄ Small Boat Channel.
PLAN
GREEN
RED
RED
Rip-Rap
Construction cl. normal to channel horiz. cl.
40'cl.
Mean Low Water El.0.00 (Columbia River Datum)
ELEVATION
0 100 200 300
Scale in feet

SOUTH CHANNEL CONSTRUCTION CLEARANCE

A clear minimum navigational channel of 40' horizontal (measured normal to small boat channel) and 33' vertical (above Low Water Datum) will be provided within span 12 at all times. Other spans in south channel may be blocked by falsework during construction.

Typical falsework support may totally block all spans for navigation at some time except for span 12 (small boat channel) which will be open at all times per above.

Plans approved as shown.
Date 20 March 1978

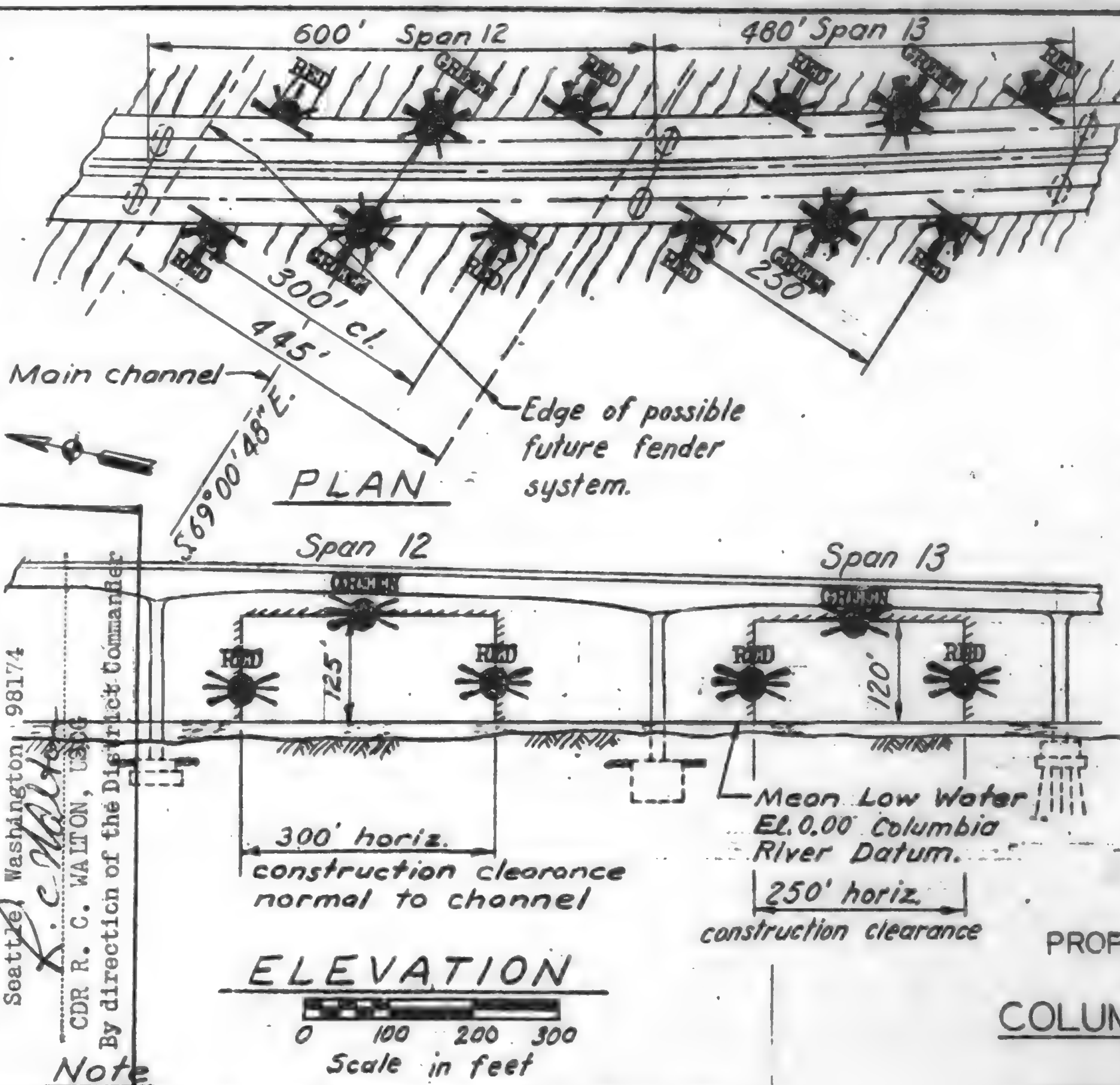
Commander
13th Coast Guard District
915 Second Avenue
Seattle, Washington 98174

R. C. Walton
CDR R. C. WALTON, USCG
By direction of the District Commander

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
FALSEWORK
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1978 SHEET 2 OF 2

Plans ap d as shown.
Date 20 March 1978

Commander
13th Coast Guard District
915 Second Avenue
Seattle, Washington 98174
R. C. Walton
CDR R. C. WALTON, USCG
By direction of the District Commander


600' Span 12
480' Span 13
RED
GREEN
300' cl.
445'
250'
℄ Main channel
S69°00'48"E.
Edge of possible future fender system.
PLAN
Span 12
Span 13
125'
120'
Mean Low Water El. 0.00 Columbia River Datum.
300' horiz. construction clearance normal to channel
250' horiz. construction clearance
ELEVATION
0 100 200 300
Scale in feet

MAIN CHANNEL STRUCTURE CONSTRUCTION CLEARANCES:

During construction of the superstructure, a minimum clearance of 300' horizontal and 125' vertical will be provided in Span No. 12. In Span No. 13 a minimum clearance of 250' horizontal and 120' vertical will be provided. On occasion construction activities may be such that only one of these openings will be available for navigation. Other spans may be blocked by falsework at times.

Note
Location of navigation channel within span 12 may be shifted during construction period.

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
FALSEWORK
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1978 SHEET 1 OF 2

[illegible]
[illegible]
Col. R. Br.
Coast
Guard

February 23, 1978

Commander
13th Coast Guard District
Aids to Navigation Branch
915 Second Avenue
Seattle, Washington 98174

Dear Sir:

Falsework Permit
Columbia River (I-205) Bridge
Between Vancouver, Washington and
Portland, Oregon
Bridge 9555

On November 30, 1976, your office issued "Amendment to Bridge Permit P(41-70a)" for construction of the subject structure. Contracts have been awarded for construction of piers in the main channel and for construction of the land portion of the bridge in Washington. We will soon call for bids for construction of the South Channel Structure and for the Superstructure in the Main Channel.

Usually, the more prospective bidders know about a project, the more equitable are their bids. In line with this thinking, we are requesting a falsework permit for the structure. We believe that if the bidders know what falsework they will be allowed to install, they will bid lower than if they must assume what might be allowed.

One set of reproducibles and four copies each of Falsework Drawings 1 and 2 are enclosed.

Issuance of a permit for falsework in accord with these drawings is requested.

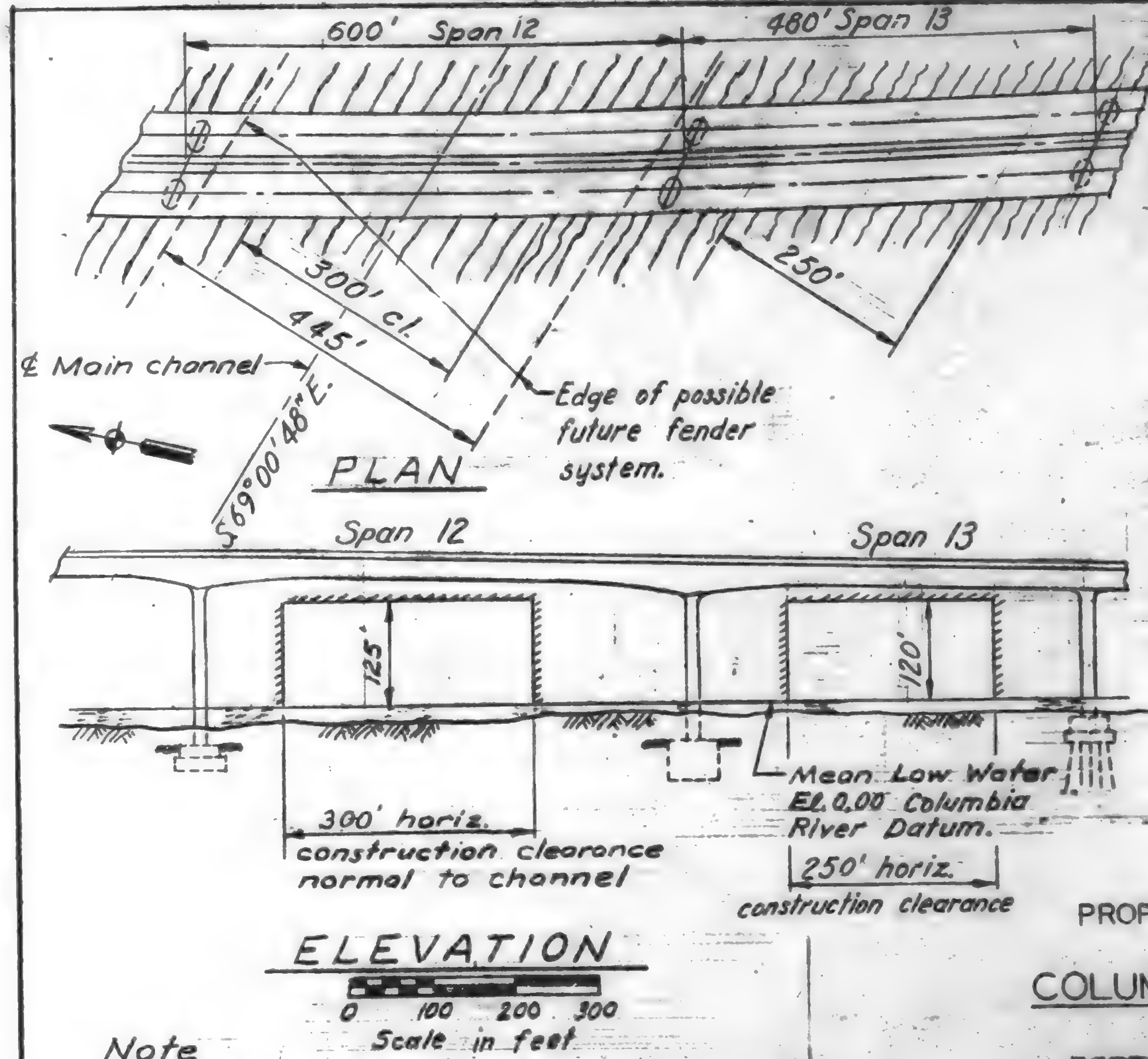
Very truly yours,

E. S. Hunter
Technical Services Engineer

Enc.

bc F. B. Klaboe
W. J. Hart (enc.)
Al Harwood "

RWE:dh ja


600' Span 12
480' Span 13
300' cl.
445'
250'
℄ Main channel
S69°00'48"E.
Edge of possible future fender system.
PLAN
Span 12
Span 13
125'
120'
Mean Low Water El. 0.00 Columbia River Datum.
300' horiz. construction clearance normal to channel
250' horiz. construction clearance
ELEVATION
0 100 200 300
Scale in feet

MAIN CHANNEL STRUCTURE CONSTRUCTION CLEARANCES:

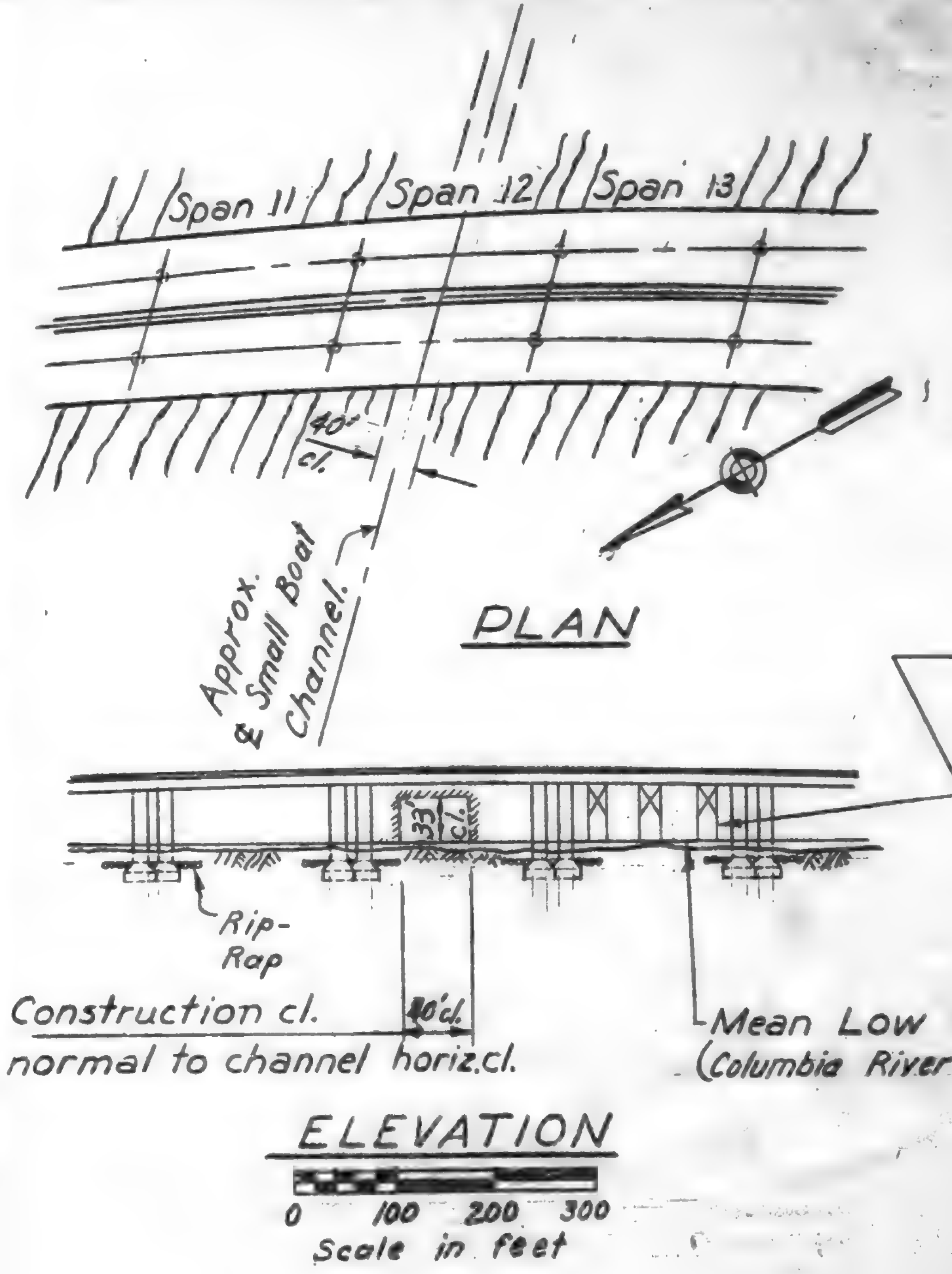
During construction of the superstructure, a minimum clearance of 300' horizontal and 125' vertical will be provided in Span No. 12. In Span No. 13 a minimum clearance of 250' horizontal and 120' vertical will be provided. On occasion construction activities may be such that only one of these openings will be available for navigation. Other spans may be blocked by falsework at times.

Note
Location of navigation channel within span 12 may be shifted during construction period.

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
FALSEWORK
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1978 SHEET 1 OF 2

SOUTH CHANNEL CONSTRUCTION CLEARANCE

A clear minimum navigational channel of 40' horizontal (measured normal to small boat channel) and 33' vertical (above Low Water Datum) will be provided within span 12 at all times. Other spans in south channel may be blocked by falsework during construction.


Span 11
Span 12
Span 13
40' cl.
Approx. ℄ Small Boat Channel.
PLAN
33' cl.
Rip-Rap
Construction cl. normal to channel
40' cl. horiz. cl.
ELEVATION
0 100 200 300
Scale in feet

Typical falsework support may totally block all spans for navigation at some time except for span 12 (small boat channel) which will be open at all times per above.

Mean Low Water El. 0.00 (Columbia River Datum)

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
FALSEWORK
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1978 SHEET 2 OF 2

8905

8

STATE OF OREGON **INTEROFFICE MEMO**

TO: Mr. A. C. Harwood
Columbia River Projects Engineer

DATE: January 11, 1978

FROM: R. W. Ellison
Assistant Structural
Design Engineer

ORIGINAL SIGNED
R.W. ELLISON

NOTED
E. S. HUNTER

SUBJECT:
Columbia River (I-205) Bridge
Bridge 9555
Coast Guard Permit
Amendment

Enclosed, for your files, are amended plan sheets 10 and 11 of the Coast Guard Permit (41-70A) for the subject structure.

RWE:dh
Enclosure

cc E. S. Hunter /w/ encl.
D. H. Moehring /w/ encl.
E. L. Hardt /w/ encl.
John Howard /w/ encl.
L. L. Wallace
A. P. Rabb
C. T. Keasey
J. E. Backstrand

RECEIVED
TECHNICAL SERVICES
JAN 12 '78
REFER TO
FOR

Info	Invest	R/D	D/R	Sign	Act	File

81-125-1287

DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

MAILING ADDRESS:
COMMANDER (oan)
THIRTEENTH COAST GUARD DISTRICT
915 SECOND AVE.
SEATTLE, WASH. 98174
PHONE: (206) 442 5864

16591
Serial 8
9 January 1978

State of Oregon
Department of Transportation
ATTN: Mr. R. W. Ellison
Administration Engineer
Structural Design Section
Transportation Building
Salem, OR 97310

RE: Amendment to bridge permit
for I-205 Columbia River crossing

Gentlemen:

Please find enclosed your requested amendment to Bridge Permit (41-70a) granted 30 November 1976. The amendment, dated 6 January 1978, approves changes to the freeway bridges to be constructed across the South Channel of the Columbia River crossing. Plan sheets 10 and 11 (of 12) of the original permit are superseded by Plan sheets 10 and 11 (of 12) Revised November 1977. This amendment becomes a part of the original permit.

Sincerely,

R. C. Walton

R. C. WALTON
Commander, U. S. Coast Guard
Chief, Aids to Navigation Branch
By direction of the District Commander

Encl: (1) As noted

Copy to:

Mr. Glen L. Green
Division Administrator
Federal Highway Administration
Box 300
Salem, OR 97308

NOTED
R. W. ELLISON

RECEIVED
JAN 11 1978
BRIDGE SECTION

JAN 06 1978
(Date)

AMENDMENT TO BRIDGE PERMIT
(41-70c)

WHEREAS by a permit issued 30 November 1976, the Commandant of the Coast Guard approved the location and plans of bridges to be constructed by STATE OF OREGON across the Columbia River and Columbia Slough near Portland, Oregon, under authority of the General Bridge Act of 1946;

AND WHEREAS condition 1 of that permit provides that no deviation from the approved plans may be made either before or after completion of the structure unless the modification of said plans has previously been submitted to and received the approval of the Commandant;

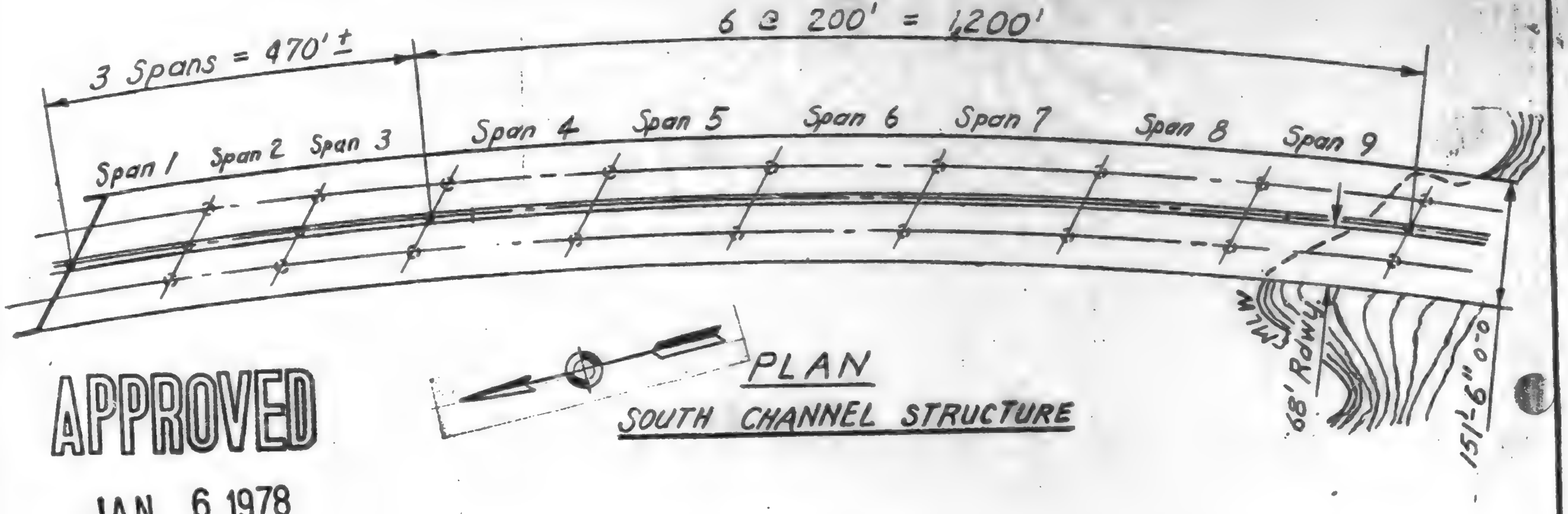
AND WHEREAS - STATE OF OREGON - has submitted for approval revised plans for the construction of Columbia River bridges;

NOW THEREFORE, This is to certify that plan sheets 10 (of 12) and 11 (of 12) revised Nov. 1977, hereby approved, supersede plan sheets 10 (of 12) and 11 (of 12) approved 30 November 1976 which are attached to the original permit.

In granting this approval, all other conditions of the original permit remain in force.

G O Thompson
G. O. THOMPSON
RADM, U. S. COAST GUARD
Commander,
Thirteenth Coast Guard District

RECEIVED
JAN 11 1978
BRIDGE SECTION

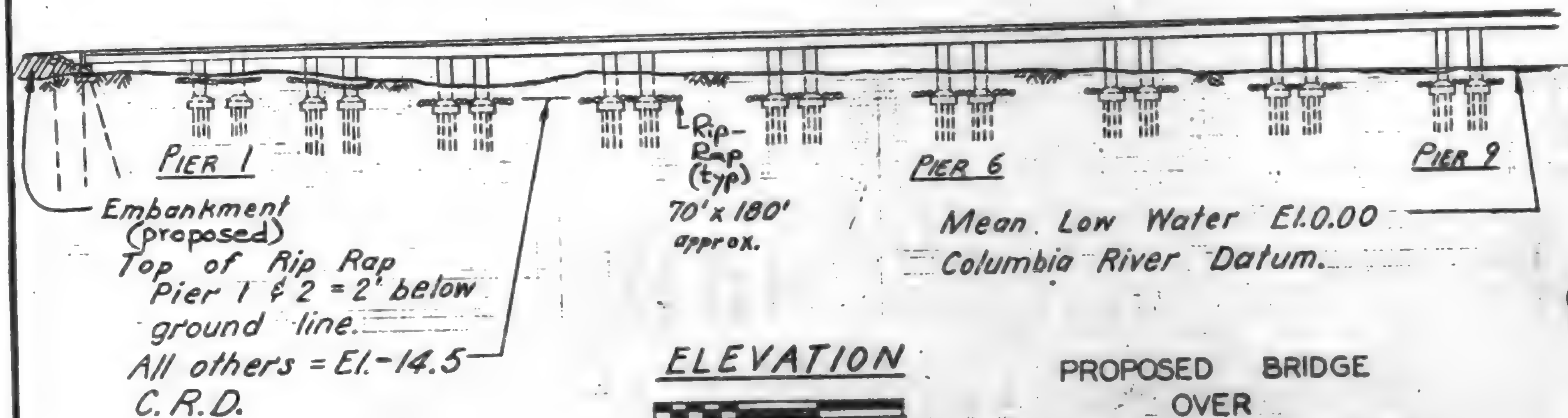

3 Spans = 470'±
6 @ 200' = 1,200'
Span 1
Span 2
Span 3
Span 4
Span 5
Span 6
Span 7
Span 8
Span 9
MLW
68' Rdwy.
151'-6" o-o

PLAN

SOUTH CHANNEL STRUCTURE

APPROVED

JAN 6 1978


Pier 1
Rip-Rap (typ)
70' x 180' approx.
Pier 6
Pier 9
Embankment (proposed)
Top of Rip Rap Pier 1 & 2 = 2' below ground line.
All others = El. -14.5 C.R.D.
Mean Low Water El. 0.00 Columbia River Datum.

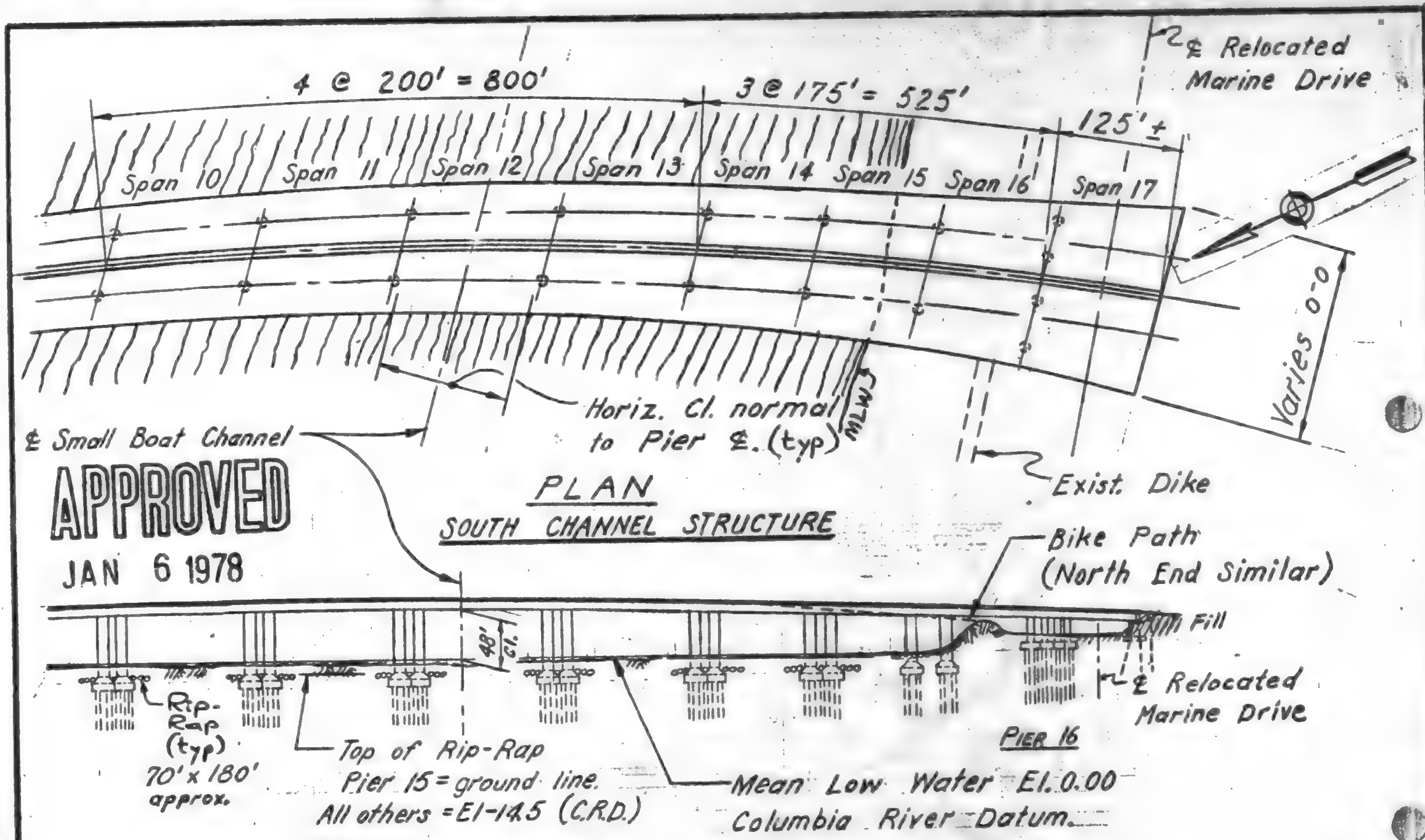
ELEVATION

0 100 200 300
Scale in feet

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
Revised NOV 1977 SHEET 10 OF 12

RECEIVED
JAN 11 1978
BRIDGE SECTION

APPROVED
JAN 6 1978


4 @ 200' = 800'
3 @ 175' = 525'
125' ±
℄ Relocated Marine Drive
Span 10
Span 11
Span 12
Span 13
Span 14
Span 15
Span 16
Span 17
Varies 0-0
℄ Small Boat Channel
Horiz. Cl. normal to Pier ℄. (typ)
MLW
Exist. Dike
Bike Path (North End Similar)
48' Cl.
Fill
Rip-Rap (typ) 70' x 180' approx.
Top of Rip-Rap Pier 15 = ground line. All others = El -14.5 (C.R.D.)
Mean Low Water El. 0.00 Columbia River Datum.
Pier 16
℄ Relocated Marine Drive

PLAN

SOUTH CHANNEL STRUCTURE

ELEVATION

SPAN	HORIZ. CL.	VERT. CL.
10	170'	46'
11	172'	47'
12	174'	48'
13	176'	45'
14	153'	44'

0 100 200 300
Scale in feet

RECEIVED
JAN 11 1978
BRIDGE SECTION

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
Revised NOV. 1977 SHEET 11 OF 12

8905

8

DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

MAILING ADDRESS
COMMANDER (oan)
THIRTEENTH COAST GUARD DISTRICT
915 SECOND AVE
SEATTLE, WASH. 98174
PHONE (206) 442-5864

16591
Serial 627
NOV 25 1977

In reply refer to
Proposed Storm Flume Structure
Columbia Slough at
Columbia River Mile 112.7
at Portland, Oregon

PUBLIC NOTICE NO. 77-N-15

BRIDGES

All interested parties are notified that an application has been received by Commander, Thirteenth Coast Guard District from Oregon Department of Transportation, for approval of location and plans for a new fixed bridge across a navigable waterway.

WATERWAY AND LOCATION

Columbia Slough at Columbia River Mile 112.7 at Portland, Oregon

CHARACTER OF WORK

Three fixed highway bridges have been approved for construction across Columbia Slough at this location. These three bridges will be one segment of the Highway I-205 crossing of the waterway between Portland/Vancouver.

Oregon Department of Transportation is proposing to construct an additional fixed bridge adjacent south to the above three highway bridges. This fourth bridge will support a large storm sewer extending from Foster Road north to the Columbia River, a distance of about eight miles. The bents for this storm flume structure would be in line with the bents for the other three approved bridges. The structure would also provide the same horizontal and vertical navigation clearances as the mainline structures. Navigation clearances to be provided through the main span are:

Horizontal - 34 feet (Minimum)

Vertical (minimum) - 11 feet at MLW (Columbia River Datum)
6 feet at MHW Columbia River Datum)

12-2-77
Cy Versteeg
Hart
Turpin
Hardt
Harwood

BASIS FOR DECISION

The decision as to whether or not approval of the location and plans for the proposed bridge will be granted rests upon the effect of the proposed bridge on navigation. Other pertinent facts, such as wildlife and waterfowl refuges, public parks, historic sites, pollution, etc., will be made a part of the record and will be considered in determining whether or not it would be in the best public interest to grant approval. FHWA acted as lead agency for environmental documentation of this project. The Final Environmental Impact Statement for the project was filed with CEQ in October 1976.

SOLICITATION OF COMMENTS

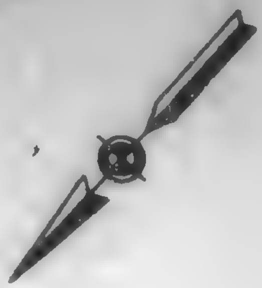
Interested parties are requested to express their views, in writing, on the suitability of the proposal giving sufficient detail to establish a clear understanding of reasons for support or opposition. Comments will be received at the Office of Commander, Thirteenth Coast Guard District, ATTN: Aids to Navigation Branch, 915 Second Avenue, Seattle, Washington 98174 through 26 December 1977.

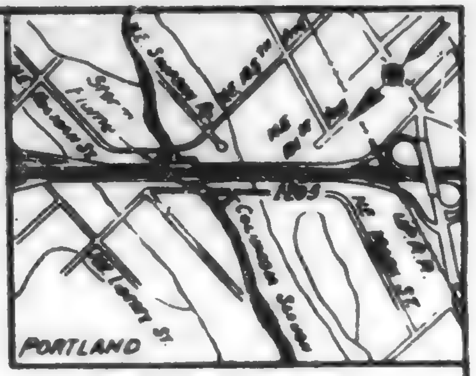
This Notice consists of two pages, two sheets of drawings and one sheet Public Notice by State of Oregon Department of Environmental Quality.

Sincerely,

R.C. Walton
R. C. WALTON
Commander, U. S. Coast Guard
Chief, Aids to Navigation Branch
By direction of the District Commander

Encl: (1) Drawings (2)
(2) P/N OR DEQ

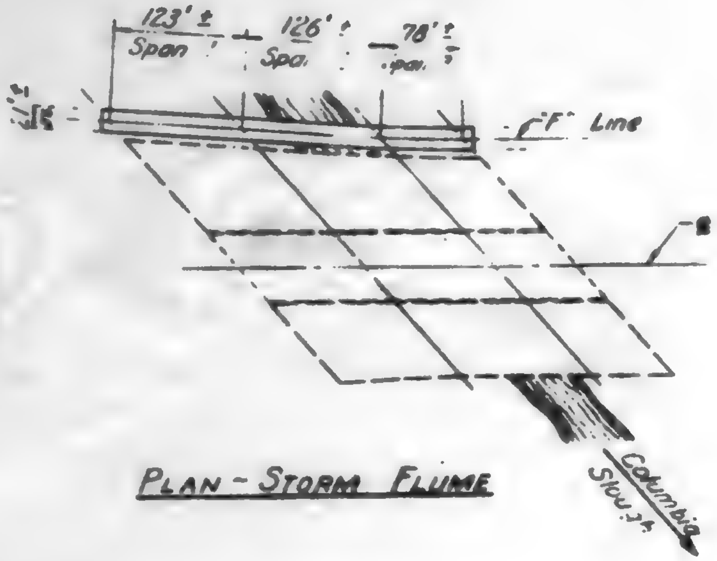




NE Sandy Blvd.
NE 82nd Ave.
Storm Flume
I-205
Columbia Slough
NE Killingsworth St.
NE Prescott St.
U.P.R.R.
PORTLAND

VICINITY MAP

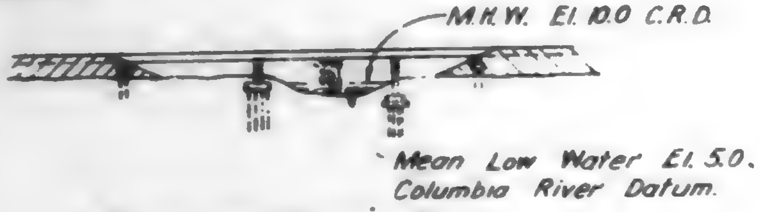
PROPOSED



123'±
Span
126'±
Span
78'±
Span
"F" Line
℄ Structures (I-205)
Columbia Slough

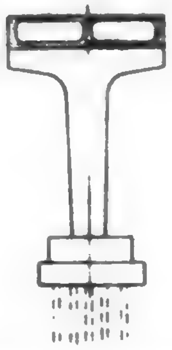
PLAN - STORM FLUME

Note:
M.H.W. Indicates Max. maintained high water elevation.



M.H.W. El. 10.0 C.R.D.
Mean Low Water El. 5.0.
Columbia River Datum.

ELEVATION - STORM FLUME
(COLUMBIA SLOUGH)



BENT 3 ELEVATION

0
100
200
400
Scale in Feet

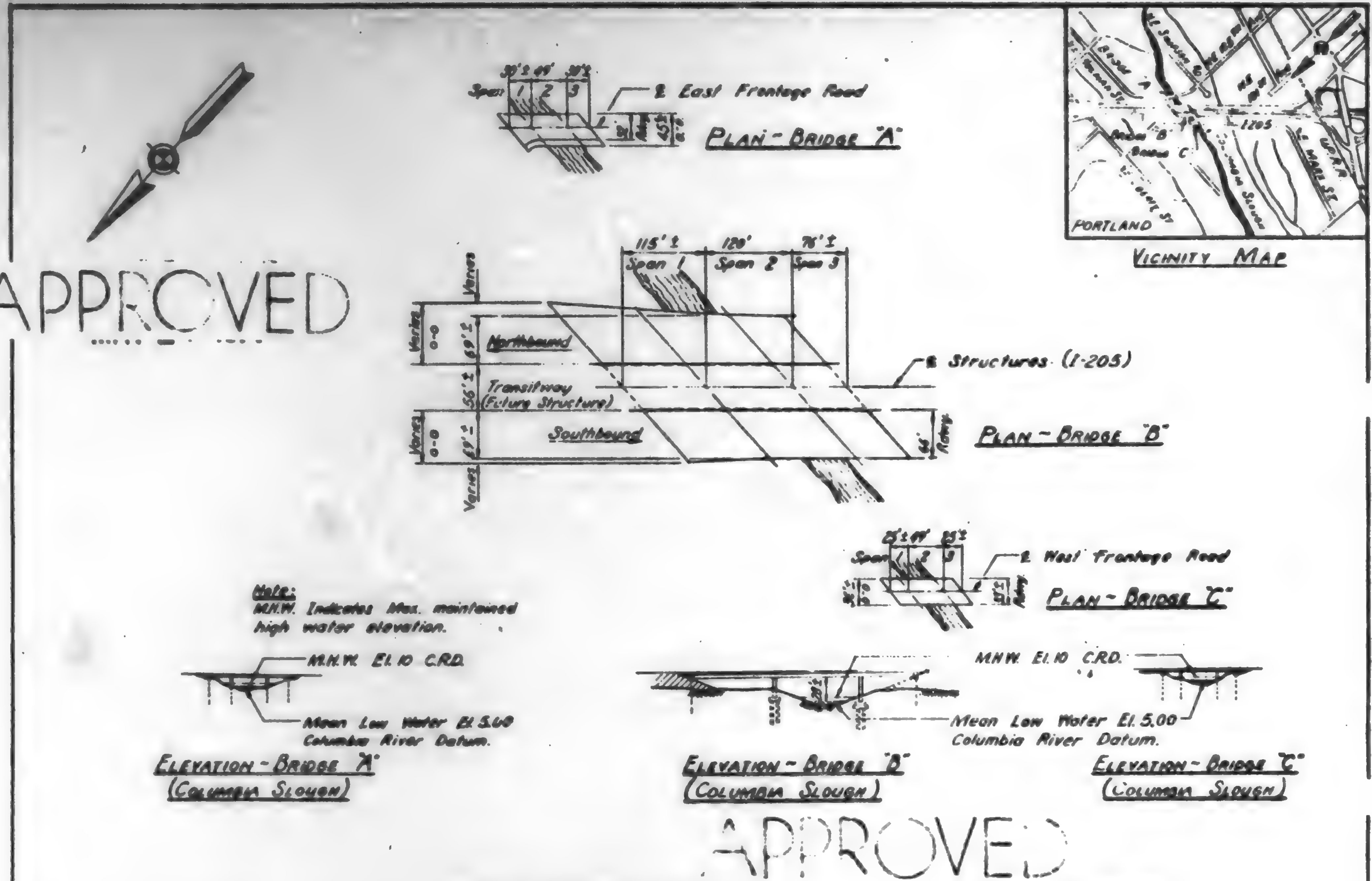
SPAN	H.W. +10 C.R.D. Horiz. Cl.	M.L.W. +5 C.R.D. Vert. Cl.	H.W. +10 C.R.D. Vert. Cl.
2	27'*	9'	23'

* Bank to Bank dimension

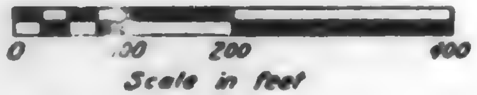
PROPOSED

PROPOSED STORM FLUME STRUCTURE
OVER
COLUMBIA SLOUGH
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
NOV 1977 SHEET 1 OF 1

APPROVED


Span 1 2 3
30'± 49' 30'±
℄ East Frontage Road
PLAN - BRIDGE "A"
115'± 120' 76'±
Span 1 Span 2 Span 3
Varies
0-0
69'±
Northbound
56'±
Transitway (Future Structure)
Southbound
Ramp
℄ Structures (I-205)
PLAN - BRIDGE "B"
Span 1 2 3
25'± 49' 25'±
℄ West Frontage Road
PLAN - BRIDGE "C"
Note:
M.H.W. Indicates Max. maintained high water elevation.
M.H.W. El. 10 C.R.D.
Mean Low Water El. 5.00 Columbia River Datum.
ELEVATION - BRIDGE "A" (COLUMBIA SLOUGH)
ELEVATION - BRIDGE "B" (COLUMBIA SLOUGH)
ELEVATION - BRIDGE "C" (COLUMBIA SLOUGH)
PORTLAND
I-205
Columbia Slough
U.P.R.R.
VICINITY MAP

APPROVED


0
100
200
400
Scale in feet

PROPOSED BRIDGES
OVER
COLUMBIA SLOUGH
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
Revised 1977

BRIDGE	SPAN	H.W. +10 C.R.D. HORIZ. CL.	M.L.W. +5 C.R.D VERT. CL.	H.W. +10 C.R.D VERT. CL.
A	2	35'	13'	8'
B	2	37'*	20'	23'
C	2	34'	11'	6'

* Bank to Bank dimension

8905

8

DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

MAILING ADDR
COMMANDER (oan)
THIRTEENTH COAST GUARD DISTRICT
915 SECOND AVE
SEATTLE, WASH. 98174
PHONE (206) 442-5864

RECEIVED
STATE HWY ENGR
NOV 23 '77
REFER TO
FOR
Info Inves R/D D/R Sign Act File

NOTED
H. S. COULTER

16591
Serial 609
NOV 16 1977

11-23-77
cy Vertrees
C Hart
Terrin
Hardt
Hammond

In reply refer to
Proposed Bridge Permit Amendment
Columbia River Mile 112.7 (I-205)
Portland, Oregon/Vancouver, Washington

PUBLIC NOTICE NO. 77-N-14

BRIDGES

All interested parties are notified that an application has been received by Commander, Thirteenth Coast Guard District from Oregon Department of Transportation, for approval of location and plans to amend the permit for a fixed bridge across a navigable waterway.

WATERWAY AND LOCATION

Columbia River Mile 112.7 between Portland, Oregon/Vancouver, Washington.

CHARACTER OF WORK

A fixed 8-lane bridge, (I-205), is under construction across the waterway at this location in accordance with a permit granted 30 November 1976. In order to accommodate bidding on alternate types of construction and adjust to roadway realignment on the south shore, the applicant has requested an amendment to the permit. The requested changes involve sheets 10 and 11 of the approved permit drawings only which describe the section of the structure across the South Channel. Presently approved and proposed changed drawings are attached for comparison.

The individual lengths of spans 1, 2 and 3 will vary from that presently approved depending on the type of construction chosen by the contractor. However, the overall combined lengths of the three spans will remain approximately the same, (Sheet 10). The flare on the south end of the structure, (spans 14 through 17), has been reduced to accomodate roadway alignment on the south shore (Sheet 11). In addition, the depth of the pier protection riprap below the ground line has been raised from minus 17.5 feet to minus 14.5 feet to eliminate considerable excavation cost.

PUBLIC NOTICE NO. 77-N-14
BRIDGES

BASIS FOR DECISION

The decision as to whether or not approval of the location and plans for the proposed changes will be granted rests upon the effect of the proposed changes on navigation. Other pertinent facts, such as wildlife and waterfowl refuges, public parks, historic sites, pollution, etc., will be made a part of the record and will be considered in determining whether or not it would be in the best public interest to grant approval. FHWA acted as lead agency for environmental documentation of this project. The Final Environmental Impact Statement for the project was filed with CEQ in October 1976.

SOLICITATION OF COMMENTS

Interested parties are requested to express their views, in writing, on the suitability of the proposal giving sufficient detail to establish a clear understanding of reasons for support or opposition. Comments will be received at the Office of Commander, Thirteenth Coast Guard District, ATTN: Aids to Navigation Branch, 915 Second Avenue, Seattle, Washington 98174 through 5 December 1977.

This Notice consists of two pages, four sheets of drawings and one sheet Public Notice by State of Oregon Department of Environmental Quality.

Sincerely,

R.C. Walton
R. C. WALTON
Commander, U. S. Coast Guard
Chief, Aids to Navigation Branch
By direction of the District Commander

Encl: (1) Drawings (4)
(2) P/N OR DEQ

DEPARTMENT OF ENVIRONMENTAL QUALITY

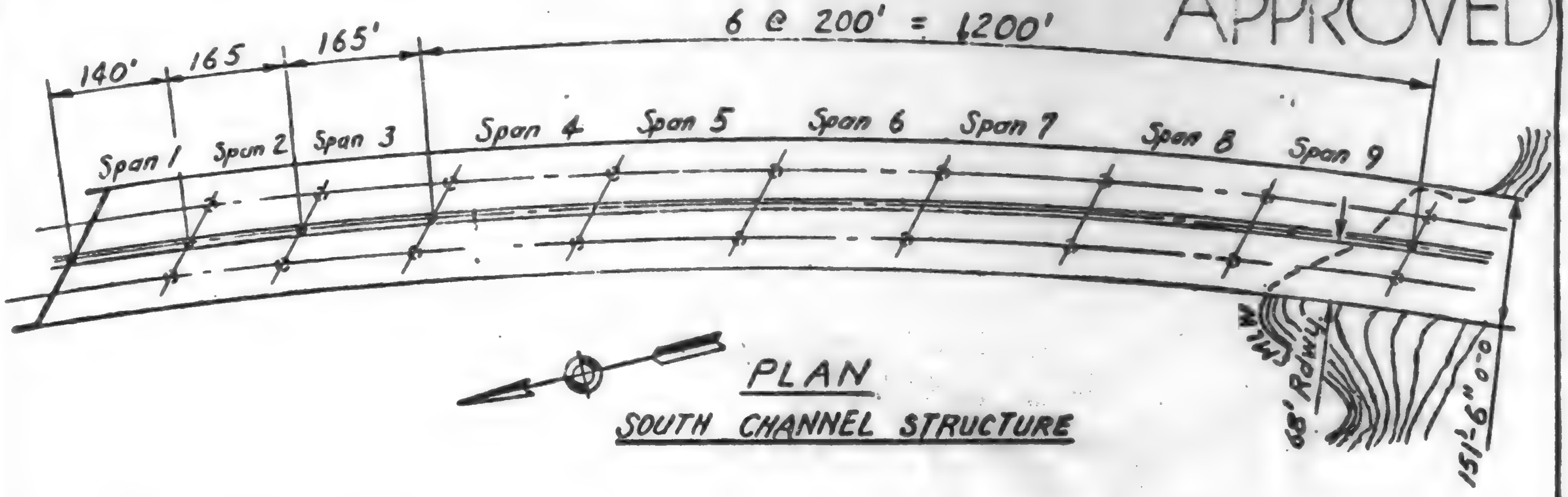
1234 S.W. MORRISON STREET • PORTLAND, ORE. 97205 • Telephone (503) 229-5696

ROBERT W. STRAUB
GOVERNOR

Public Notice

The following shall constitute public notice by the State of Oregon that the Department of Environmental Quality, pursuant to the requirements of Title 33, United States Code, Section 1341, has been requested to certify that there is reasonable assurance that the project described in Public Notice No. 77-N-14 issued by Commander, Thirteenth Coast Guard District in Seattle, will comply with the applicable provisions of Title 33, United States Code, Sections 1311, 1312, 1316 and 1317. Comments regarding possible water quality effects of the proposed project should be sent within 20 days to the State of Oregon, Department of Environmental Quality, 1234 S. W. Morrison Street, Portland, Oregon 97205.

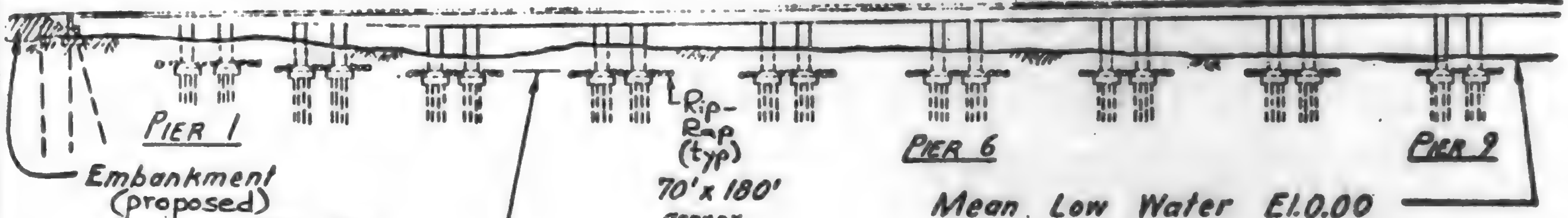
APPROVED


6 @ 200' = 1200'
140'
165
165'
Span 1
Span 2
Span 3
Span 4
Span 5
Span 6
Span 7
Span 8
Span 9
MLW
68' Rdwy.
151'-6" o-o

PLAN

SOUTH CHANNEL STRUCTURE

APPROVED


Pier 1
Rip-Rap (typ)
70' x 180' approx.
Pier 6
Pier 9

Embankment (proposed)
Top of Rip Rap
Pier 1 = El. 0.00
Pier 2 = El. - 4.5
All others = El. -17.5
C.R.D.

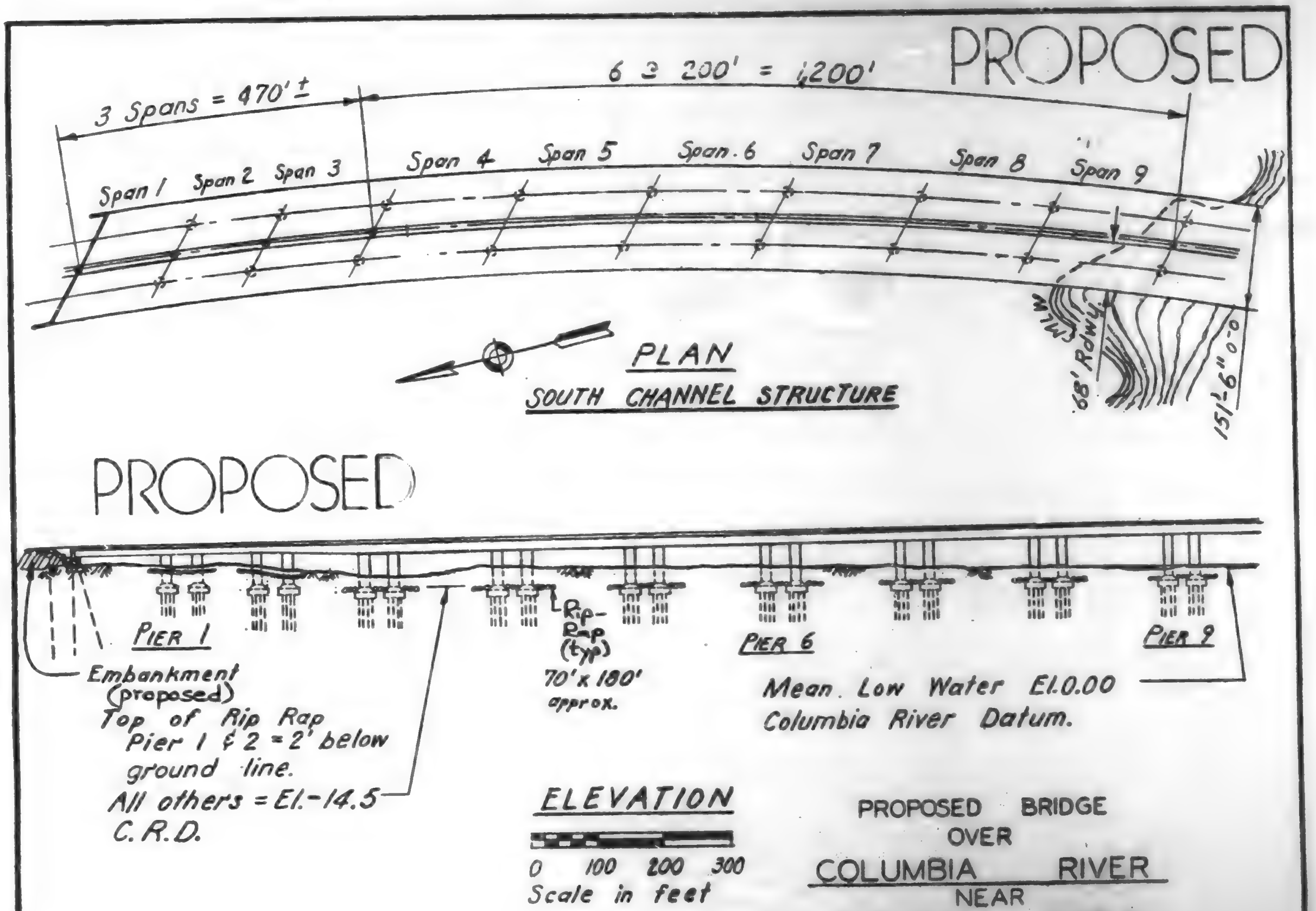
Mean Low Water El.0.00
Columbia River Datum.

ELEVATION

0 100 200 300
Scale in feet

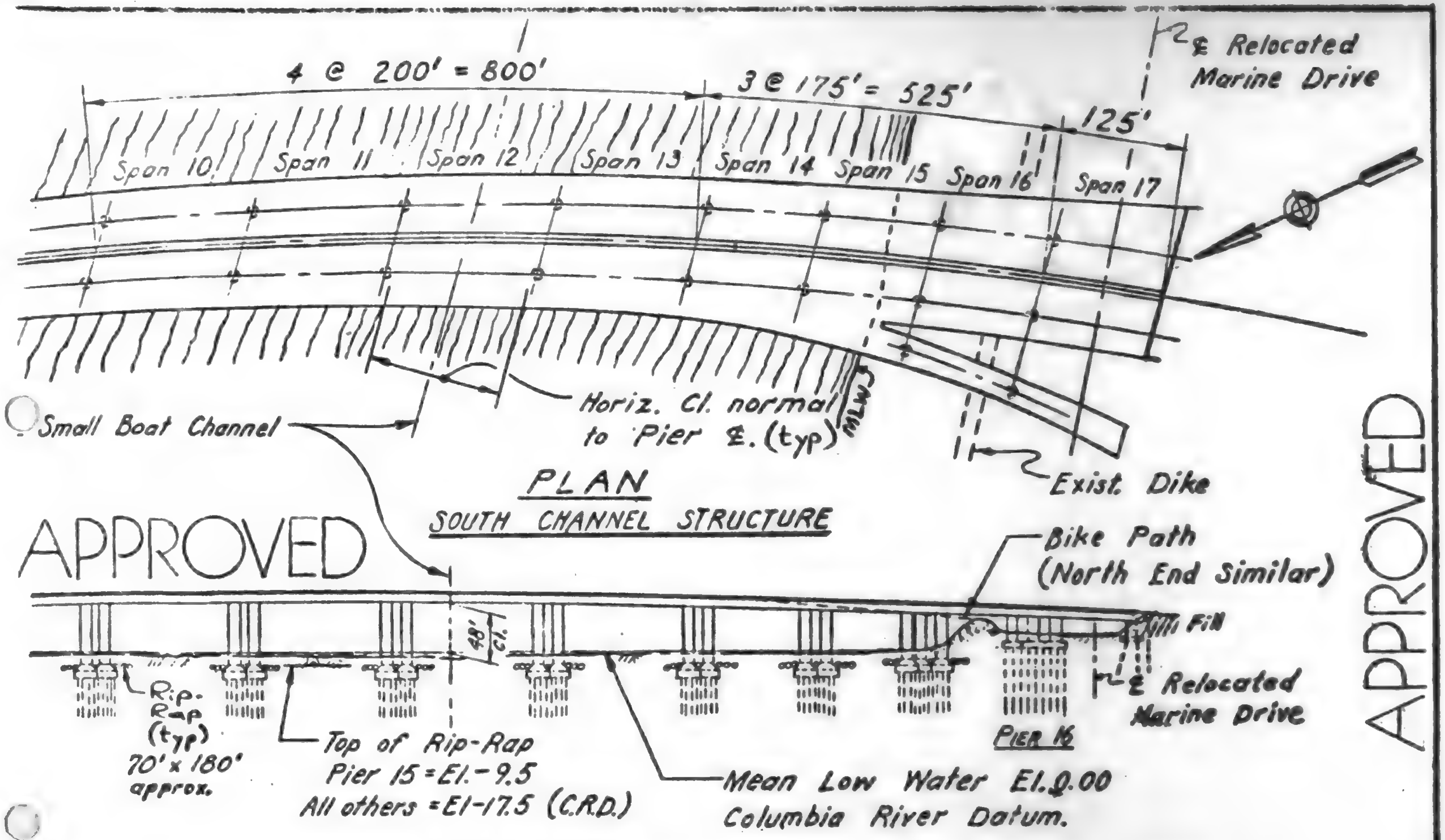
PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
August 1975 SHEET 10 OF 12

APPROVED


PROPOSED
3 Spans = 470'±
6 @ 200' = 1,200'
Span 1
Span 2
Span 3
Span 4
Span 5
Span 6
Span 7
Span 8
Span 9
MLW
68' Rdwy.
151'-6" o-o
PLAN
SOUTH CHANNEL STRUCTURE
PROPOSED
PIER 1
Rip-Rap (typ)
70' x 180' approx.
PIER 6
PIER 9
Embankment (proposed)
Top of Rip Rap
Pier 1 & 2 = 2' below
ground line.
All others = El. -14.5
C.R.D.
Mean Low Water El. 0.00
Columbia River Datum.
ELEVATION
0 100 200 300
Scale in feet

PROPOSED

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
Revised NOV 1977 SHEET 10 OF 12


4 @ 200' = 800'
3 @ 175' = 525'
125'
℄ Relocated Marine Drive
Span 10
Span 11
Span 12
Span 13
Span 14
Span 15
Span 16
Span 17
Small Boat Channel
Horiz. Cl. normal to Pier ℄. (typ)
MLW
Exist. Dike
Bike Path (North End Similar)
Fill
48' Cl.
℄ Relocated Marine Drive
Pier 16
Rip-Rap (typ) 70' x 180' approx.
Top of Rip-Rap Pier 15 = El. -9.5 All others = El -17.5 (C.R.D.)
Mean Low Water El. 0.00 Columbia River Datum.

PLAN

SOUTH CHANNEL STRUCTURE

ELEVATION

APPROVED

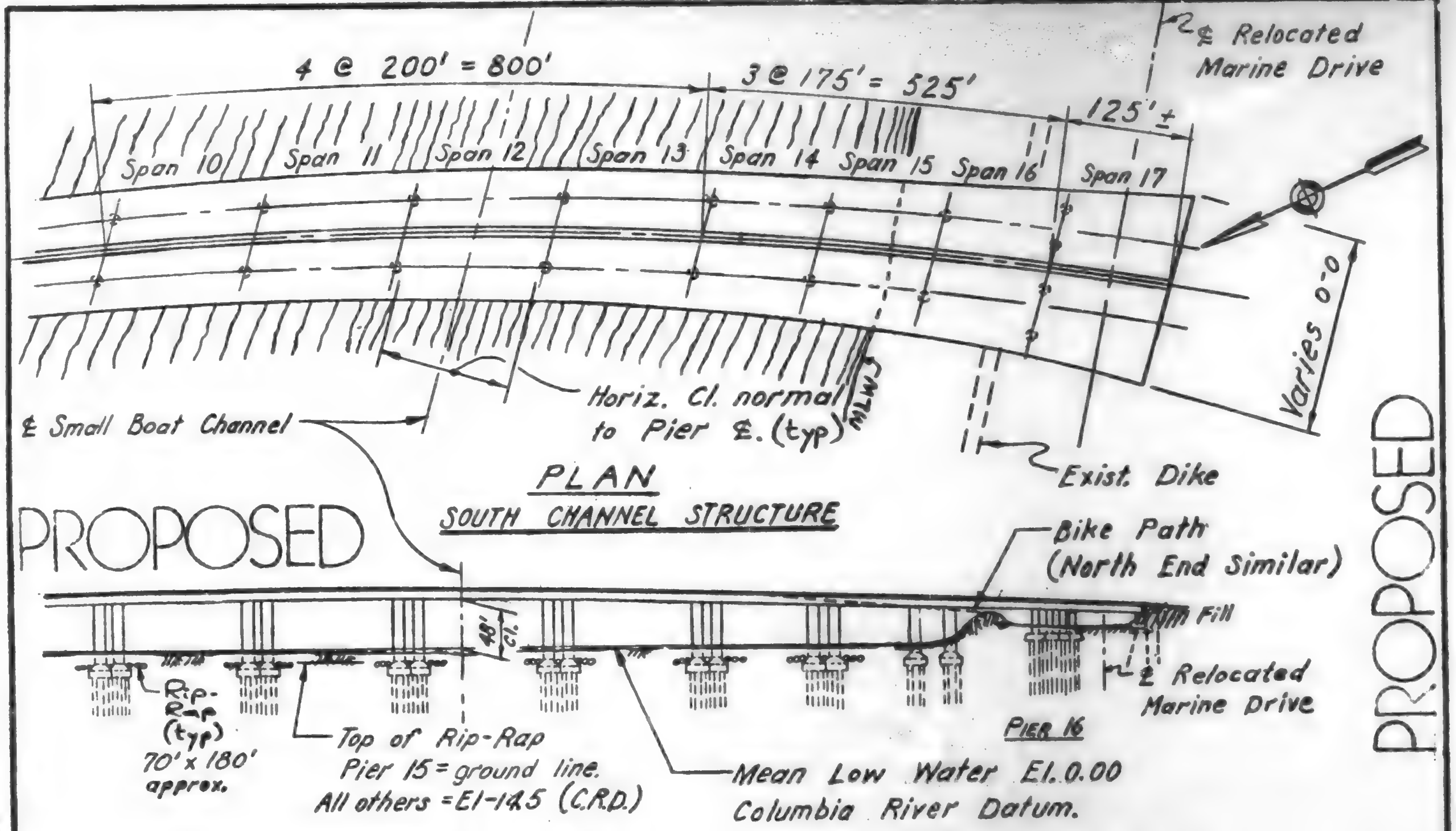
APPROVED

SPAN	HORIZ. CL.	VERT. CL.
10	170'	46'
11	172'	47'
12	174'	48'
13	176'	45'
14	153'	44'

0 100 200 300
Scale in feet

APPROVED

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
August 1975 SHEET 11 OF 12



4 @ 200' = 800'
3 @ 175' = 525'
125' ±
℄ Relocated Marine Drive
Span 10
Span 11
Span 12
Span 13
Span 14
Span 15
Span 16
Span 17
Varies 0-0
MLW
Horiz. Cl. normal to Pier ℄. (typ)
℄ Small Boat Channel
Exist. Dike
PROPOSED
Bike Path (North End Similar)
Fill
48' Cl.
Rip-Rap (typ) 70' x 180' approx.
Top of Rip-Rap Pier 15 = ground line. All others = El-14.5 (C.R.D.)
Mean Low Water El. 0.00 Columbia River Datum.
Pier 16
℄ Relocated Marine Drive
PROPOSED

PLAN
SOUTH CHANNEL STRUCTURE

ELEVATION

SPAN	HORIZ. CL.	VERT. CL.
10	170'	46'
11	172'	47'
12	174'	48'
13	176'	45'
14	153'	44'

0 100 200 300
Scale in feet

PROPOSED

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
Revised NOV. 1977 SHEET 11 OF 12

8985

November 15, 1977

bc F. B. Klaboe
J. H. Versteeg
Ed Hardt
Walt Hart
Gary Potter

Commander
13th Coast Guard District
Aids to Navigation Branch
Federal Building
915 Second Avenue
Seattle, Washington 98174

Dear Sir:

Proposed Storm Sewer Structure
Across Columbia Slough at Portland, Oregon
East Portland Freeway (I-205)
Bridge Permit

The East Portland freeway project (Interstate 205) around Portland, Oregon, incorporates a large storm sewer extending from Foster Road north to the Columbia River, a distance of approximately eight miles. This sewer is discussed in the Environmental Impact Statement for the I-205 Highway, Volume 1, dated July 1976 (copies sent to you previously).

Near its northerly end, this sewer crosses the Columbia Slough at River Mile 13.2. In order to effect this crossing, a storm flume structure is required. This crossing will be immediately south of the two I-205 (mainline) Columbia Slough bridges (River Mile 13.1) which are a part of Bridge Permit No. P(41-79a) amended.

The bents for this storm flume structure are in line with the bents for the I-205 mainline structures. The structure will provide the same horizontal and vertical navigation clearances as the mainline structures.

One reproducible and four prints of Sheet 1 of 1 of the permit drawing are enclosed.

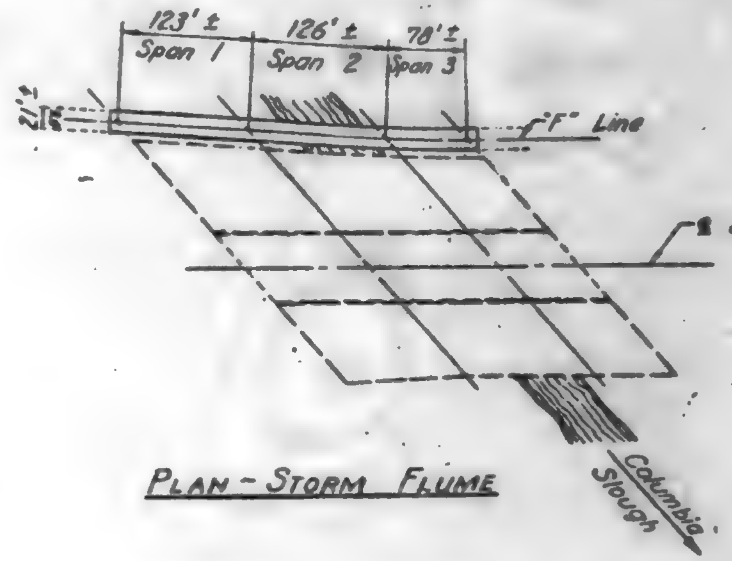
Application is hereby made by the Oregon Department of Transportation for approval by the Commandant of the Coast Guard for this proposed bridge across the Columbia Slough.

Very truly yours,

E. S. Hunter
Technical Services Engineer

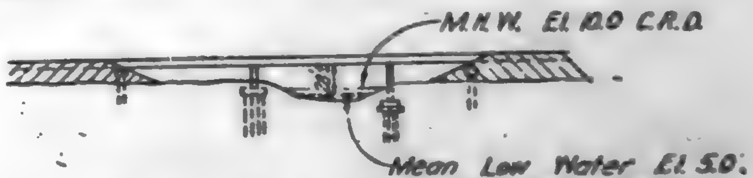
Enc.

(BRIDGE) ja

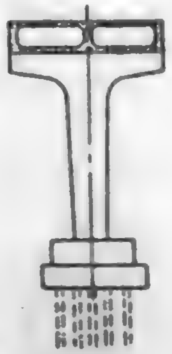

123' ±
Span 1
126' ±
Span 2
78' ±
Span 3
21' ±
"F" Line
℄ Structures (I-205)
Columbia Slough

PLAN - STORM FLUME

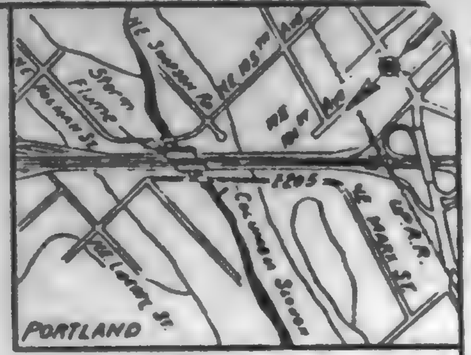
Note:
M.H.W. Indicates Max. maintained high water elevation.


M.H.W. El. 10.0 C.R.D.
Mean Low Water El. 5.0.
Columbia River Datum.

ELEVATION - STORM FLUME
(COLUMBIA SLOUGH)



BENT 3 ELEVATION


NE Holman St.
Storm Flume
I-205
Columbia Slough
NE Lombard St.
NE Marx St.
U.P.R.R.
PORTLAND

VICINITY MAP

0 100 200 400
Scale in feet

	H.W. +10 C.R.D.	M.L.W. +5 C.R.D.	H.W. +10 C.R.D.
SPAN	Horiz. Cl.	Vert. Cl.	Vert. Cl.
2	37'*	28'	23'

*Bank to Bank dimension.

PROPOSED STORM FLUME STRUCTURE
OVER
COLUMBIA SLOUGH
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
NOV. 1977 SHEET 1 OF 1

8905

8

DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

MAILING ADDRESS:
COMMANDER (oan)
THIRTEENTH COAST GUARD DISTRICT
915 SECOND AVE.
SEATTLE, WASH. 98174
PHONE: (206) 442-5864

16591
Serial 295
24 May 1977

NOTED
E. S. HUNTER
cc Bridge
2-27-77

Oregon State Highway Division
Attention: Mr. E. S. Hunter
Deputy State Highway Engineer
Highway Building
Salem, Oregon 97310

Re: Amendment to bridge permit
for I-205 Columbia Slough
crossings

Gentlemen:

Please find enclosed your requested amendment to Bridge Permit (41-70a) granted 30 November 1976. The amendment, dated 23 May 1977, approves changes to the three freeway bridges to be constructed across Columbia Slough. Plan sheet 12 (of 12) of the original permit is superseded by Plan sheet 12 (of 12) revised 1977. The amendment becomes a part of the original permit.

Sincerely,

R. C. Walton
R. C. WALTON
Commander, U. S. Coast Guard
Chief, Aids to Navigation Branch
By direction of the District Commander

Encl:
(1) As noted

Copy to:
Mr. Glen L. Green
Division Administrator
Federal Highway Administration
Box 300
Salem, OR 97308

RECEIVED
STATE HWY ENGR
MAY 27 '77
REFER TO
FOR

Info	Issues	R/D	O/R	Sign	Act	File

MAY 24 1977
(Date)

AMENDMENT TO BRIDGE PERMIT
(41-70a)

WHEREAS by a permit issued 30 November 1976, the Commandant of the Coast Guard approved the location and plans of bridges to be constructed by STATE OF OREGON across the Columbia River and the Columbia Slough near Portland, Oregon, under authority of the General Bridge Act of 1946;

AND WHEREAS condition 1 of that permit provides that no deviation from the approved plans may be made either before or after completion of the structure unless the modifications of said plans has previously been submitted to and received the approval of the Commandant;

AND WHEREAS - STATE OF OREGON - has submitted for approval revised plans for the construction of Columbia Slough bridges;

NOW THEREFORE, This is to certify that plan sheet 12 (of 12) revised 1977 hereby approved supersedes plan sheet 12 (of 12) approved 30 November 1976 which is attached to the original permit.

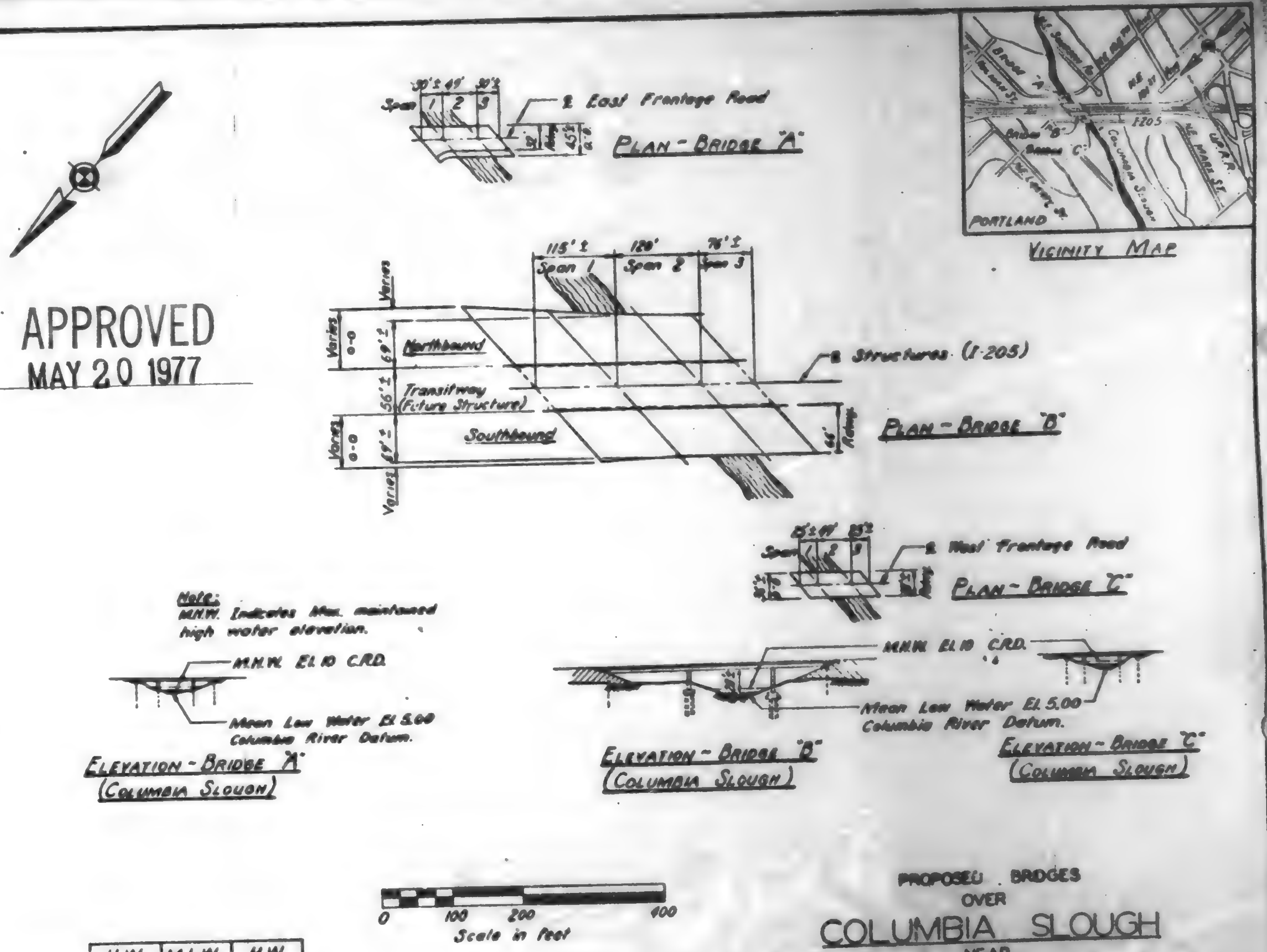
In granting this approval, all conditions of the original permit remain in force.

C A Richmond Jr

C. A. RICHMOND, JR.
RADM, U. S. COAST GUARD
Commander,
Thirteenth Coast Guard District

ENCLOSURE NO. 9

APPROVED
MAY 20 1977


Span 1 2 3
30'± 45' 30'±
℄ East Frontage Road
Plan - Bridge "A"
115'± 120' 76'±
Span 1 Span 2 Span 3
Varies
Northbound
69'±
Transitway (Future Structure)
56'±
Southbound
℄ Structures (I-205)
Plan - Bridge "B"
℄ West Frontage Road
Plan - Bridge "C"
Vicinity Map
Portland
I-205
Bridge "A"
Bridge "B"
Bridge "C"
Columbia Slough
U.P.R.R.
NE Marx St.
Note:
M.H.W. Indicates Max. maintained high water elevation.
M.H.W. El.10 C.R.D.
Mean Low Water El.5.00 Columbia River Datum.
Elevation - Bridge "A" (Columbia Slough)
Elevation - Bridge "B" (Columbia Slough)
Elevation - Bridge "C" (Columbia Slough)
0 100 200 400
Scale in feet

Bridge	Span	H.W. +10 C.R.D. Horiz. Cl.	M.L.W. +5 C.R.D. Vert. Cl.	H.W. +10 C.R.D. Vert. Cl.
A	2	35'	13'	8'
B	2	37'*	28'	23'
C	2	34'	11'	6'

* Bank to Bank dimension.

PROPOSED BRIDGES
OVER
COLUMBIA SLOUGH
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
Revised 1977
Sheet 12 of 12

8905

9

DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

MAILING ADDRESS
COMMANDER (oan)
THIRTEENTH COAST GUARD DISTRICT
915 SECOND AVE.
SEATTLE, WASH. 98174
PHONE (206) 442-5864

16591
Serial 140
7 March 1977

NOTED
E. S. HUNTER

RECEIVED
STATE HWY ENGR
MAR 1 4'77
REFER TO Bridge
FOR

Info	Inves	R/D	D/R	Sign	Act	File

Cy- Turpin
Potter
Vensteeg
Bathman
Hunt
3-14-77
1 Cy- Bridge

In reply refer to
Proposed New Bridges
Across Columbia Slough
Near Portland, Oregon
Highway I-205

PUBLIC NOTICE NO. 77-N-06

BRIDGES

All interested parties are notified that an application has been received by Commander, Thirteenth Coast Guard District from Oregon State Highway Division for design modifications to previously approved bridges across a navigable waterway as follows:

WATERWAY AND LOCATION

Columbia Slough near Portland, Oregon (Highway I-205).

CHARACTER OF WORK

The applicant proposes design modifications to previously approved highway bridges across Columbia Slough near Portland, Oregon. The project is part of the larger approved highway bridging of the Columbia River by Highway I-205. The design modifications are required for a changed freeway concept that requires one less traffic lane on each of the northbound and southbound structures and makes provision for future widening of the structures to provide for mass transit facilities. Provision has also been made for on-off ramps which connect into the freeway. The former provision for a future east-west freeway under the northern part of the Columbia Slough structures has been eliminated, thus allowing the elimination of one span and the shortening of the four structures. Although bridge span lengths and roadway widths for the Columbia Slough crossings would be changed from those originally approved, navigation clearances would either remain the same or exceed those in the original approval. The navigation clearances to be provided by the proposed bridges shown on the attached drawings are as follows:

Horizontal	-	Bridge A	-	35 feet
		Bridge B	-	37 feet
		Bridge C	-	34 feet (exceeds original)

Bridges

Vertical - M.L.W. + 5 C.R.D. (Columbia River Datum)
Bridge A - 13 feet
Bridge B - 28 feet
Bridge C - 11 feet

- M.H.W. + 10 C.R.D. (Columbia River Datum)
Bridge A - 8 feet
Bridge B - 23 feet
Bridge C - 6 feet

ENVIRONMENTAL CONSIDERATIONS

This application is for a minor deviation of formerly approved plans for four bridges across Columbia Slough. There has been no change in environmental impacts or navigation requirements since the Final EIS for the I-205 project was filed with C.E.Q. 14 October 1976. Copies of the Final EIS are available for examination at the offices of: Commander, Thirteenth Coast Guard District, Aids to Navigation Branch, Seattle, Washington; Oregon State Highway Division, Salem, Oregon; Federal Highway Administration, Division Engineer, Salem, Oregon; and Federal Highway Administration Regional Office, Mohawk Building, Portland, Oregon.

SOLICITATION OF COMMENTS

Interested persons are requested to express their views, in writing, on the adequacy of the navigation clearances with and without fender works, giving sufficient detail to establish a clear understanding of the reasons for support or opposition. Protests or comments will be received for the record at the office of Commander, Thirteenth Coast Guard District (oan) 915 Second Avenue, Seattle, Washington 98174 through 11 April 1977.

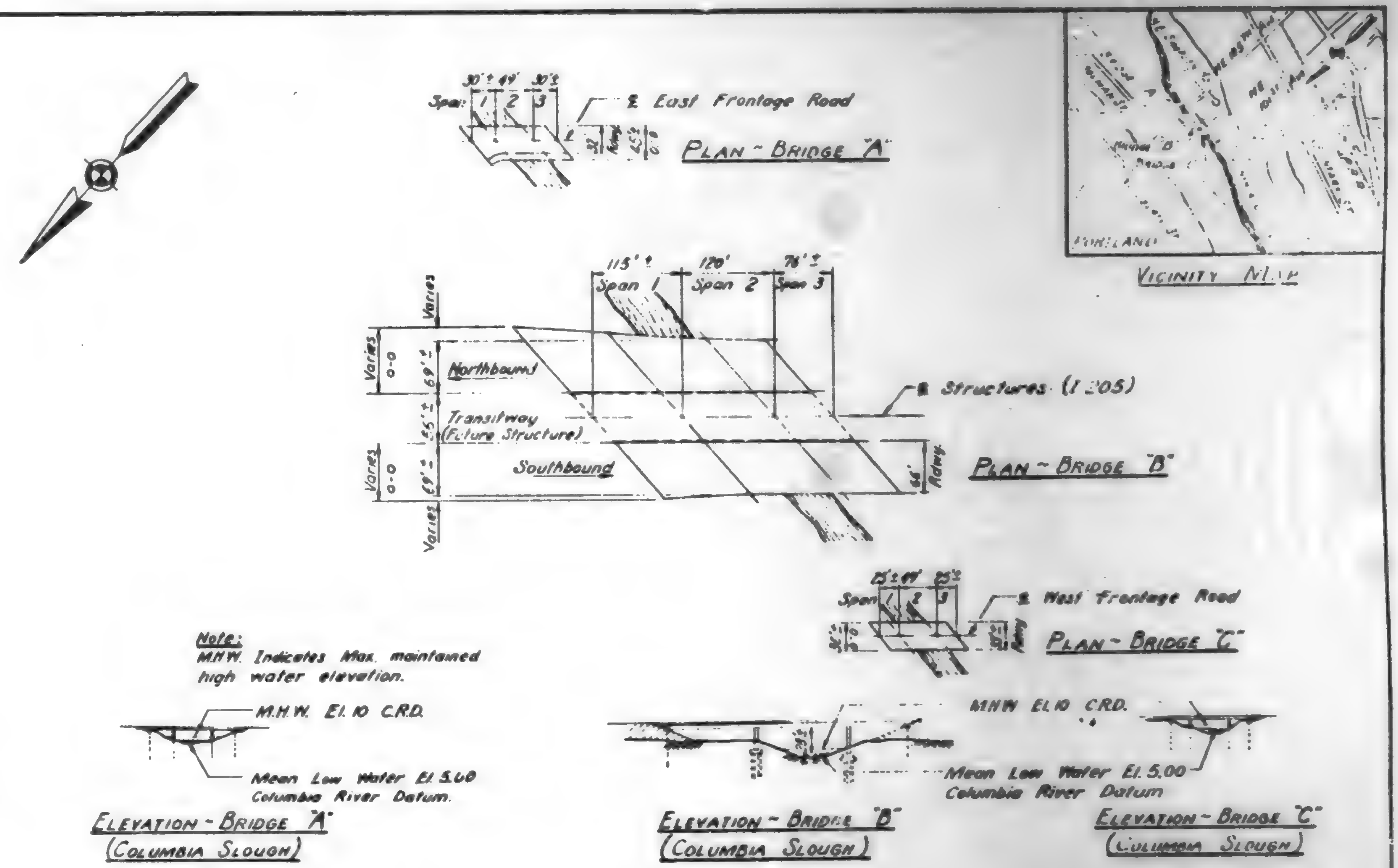
BASIS FOR DECISION

The decision as to whether or not approval of the revised plans for the proposed bridges will be granted must rest upon the impact of the bridge on navigation and the human environment. Factors such as wildlife and waterfowl refuges, public parks and historic sites are a part of the record included in the FINAL E.I.S. and were considered in granting previous approval of the overall project.

This notice consists of two sheets of Notice, two sheets of drawings and one sheet Public Notice by Oregon Department of Environmental Quality.

R. C. Walton
R. C. WALTON
Commander, U. S. Coast Guard
Chief, Aids to Navigation Branch
By direction of the District Commander

Encl: (1) Drawings (2)
(2) Oregon DE[illegible]otice of Application for Water [illegible]ality Certification



Span
30'± 49' 30'±
1 2 3
℄ East Frontage Road
PLAN - BRIDGE "A"
Vicinity Map
PORTLAND
115'± 120' 78'±
Span 1 Span 2 Span 3
Varies
0-0
Varies
69'±
55'±
69'±
Northbound
Transitway (Future Structure)
Southbound
℄ Structures (I-205)
66' Rdwy.
PLAN - BRIDGE "B"
25'± 49' 25'±
Span 1 2 3
℄ West Frontage Road
PLAN - BRIDGE "C"
Note:
M.H.W. Indicates Max. maintained high water elevation.
M.H.W. El. 10 C.R.D.
Mean Low Water El. 5.00
Columbia River Datum.
MHW El. 10 C.R.D.
Mean Low Water El. 5.00
Columbia River Datum
ELEVATION - BRIDGE "A"
(COLUMBIA SLOUGH)
ELEVATION - BRIDGE "B"
(COLUMBIA SLOUGH)
ELEVATION - BRIDGE "C"
(COLUMBIA SLOUGH)

PROPOSED AMENDMENT

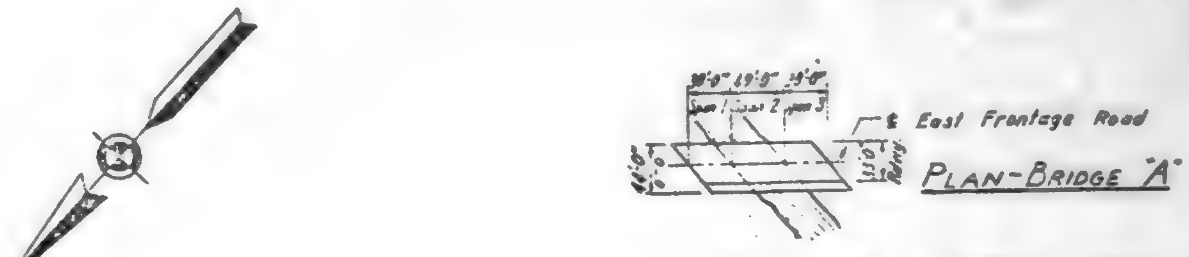
0 100 200 400

Scale in feet

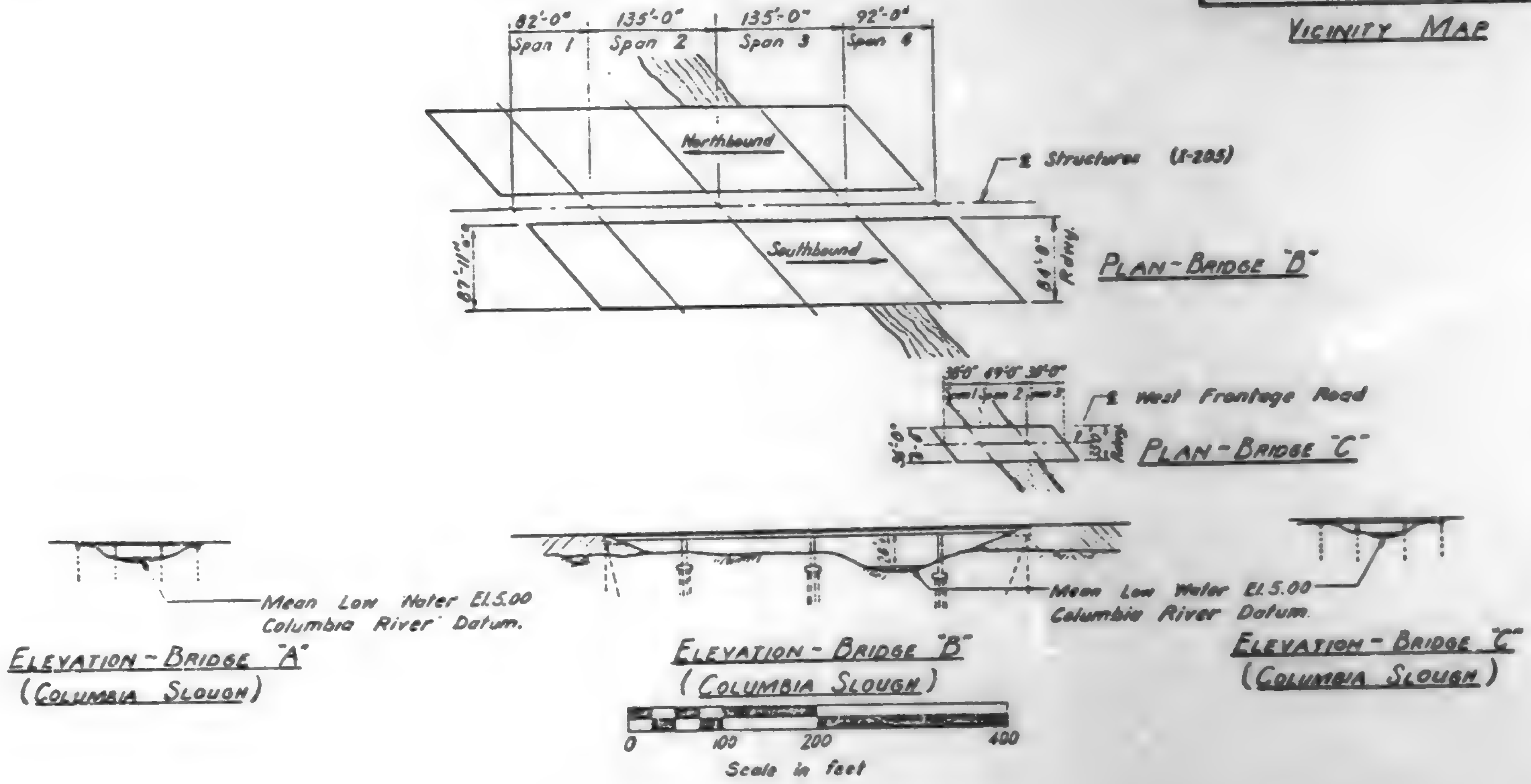
BRIDGE	SPAN	H.W. +10 C.R.D. Horiz. Cl.	M.L.W. +5 C.R.D. Vert. Cl.	H.W. +10 C.R.D. Vert. Cl.
A	2	5'	13	8'
B	2	37'*	14'	13'
C	[illegible]	34'	11'	6'

*Bank to Bank dimension

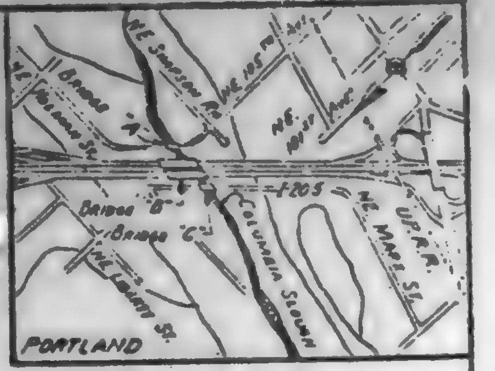
PROPOSED BRIDGES
OVER
COLUMBIA SLOUGH
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
Revised 1977



35'-0" 49'-0" 29'-0"
Span 1 Span 2 Span 3
℄ East Frontage Road
44'-0"
13'-0" Rdwy.
PLAN-BRIDGE "A"



82'-0" 135'-0" 135'-0" 92'-0"
Span 1 Span 2 Span 3 Span 4
Northbound
Southbound
℄ Structures (I-205)
87'-11"
84'-0" Rdwy.
PLAN-BRIDGE "B"
35'-0" 49'-0" 35'-0"
Span 1 Span 2 Span 3
℄ West Frontage Road
35'-0"
13'-0" Rdwy.
PLAN-BRIDGE "C"
Mean Low Water El.5.00
Columbia River Datum.
ELEVATION - BRIDGE "A"
(COLUMBIA SLOUGH)
ELEVATION - BRIDGE "B"
(COLUMBIA SLOUGH)
Mean Low Water El.5.00
Columbia River Datum.
ELEVATION - BRIDGE "C"
(COLUMBIA SLOUGH)
0 100 200 400
Scale in feet



NE Simpson Rd
NE 105th
NE 101st Ave.
NE Holman St.
Bridge "A"
Bridge "B"
Bridge "C"
I-205
NE Lombard St.
Columbia Slough
NE Marx St.
U.P.R.R.
PORTLAND

VICINITY MAP

APPROVED DRAWING

BRIDGE	SPAN	HORIZ. CL.	VERT. CL.
A	2	35'	13'
B	3	37'	28'
C	2	30'	11'

PROPOSED BRIDGES
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
August 1975 SHEET 12 OF 12

8905

February 25, 1977

Commander
13th Coast Guard District
Aids to Navigation Branch
Federal Building
915 Second Avenue
Seattle, Washington 98174

Dear Sir:

Columbia Slough Bridges Revision
Columbia River (I-205) Bridge
Bridge 9555
Coast Guard Permit P(41-7aa)

Enclosed are 1 reproducible and 6 prints of a revised Coast Guard Permit Drawing for the Columbia Slough structures carrying the East Portland Freeway and Frontage Roads.

The Frontage Road structures were shortened in the end spans only, which still provides adequate length from bank to bank. A slight curve in the northwest corner of the eastern structure was introduced because of roadway alignment requirements.

The main line structures have been changed in cross section to provide for an entirely different freeway concept that requires one less traffic lane on each of the northbound and southbound structures and makes provision for future widening of the structure to provide for mass transit facilities. Provision has been made for on- and off-ramps which connect into the freeway. The provision for a future east-west freeway (Whitaker) under the northern part of the structures has been eliminated. This allows the elimination of one span and the shortening of the structures.

None of the above changes affect the waterway openings for the Columbia Slough.

We plan to receive bids for these structures in

June, 1977. Your timely processing of this permit revision will be appreciated.

Very truly yours,

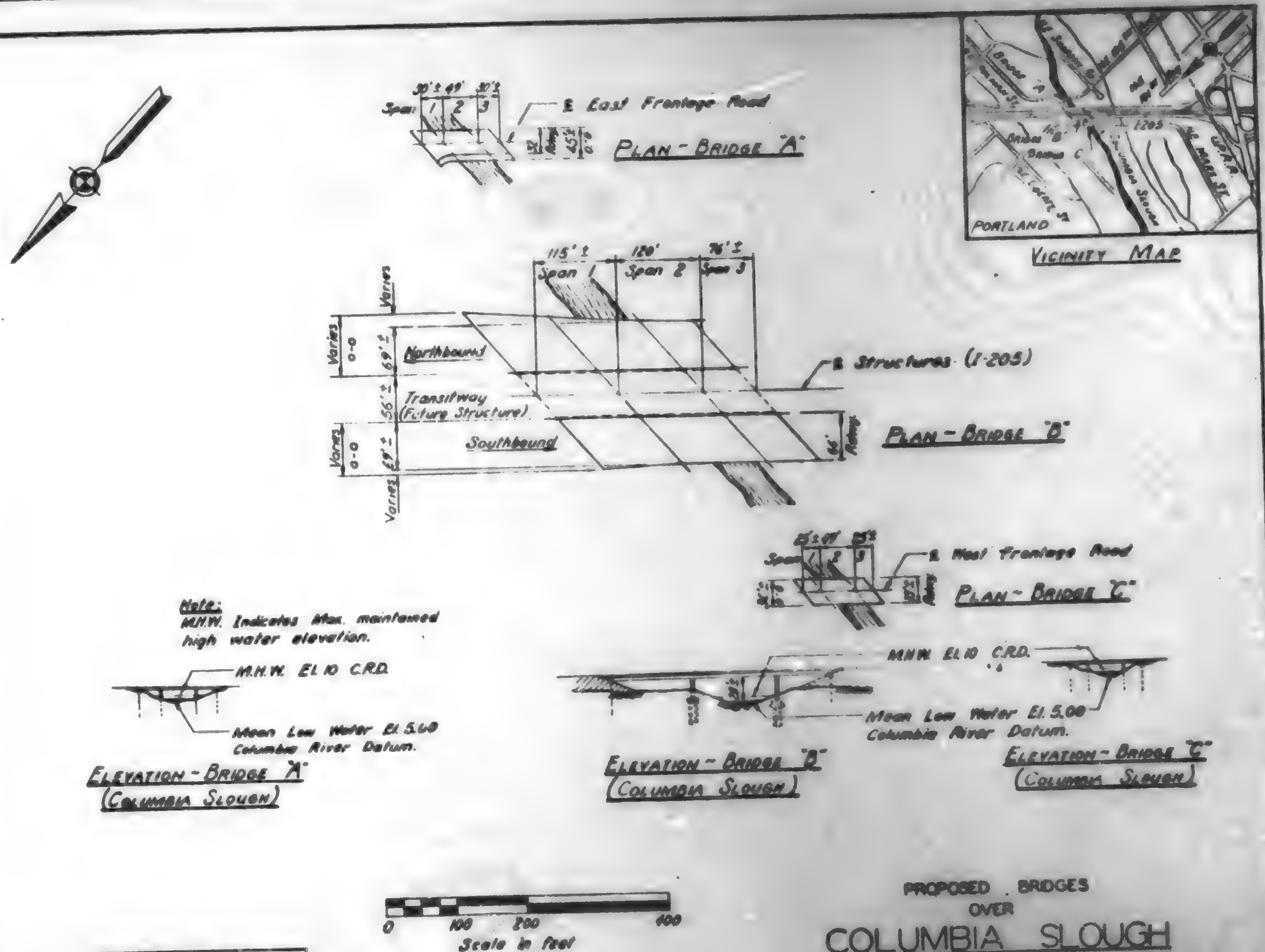
E. S. Hunter
Deputy State Highway Engineer

Enc.

cc Glen L. Green
Division Administrator
Federal Highway Administration
Box 300
Salem, OR 97308

bc H. S. Coulter
R. L. Schroeder
R. N. Bothman
Gary Potter
Walt Hart
Frank Terpin
Hal Versteeg

RWE:dh ja


30'± 49' 30'±
Span 1 2 3
℄ East Frontage Road
PLAN - BRIDGE "A"
PORTLAND
Bridge A
Bridge B
Bridge C
I 205
Columbia Slough
U.P.R.R.
VICINITY MAP
115'± 120' 76'±
Span 1 Span 2 Span 3
Varies
0-0
69'±
56'±
Northbound
Transitway
(Future Structure)
Southbound
℄ Structures (I-205)
PLAN - BRIDGE "B"
Span 1 2 3
℄ West Frontage Road
PLAN - BRIDGE "C"
M.H.W. El. 10 C.R.D.
Mean Low Water El. 5.00
Columbia River Datum.
ELEVATION - BRIDGE "A"
(COLUMBIA SLOUGH)
ELEVATION - BRIDGE "B"
(COLUMBIA SLOUGH)
ELEVATION - BRIDGE "C"
(COLUMBIA SLOUGH)
0 100 200 400
Scale in feet

Note:
M.H.W. Indicates Max. maintained
high water elevation.

BRIDGE	SPAN	H.W. +10 C.R.D. HORIZ. CL.	M.L.W. +5 C.R.D. VERT. CL.	H.W. +10 C.R.D. VERT. CL.
A	2	34'	13'	8'
B	2	37'*	28'	23'
C	2	34'	11'	6'

* Bank to Bank dimension.

PROPOSED BRIDGES
OVER
COLUMBIA SLOUGH
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
Revised 1977

8905

9

1859

OREGON STATE
HIGHWAY DIVISION

HIGHWAY BUILDING • SALEM, OREGON • 97310

ROBERT W. STRAUB
GOVERNOR

NOTED
E. S. HUNTER

Mr. R. L. Carroll
District Engineer
Washington Department of Highways
P. O. Box 1717
Vancouver, WA 98663

January 24, 1977

Columbia River (I-205) Bridge
Bridge 9555
Coast Guard and Corps of Engineers Permits

In order that your file may be complete, I enclose one copy each of the Coast Guard and Corps of Engineers permits for the subject structure. Navigation lighting requirements are attached to the Coast Guard Permit. There are two Corps of Engineers permits.....one is for the bridge site, and the other is for dredging at the west end of Lemon Island to provide access to the south channel of the river.

I believe this ties up the loose ends as far as permits go. We now have valid permits from all individual issuing agencies.

ORIGINAL SIGNED
R.W. ELLISON

R. W. Ellison
Acting Bridge Engineer

Enclosure

cc Glen Green /w/ encl.
E. S. Hunter
R. N. Bothman /w/ encl.
D. H. Moehring
W. J. Hart, Reg. 1
John Howard
P. M. Oakley
C. T. Keasey
J. E. Backstrand

RECEIVED
STATE HWY ENGR
JAN 24 '77
REFER TO
FOR
Info | Invest | R.D | D/R | Sign | Act | File

8905

8

FORM 81-734-3030

OREGON STATE HIGHWAY DIVISION FILE: BR 9555

INTER-OFFICE CORRESPONDENCE
Salem, Oregon
December 14, 1976

ORIGINAL SIGNED
R.W. ELLISON

FROM: R. W. Ellison
Acting Bridge Engineer

TO: Mr. R. N. Bothman
Assistant State Highway Engineer

SUBJECT: Columbia River (I-205) Bridge
Bridge 9555
Coast Guard Permit
Navigation Lighting

NOTED
E. S. HUNTER

Attached is a copy of the navigation lighting requirements as received from the Coast Guard relative to the subject structure. These requirements should be attached to the Coast Guard Permit you received previously.

RWE:dh
Attachment

cc E. S. Hunter /w/ attach.
D. H. Moehring /w/ attach.
W. J. Hart, Reg. 1, /w/ attach.
John Howard /w/ attach.
L. L. Wallace
P. M. Oakley
C. T. Keasey
J. E. Backstrand

RECEIVED
STATE HWY ENGR
DEC 14 '76
REFER TO

FOR

Info	Inves	R/D	D/R	Sign	Act	File

DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

MAILING ADDRESS:
COMMANDER (oan)
THIRTEENTH COAST GUARD DISTRICT
915 SECOND AVE.
SEATTLE, WASH. 98174
PHONE: (206) 442 5864

RECEIVED
STATE HWY ENGR
DEC 13 '76
REFER TO
Ellison
FOR
Info Inves R/D D/R Sign Act

16590
Serial 688
10 December 1976

Oregon State Highway Division
ATTN: Mr. R. L. Porter
State Highway Engineer
Highway Building
Salem, OR 97310

Gentlemen:

Please find enclosed the approval of navigation lights to be installed on your proposed I-205 bridge across the Columbia River at Mile 112.7 between Portland, Oregon and Vancouver, Washington.

A copy of the regulations governing installation of navigation lights was previously furnished. Particular attention should be given to mounting the lights as required to provide maximum visibility to the navigator.

In addition to the navigation lights, clearance gauges are required in accordance with paragraph 4 of Permit P(41-70a). These gauges will be installed on the up and down stream faces of piers No. 13 at both the main and south channels. (Piers No. 13 are positioned at the south side of each channel). The gauges will indicate the vertical clearances from the water surface to low steel at the center of the navigation spans by FHWA 12 inch high Series C black numerals of 2 inch width on a white background. Numerals will be spaced vertically at 2 foot intervals. The installation of the gauges is as discussed with Mr. Ellison of your staff.

Navigation light approval for this bridge dated 12 June 1970 is superseded and canceled.

Your cooperation in making the navigation light and clearance gauge installations will be appreciated.

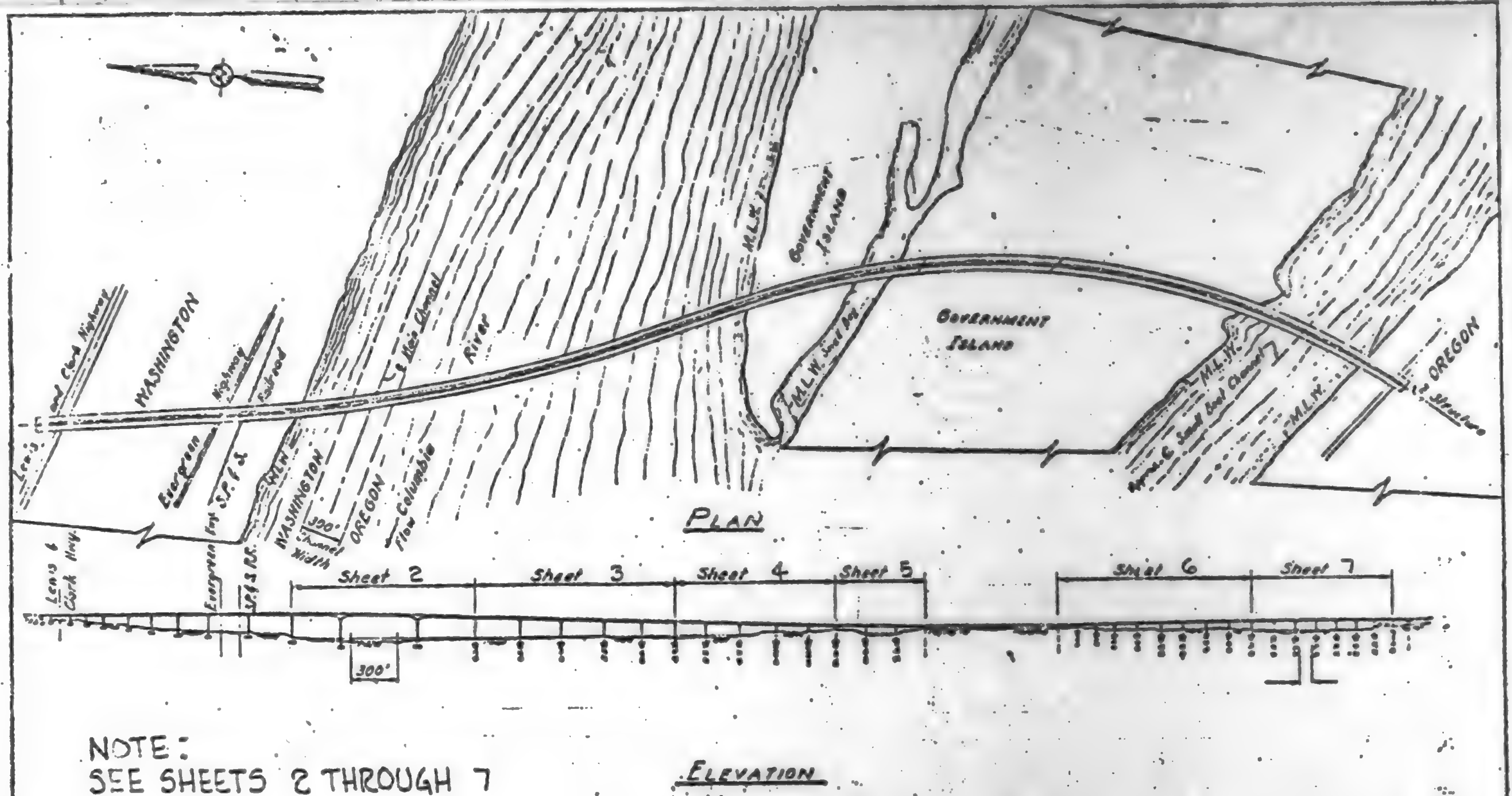
Sincerely,

RECEIVED
DEC 14 1976
BRIDGE SECTION

R. C. WALTON
Commander, U. S. Coast Guard
Chief, Aids to Navigation Branch
By direction of the District Commander

ENCL: (1) Nav. Light App.

NOTED
R. W. ELLISON


Lewis and Clark Highway
WASHINGTON
Evergreen Highway
S.P. & S. Railroad
W.H.W.
WASHINGTON
OREGON
300' Channel Width
Columbia River
℄ Main Channel
Flow
M.L.W.
Government Island
M.L.W. Small Boat
Government Island
M.L.W.
Small Boat Channel
M.L.W.
OREGON
Structure
PLAN
Sheet 2
Sheet 3
Sheet 4
Sheet 5
Sheet 6
Sheet 7
Lewis & Clark Hwy.
Evergreen Hwy.
S.P.&S. RR.
300'
ELEVATION

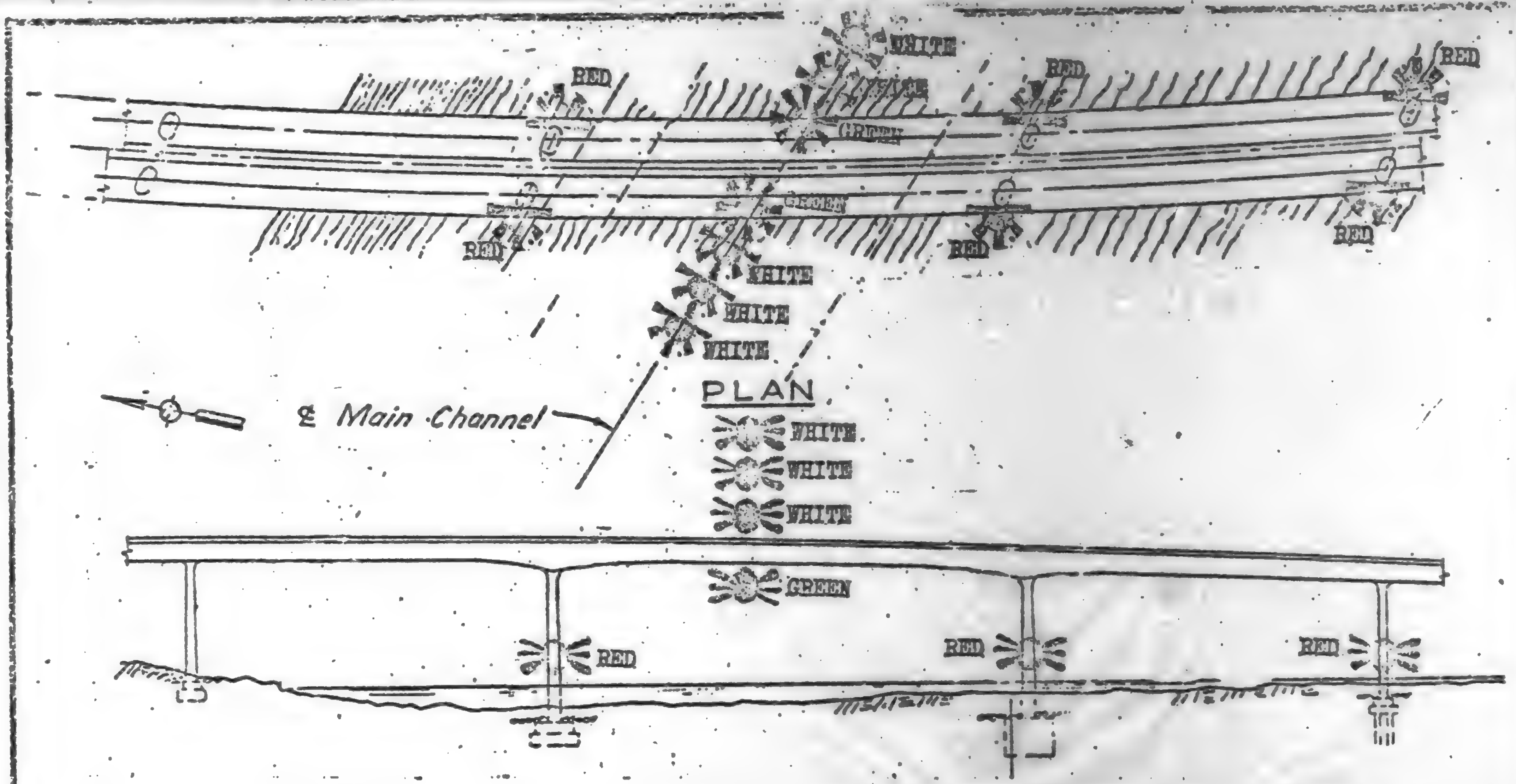
NOTE:
SEE SHEETS 2 THROUGH 7

Navigation Lights approved as shown.
Date: 9 December 1976

R. C. Walton
R. C. WALTON, CDR, USCG
By direction

OREGON STATE HIGHWAY BRIDGE
INTERSTATE I-205
APPROVED NAVIGATION LIGHTS
MILE 112.7
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY.

SHEET 1 OF 7



RED
WHITE
RED
RED
GREEN
WHITE
RED
RED
GREEN
RED
RED
WHITE
WHITE
WHITE
℄ Main Channel
WHITE
WHITE
WHITE
GREEN
RED
RED
RED

PLAN

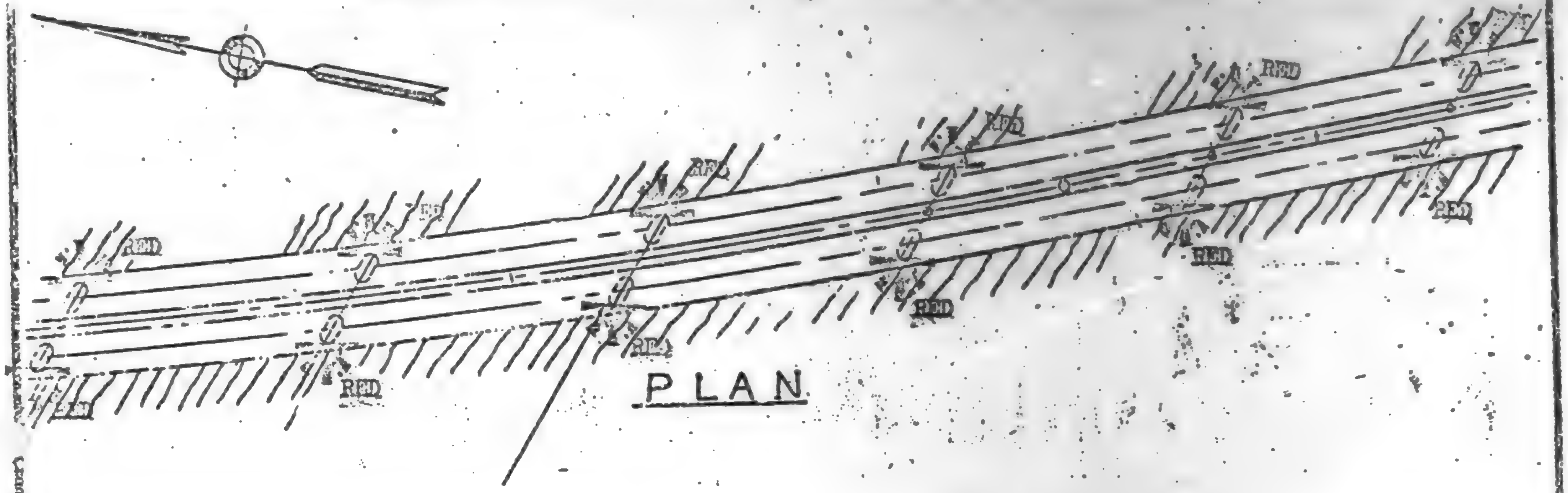
ELEVATION

Navigation Lights approved as shown.
Date: 9 December 1976

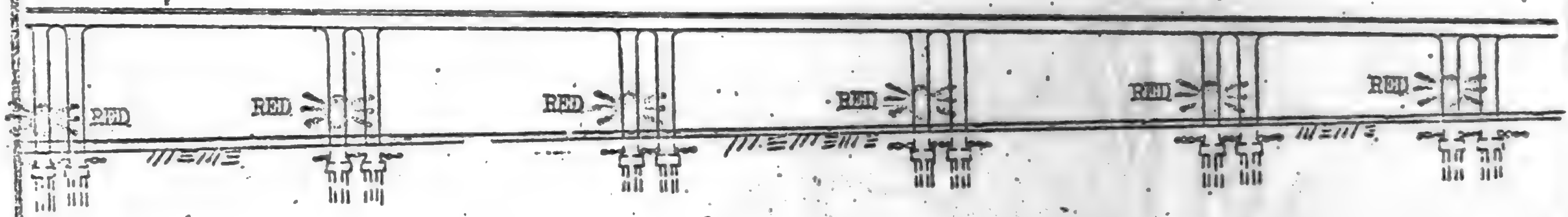
R C Walton
R. C. WALTON, CDR, USCG
By direction

COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY

SHEET 2 OF 7


RED
RED
RED
RED
RED
RED
RED
RED
RED
RED
RED
RED

PLAN


RED
RED
RED
RED
RED
RED

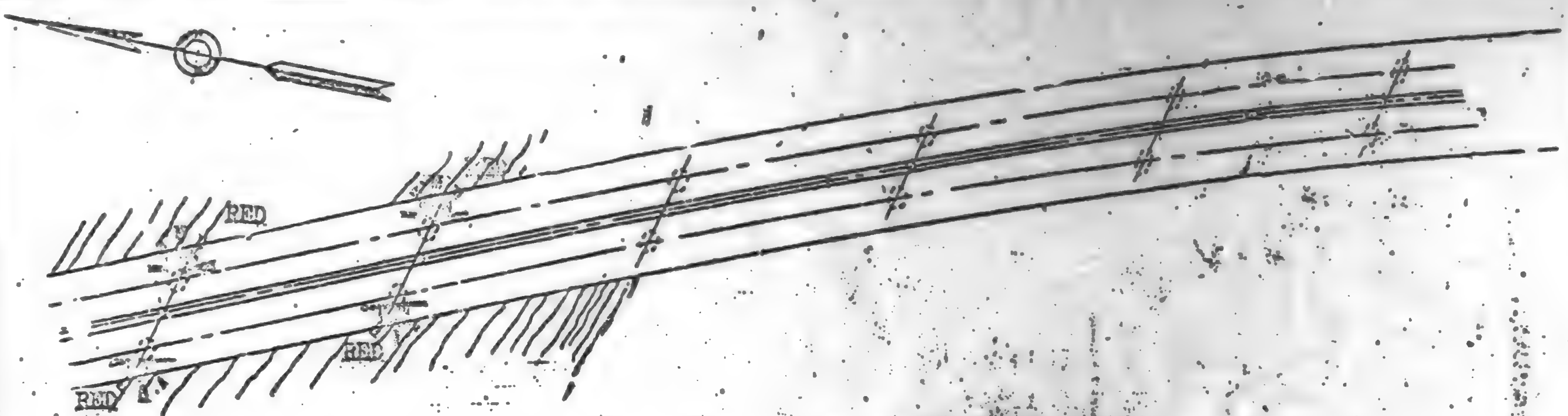
ELEVATION

Navigation Lights approved as shown.
Date: 9 December 1976

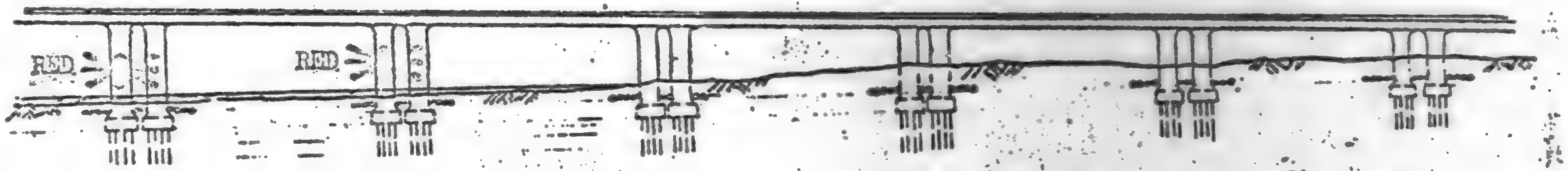
R C Walton
R. C. WALTON, CDR, USCG
By direction

COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY

SHEET 3 OF 7



PLAN



ELEVATION

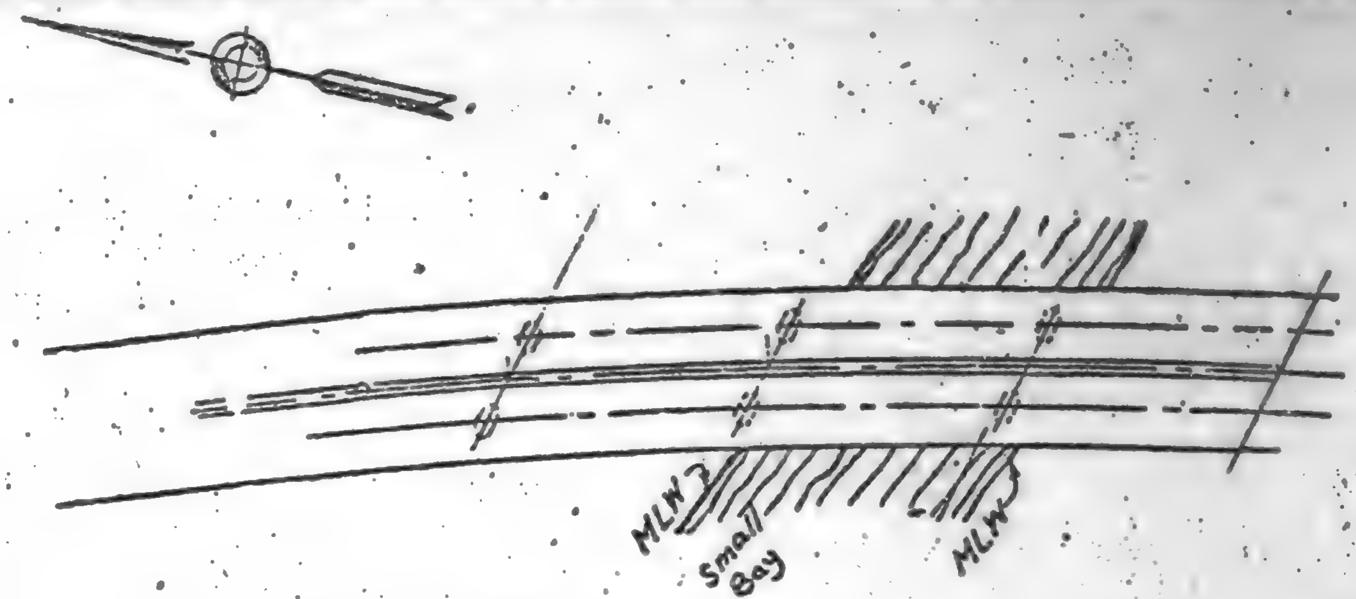
Navigation Lights approved as shown.
Date: 9 December 1976

R. C. Walton

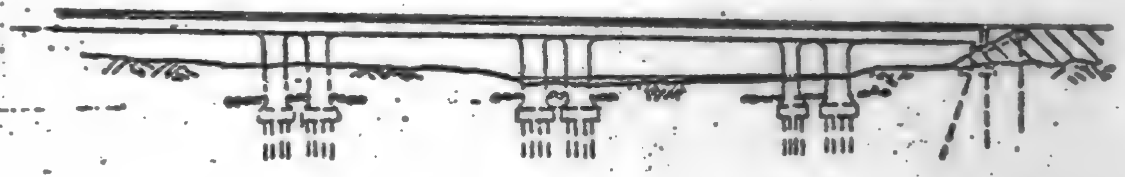
R. C. WALTON, CDR, USCG
By direction

COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY

SHEET 4 OF 7



PLAN



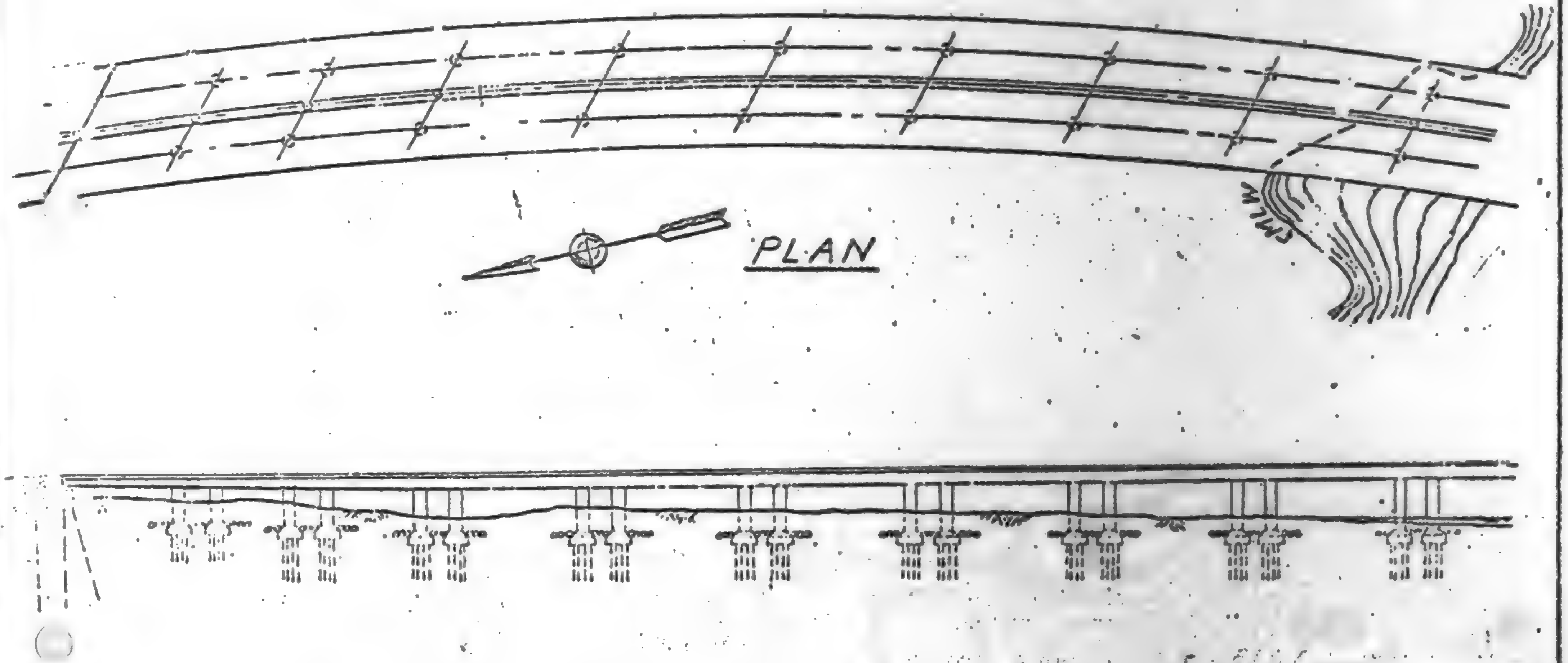
ELEVATION

Navigation Lights approved as shown.
Date: 9 December 1976

R C Walton
R. C. WALTON, CDR, USCG
By direction

COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY

SHEET 5 OF 7

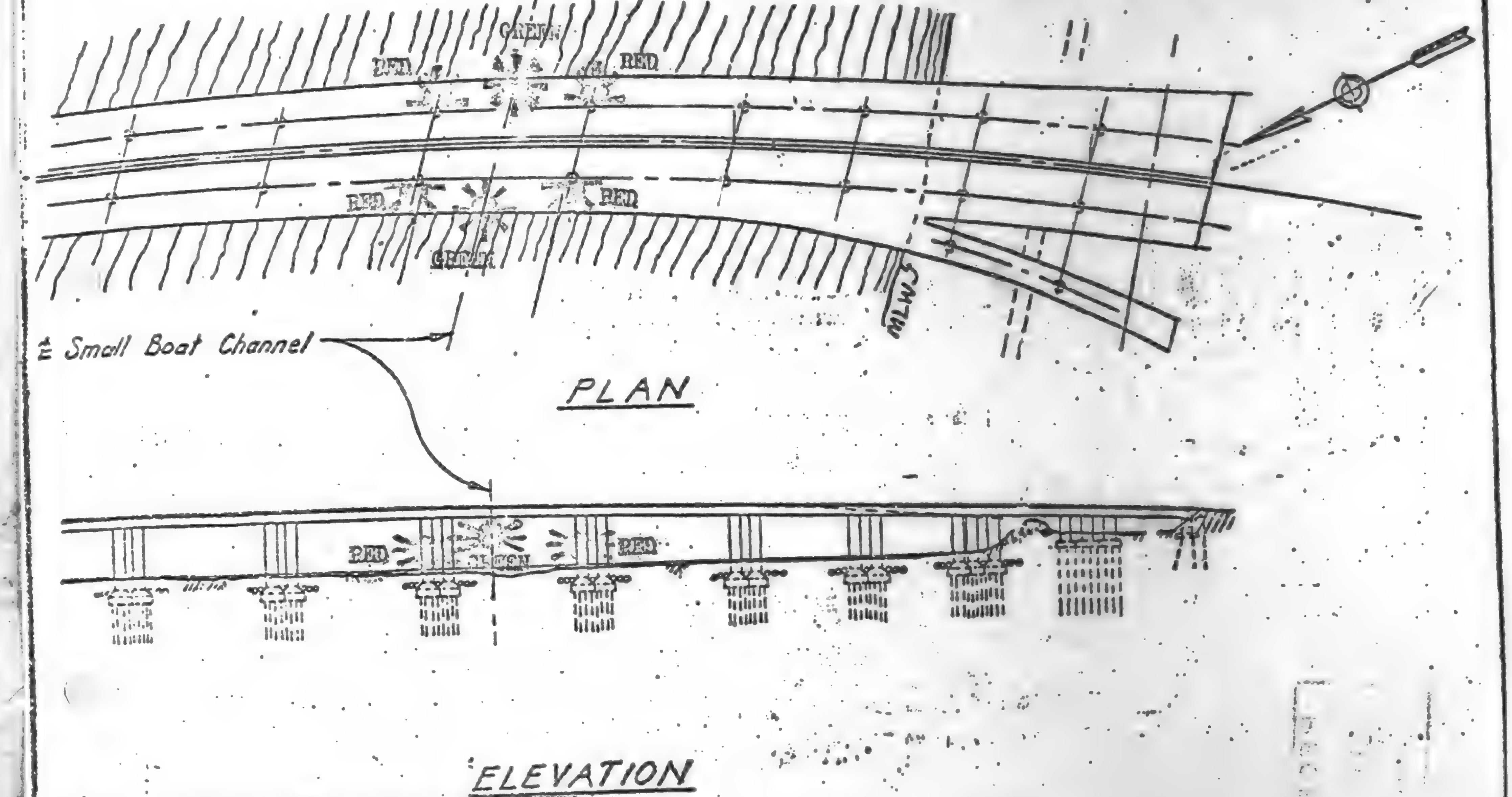


Navigation Lights approved as shown.
Date; 9 December 1976

R. C. Walton
R. C. WALTON, CDR, USCG
By direction

COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY

SHEET 6 OF 7


GREEN
RED
RED
RED
RED
GREEN
MLWS
℄ Small Boat Channel
PLAN
RED
GREEN
RED
ELEVATION

Navigation Lights approved as shown.
Date: 9 December 1976

R C Walton
R. C. WALTON, CRR, USCG
By direction

COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY

SHEET 7 OF 7

8905.

8

FORM 81-734-3030

OREGON STATE HIGHWAY DIVISION
INTER-OFFICE CORRESPONDENCE
Salem, Oregon
December 9, 1976

FILE:

BR 9555

ORIGINAL SIGNED
R.W. ELLISON

FROM: R. W. Ellison
Acting Bridge Engineer

SUBJECT: Columbia River (I-205) Bridge
Bridge 9555
Coast Guard Permit

TO:
Mr. R. N. Bothman
Assistant State Highway Engineer
METRO

NOTED
E. S. HUNTER

Attached is a copy of the revised Coast Guard permit for the subject structure dated November 30, 1976. Revised navigation lighting requirements will be transmitted to us by the Coast Guard in about one week.

I have contacted the Coast Guard about the falsework clearance drawings which they did not approve. It is their desire that we resubmit the drawings after the preconstruction conference. Any revisions resulting from the conference can be made prior to submittal.

The Coast Guard has requested notice of commencement of construction and the usual monthly progress reports (sketch type). Such reports are normally submitted through this office.

RWE:dh
Attachment

cc E. S. Hunter /w/ attach.
D. H. Moehring /w/ attach.
W. J. Hart /w/ attach.
John Howard /w/ attach.
L. L. Wallace
P. M. Oakley
C. T. Keasey
J. E. Backstrand

RECEIVED
STATE HWY ENGR
DEC 10 '76
REFER TO
FOR

Info	Inves	R/D	D/R	Sign	Act	File

DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

MAILING ADDRESS:
COMMANDER (oan)
THIRTEENTH COAST GUARD DISTRICT
915 SECOND AVE.
SEATTLE, WASH. 98174
PHONE: (206) 442-5864

RECEIVED
STATE HWY ENGR
DEC 8 '76
REFER TO
Ellison
FOR

Info	Inves	R&D	D/R	Sign	Att	File
					✓	

16591
Serial 676
6 December 1976

cy Parfin
12-8-76

NOTED
E. S. HUNTER

Oregon State Highway Division
Attention: Mr. R. L. Porter
State Highway Engineer
Highway Building
Salem, Oregon 97310

Gentlemen:

Please find enclosed an amendment P(41-70a) to the permit for your proposed bridge across the Columbia River at Mile 112.7 between Portland, Oregon and Vancouver, Washington. Your attention is directed to the special conditions of the permit amendment.

Falsework will be required to accomplish the construction. Six sheets of drawings describing the proposed falsework, dredging, cofferdam and work trestles were submitted with the bridge permit amendment application. These drawings were included with our Public Notice describing the proposed bridge and work in the river. These ✓ six drawings, which are separate from the bridge permit, are returned for your use when requesting falsework approval. The falsework permit can be issued by this office and normally no additional Public Notice is required. Usually a permit for falsework can be issued within one week.

It is requested you inform me at the time of start of construction and at monthly intervals until completion of the work. It is suggested the report include a xerox copy of permit drawings with color pencil marking of the work performed. A final report is required on completion stating the bridge was constructed according to the approved plans.

Sincerely,

R. C. Walton
R. C. WALTON
Commander, U. S. Coast Guard
Chief, Aids to Navigation Branch
By direction of the District Commander

Encl:
(1) Bridge Permit Amendment P(41-70a)

Copy to:
Portland District, Corps of Engineers

DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

MAILING ADDRESS:
U.S. COAST GUARD
WASHINGTON, D.C. 20590
PHONE:

AMENDMENT TO BRIDGE PERMIT
P(41-70a)

30 NOV 1976

WHEREAS by a permit issued on 20 May 1970, the Commandant of the Coast Guard approved the location and plans of dual bridges to be constructed by the State of Oregon across the Columbia River and Columbia Slough between Vancouver, Washington and Portland, Oregon, under the authority of the General Bridge Act of 1946;

AND WHEREAS condition 1 of that permit provides that no deviation from the approved plans shall be made either before or after completion of the structures unless the modification of said plans has previously been submitted to and received the approval of the Commandant;

AND WHEREAS condition 5 of that permit fixed the time for commencing construction of said bridges at 20 May 1973;

AND WHEREAS the - STATE OF OREGON - has submitted for approval revised plans and a map of location for modification to the previously approved plans and requests that the time for commencing construction of the bridges be extended;

NOW THEREFORE, This is to certify that the location and plan sheets 1, 2, 4, 6, 7, 8, 9, 10, 11 and 12 (of 12) dated August 1975 and sheets 3 and 5 revised May 1976 hereby approved supersede the plans previously approved. In granting this approval, all conditions to which the original permit was subject are superseded by the following conditions:

1. No deviation from the approved plans may be made either before or after completion of the structures unless the modification of said plans has previously been submitted to and received the approval of the Commandant.

2. All work shall be so conducted that the free navigation of the waterways is not unreasonably interfered with and the present navigable depths are not impaired. The construction of falsework, pilings or other obstructions, if required, shall be accomplished in accordance with plans submitted to and approved by the Commander, Thirteenth Coast Guard District prior to construction of the bridges. The channel or channels through the structures shall be promptly cleared of all obstructions placed therein or caused by the construction of the bridges to the satisfaction of the District Commander, when in his judgment the construction work has reached a point where such action should be taken, but in no case later than ninety days after the bridges have been opened to traffic.

30 NOV 1976

BRIDGE PERMIT: Dual bridges across the Columbia River and Columbia
(41-70a) Slough between Vancouver, Washington and Portland, Oregon

3. Issuance of this permit does not relieve the permittee of the obligation or responsibility for compliance with the provisions of any other law or regulation as may be under the jurisdiction of the U.S. Army Corps of Engineers, Portland District; Oregon Division of State Lands, or any other federal, state or local authority having cognizance of any aspect of the location, construction or maintenance of said bridges.

4. Clearance gauges shall be installed and maintained in a good legible condition by and at the expense of the owner of the bridges. The Commander, Thirteenth Coast Guard District will specify the type of gauges and location in which they are to be installed.

5. A bridge fendering system shall be installed and maintained in good condition by and at the expense of the owner of the bridges when so required by the Commander, Thirteenth Coast Guard District. Said installation shall be for the safety of navigation and be in accordance with plans submitted to and approved by the Commandant prior to its construction.

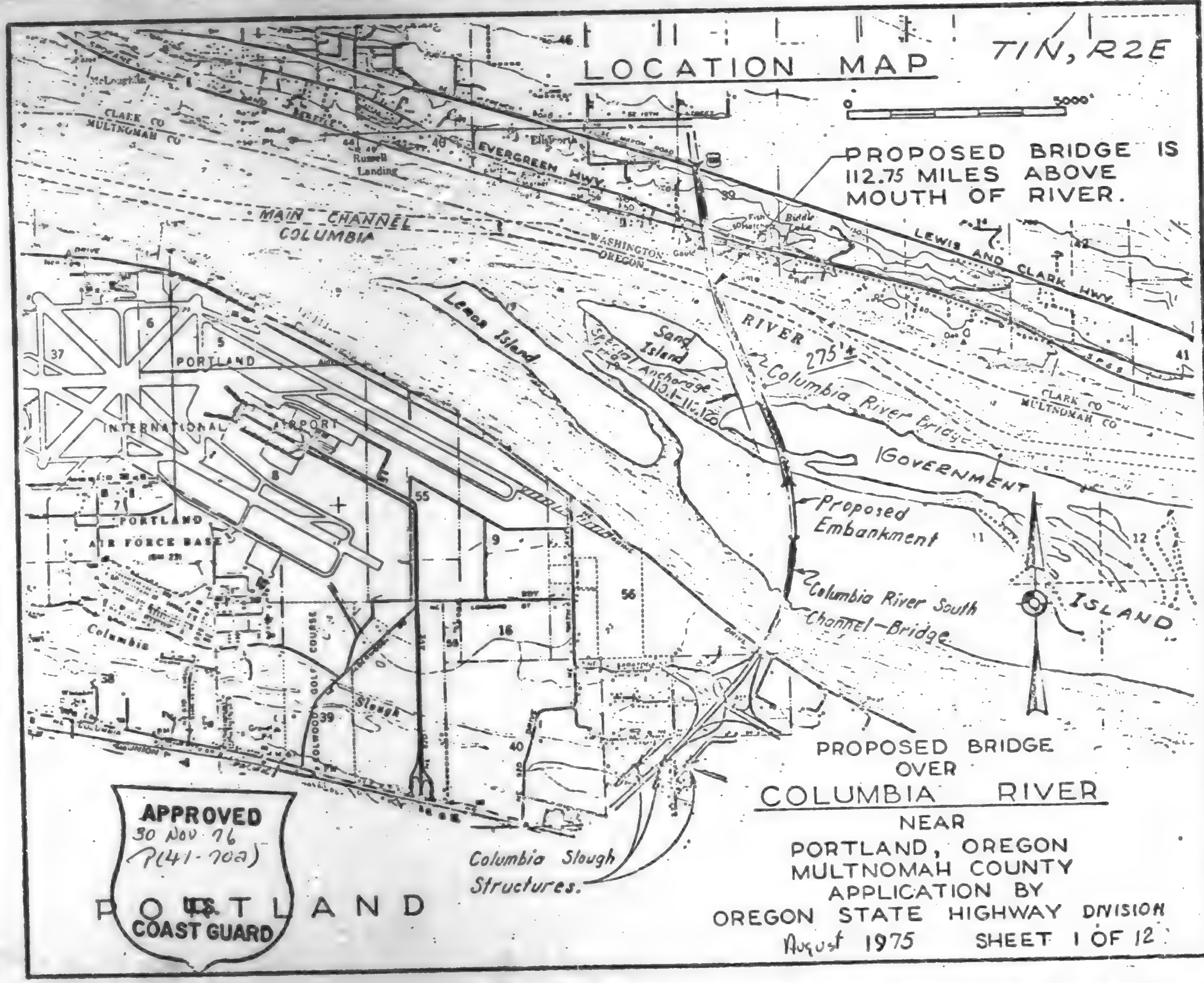
6. The approval hereby granted shall cease and be null and void unless construction of the bridge project is commenced within 5 years and completed within 10 years after the date of this permit.

R D Hodges

R. D. HODGES
Captain, U.S. Coast Guard
Chief, Bridge Division
By direction of the Commandant

LOCATION MAP

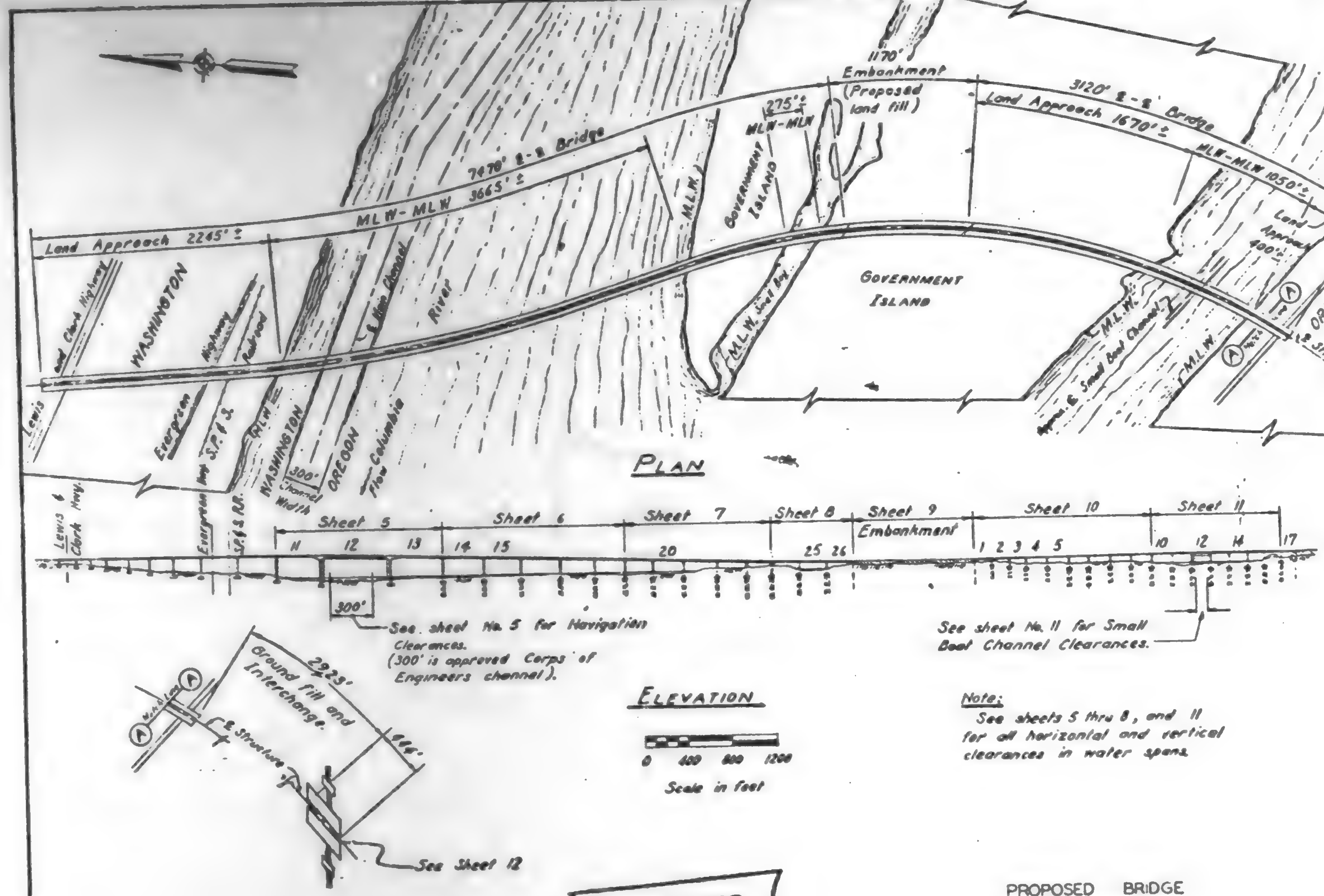
T1N, R2E


0
5000'
McLoughlin
CLARK CO
MULTNOMAH CO
Russell Landing
Ellsworth
EVERGREEN HWY.
MAIN CHANNEL
COLUMBIA
WASHINGTON
OREGON
LEWIS AND CLARK HWY.
Fish Hatchery
Biddle Lake
Lemon Island
Sand Island
Special Anchorage 113.1-116.26
RIVER
275' ±
Columbia River Bridge
CLARK CO
MULTNOMAH CO
GOVERNMENT
ISLAND
Proposed Embankment
Columbia River South Channel-Bridge
PORTLAND
INTERNATIONAL AIRPORT
PORTLAND AIR FORCE BASE
Columbia
Slough
GOLF COURSE
Columbia Slough Structures.
PORTLAND
6
5
37
8
7
9
55
56
16
39
40
38
41
42
11
12

PROPOSED BRIDGE IS
112.75 MILES ABOVE
MOUTH OF RIVER.

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
August 1975 SHEET 1 OF 12

APPROVED
30 Nov 76
P(41-70a)
U.S.
COAST GUARD

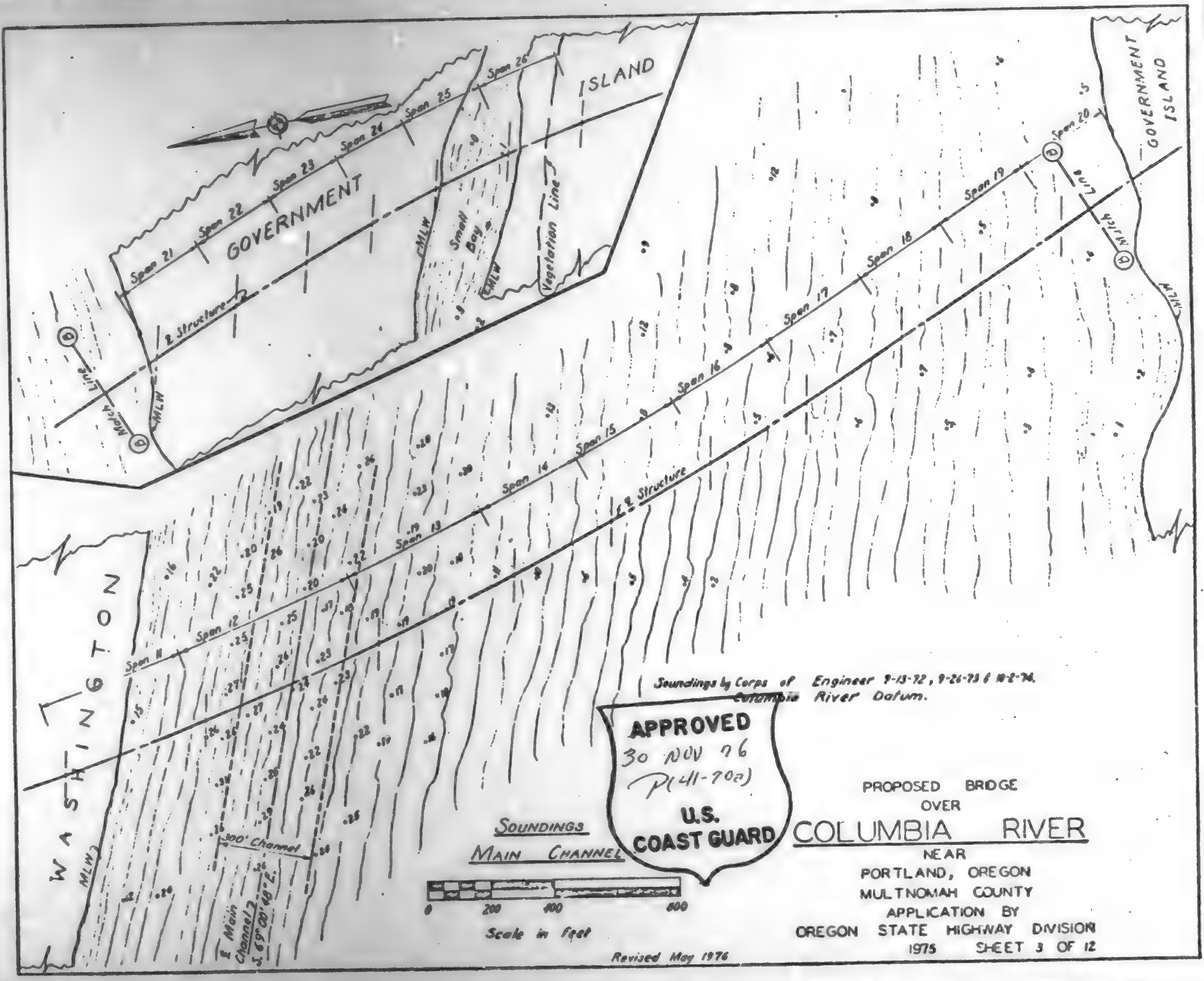


1170'
Embankment
(Proposed land fill)
3120' ±-± Bridge
Land Approach 1670'±
MLW-MLW 1050'±
Land Approach 400'±
275'±
MLW-MLW
7470' ±-± Bridge
MLW-MLW 3665'±
Land Approach 2245'±
M.L.W.
Government Island
GOVERNMENT ISLAND
M.L.W. Small Bay
M.L.W.
Small Boat Channel
M.L.W.
OREGON
℄ Structure
WASHINGTON
Lewis and Clark Highway
Evergreen Highway
Railroad
S.P. & S.
M.L.W.
WASHINGTON
OREGON
300' Channel Width
Columbia Main Channel
Columbia River
Flow
PLAN
Lewis & Clark Hwy.
Evergreen Hwy.
S.P. & S. R.R.
Sheet 5
Sheet 6
Sheet 7
Sheet 8
Sheet 9
Embankment
Sheet 10
Sheet 11
11
12
13
14
15
20
25
26
1
2
3
4
5
10
12
14
17
300'
See sheet No. 5 for Navigation Clearances. (300' is approved Corps of Engineers channel).
See sheet No. 11 for Small Boat Channel Clearances.
ELEVATION
0
400
800
1200
Scale in feet
2923'
Ground fill and Interchange.
℄ Structure
886'
See Sheet 12
PLAN
Columbia Slough Structures

Note:
See sheets 5 thru 8, and 11 for all horizontal and vertical clearances in water spans.

APPROVED
30 NOV 76
P(41-70a)
U.S.
COAST GUARD

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
August 1975 SHEET 2 OF 12


GOVERNMENT ISLAND
GOVERNMENT ISLAND
WASHINGTON
Span 11
Span 12
Span 13
Span 14
Span 15
Span 16
Span 17
Span 18
Span 19
Span 20
Span 21
Span 22
Span 23
Span 24
Span 25
Span 26
℄ Structure
℄ Structure
Match Line
Match Line
MLW
Small Bay
Vegetation Line
300' Channel
℄ Main Channel S 69° 00' 48" E
0 200 400 800
Scale in Feet

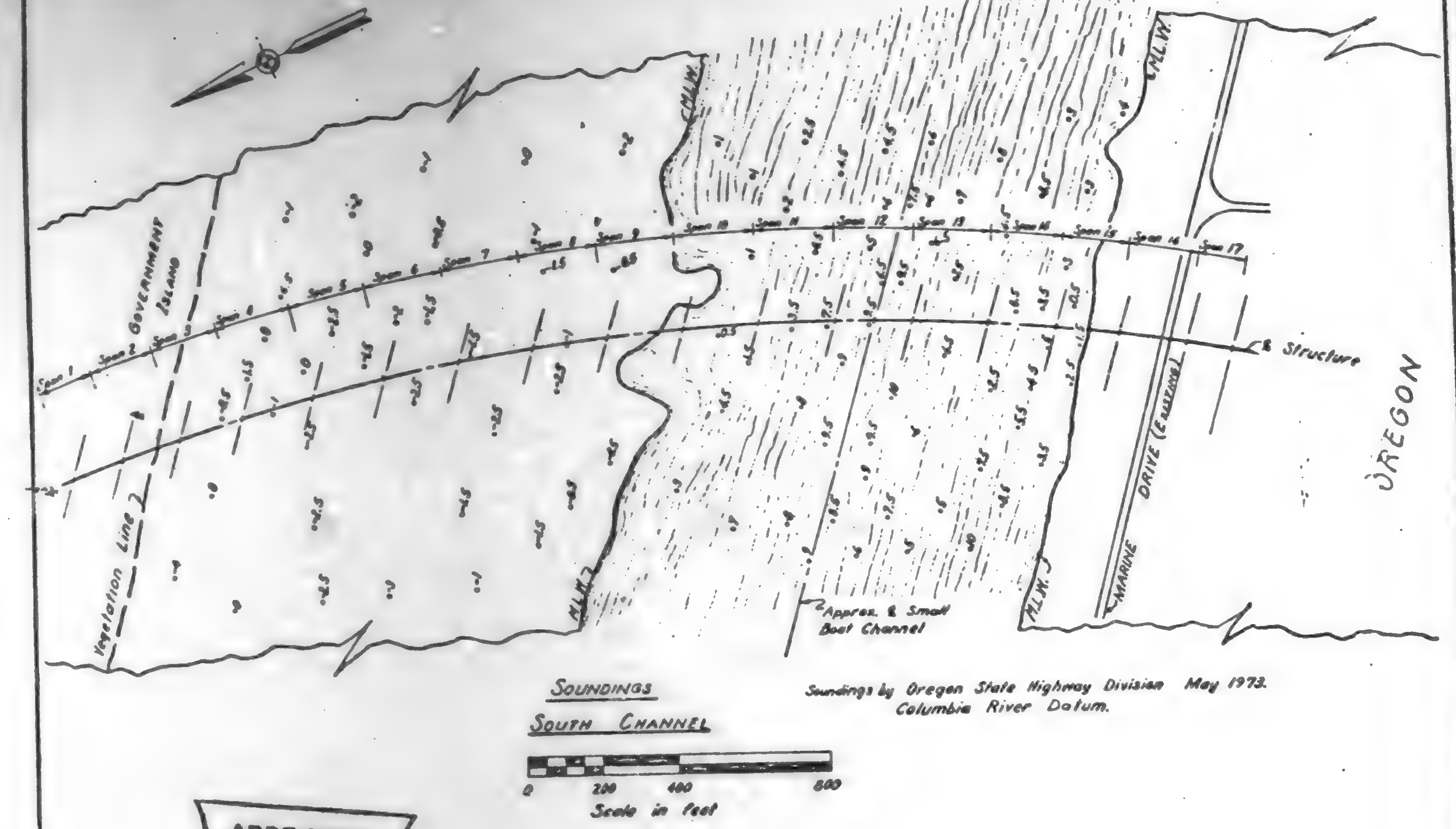
Soundings by Corps of Engineer 9-13-72, 9-26-73 & 10-2-74. Columbia River Datum.

APPROVED
30 NOV 76
P(41-70a)
U.S.
COAST GUARD

SOUNDINGS
MAIN CHANNEL

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1975 SHEET 3 OF 12

Revised May 1976


OREGON
℄ Structure
Span 1
Span 2
Span 3
Span 4
Span 5
Span 6
Span 7
Span 8
Span 9
Span 10
Span 11
Span 12
Span 13
Span 14
Span 15
Span 16
Span 17
MARINE DRIVE (Eastbound)
M.L.W.
M.L.W.
M.L.W.
M.L.W.
GOVERNMENT ISLAND
Vegetation Line
Approx. ℄ Small Boat Channel
0
200
400
800
Scale in feet

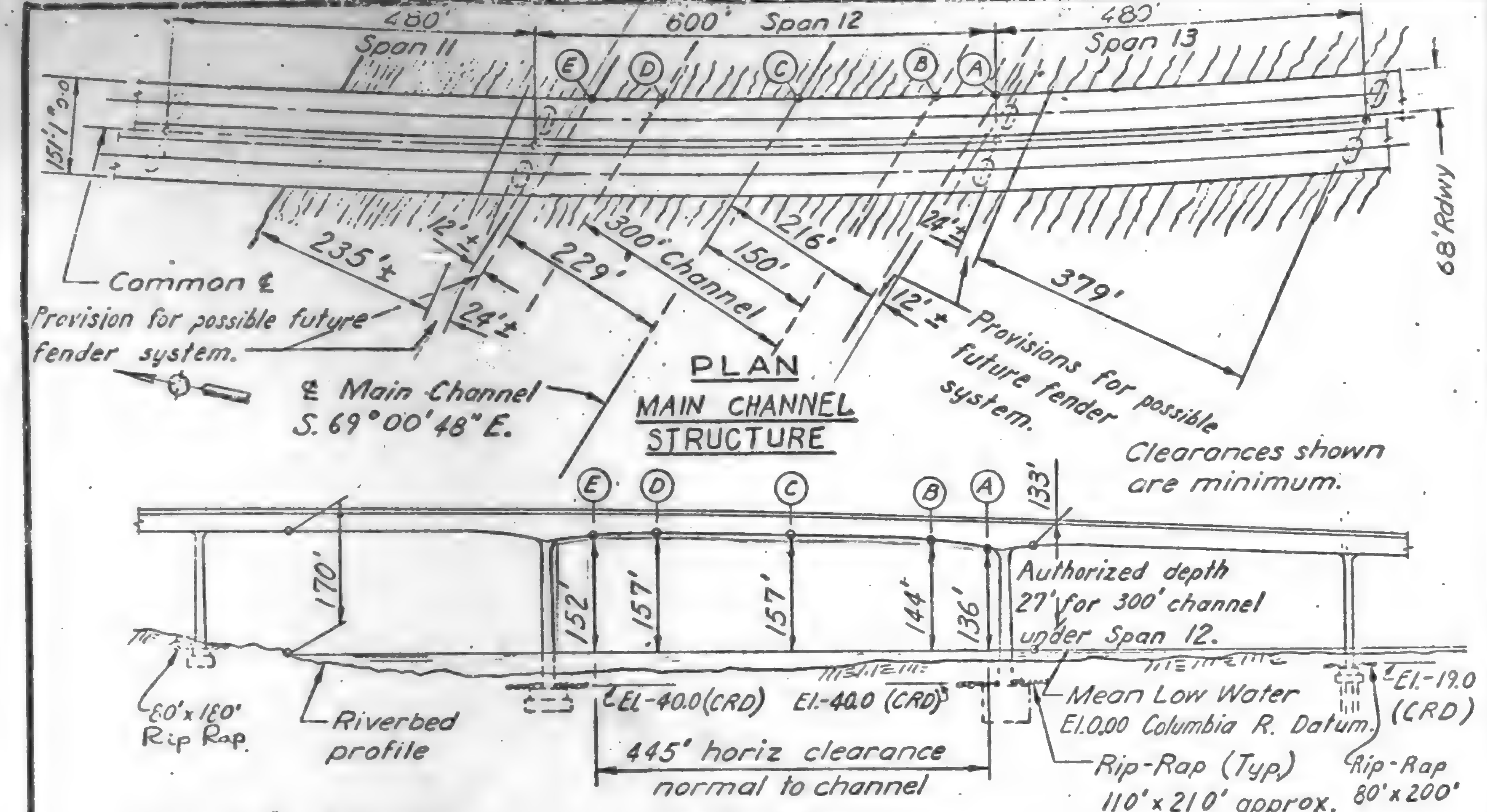
SOUNDINGS

SOUTH CHANNEL

Soundings by Oregon State Highway Division May 1973.
Columbia River Datum.

APPROVED
30 NOV 76
P(41-702)
U.S.
COAST GUARD

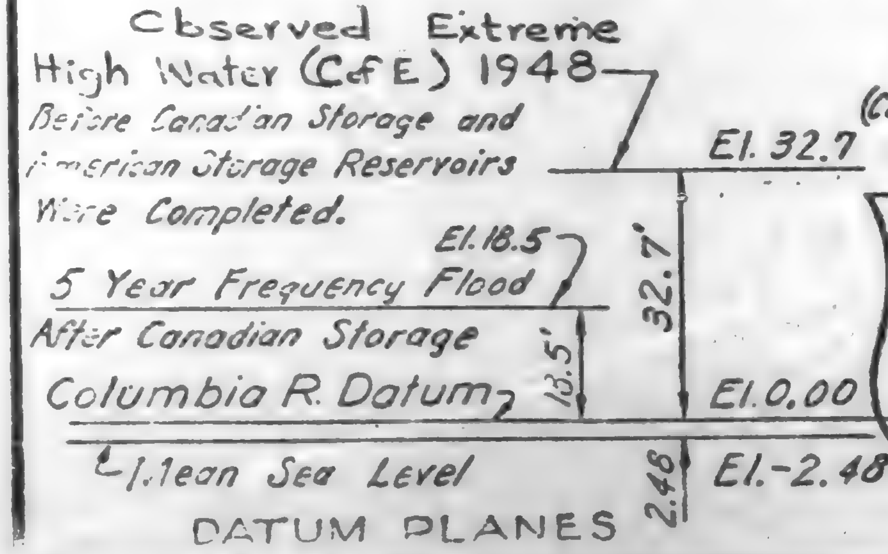
PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
August 1975 SHEET 4 OF 12


480'
Span 11
600'
Span 12
480'
Span 13
Ⓔ
Ⓓ
Ⓒ
Ⓑ
Ⓐ
151'-1" o.c.
68' Rdwy
235'±
12'±
229'
300' Channel
150'
216'
24'±
12'±
379'
24'±
Common ℄
Provision for possible future fender system.
℄ Main Channel S. 69° 00' 48" E.
Provisions for possible future fender system.
Clearances shown are minimum.
133'
170'
152'
157'
157'
144'
136'
Authorized depth 27' for 300' channel under Span 12.
80'x 180' Rip Rap.
Riverbed profile
El-40.0 (CRD)
El-40.0 (CRD)
Mean Low Water El.0.00 Columbia R. Datum.
El.-19.0 (CRD)
445' horiz clearance normal to channel
Rip-Rap (Typ) 110' x 210' approx.
Rip-Rap 80' x 200'

PLAN

MAIN CHANNEL STRUCTURE

ELEVATION

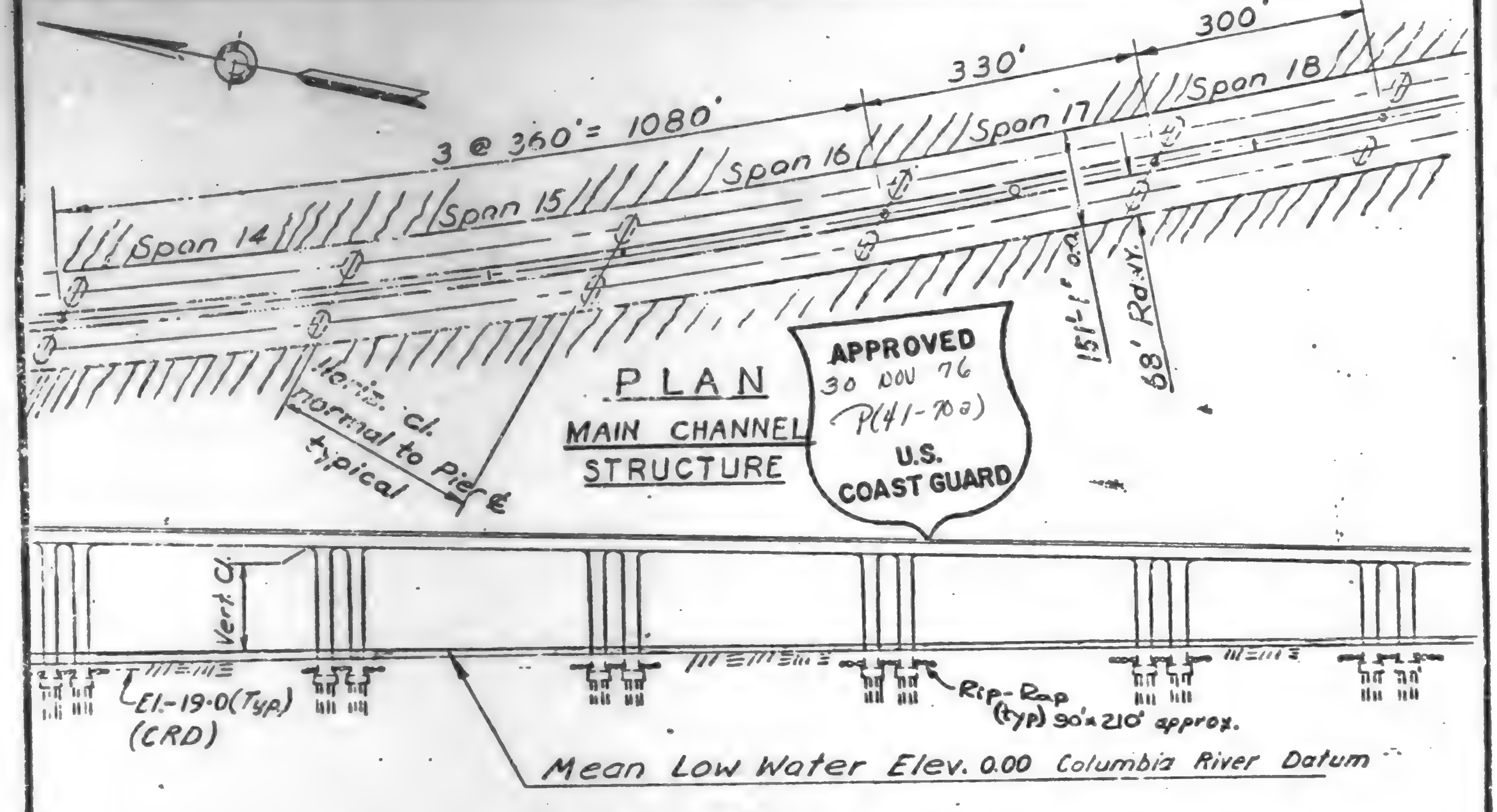

Observed Extreme High Water (C of E) 1948 Before Canadian Storage and American Storage Reservoirs Were Completed.
El. 32.7
(Computed) 100 yr. Flood High Water (C of E)
~~El. 25.9 (1973)~~
El. 18.5
5 Year Frequency Flood After Canadian Storage
Columbia R. Datum
El. 0.00
Mean Sea Level
El. -2.48
32.7'
13.5'
25.9
2.48

DATUM PLANES

APPROVED
30 NOV 76
P(41-76)
U.S. COAST GUARD

SCALE IN FEET
0 100 200 400

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1975
REVISED [illegible] 1976
SHEET 5 OF 12


3 @ 360' = 1080'
330'
300'
Span 14
Span 15
Span 16
Span 17
Span 18
151'-1" o.c.
68' Rdwy.
Horiz. cl. normal to Pier ℄ typical
PLAN
MAIN CHANNEL STRUCTURE
Vert. Cl.
El.-19.0 (Typ.) (CRD)
Rip-Rap (typ) 90'x 210' approx.
Mean Low Water Elev. 0.00 Columbia River Datum

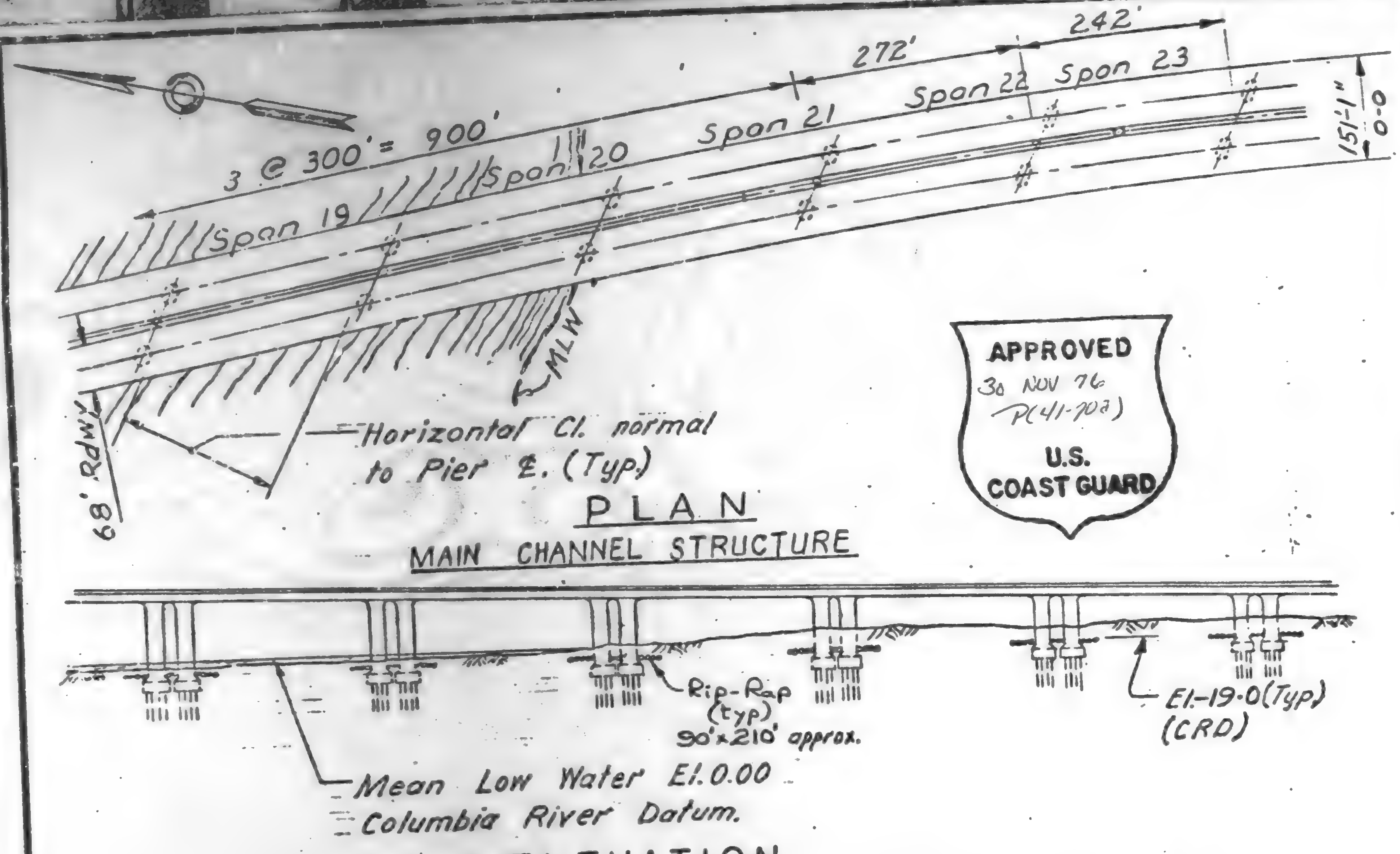
APPROVED
30 NOV 76
P(41-70a)
U.S.
COAST GUARD

ELEVATION

0 100 200 300
Scale in feet

SPAN	HORIZ. CL	VERT. CL.
14	279'	125'
15	274'	116'
16	267'	106'
17	238'	96'
18	214'	90'

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
August 1975
SHEET 6 OF 12


3 @ 300' = 900'
272'
242'
Span 19
Span 20
Span 21
Span 22
Span 23
151'-1"
0-0
68' Rdwy.
MLW
Horizontal Cl. normal to Pier ℄. (Typ.)
Rip-Rap (typ) 90'x210' approx.
El-19.0 (Typ) (CRD)
Mean Low Water El. 0.00 Columbia River Datum.

PLAN

MAIN CHANNEL STRUCTURE

ELEVATION

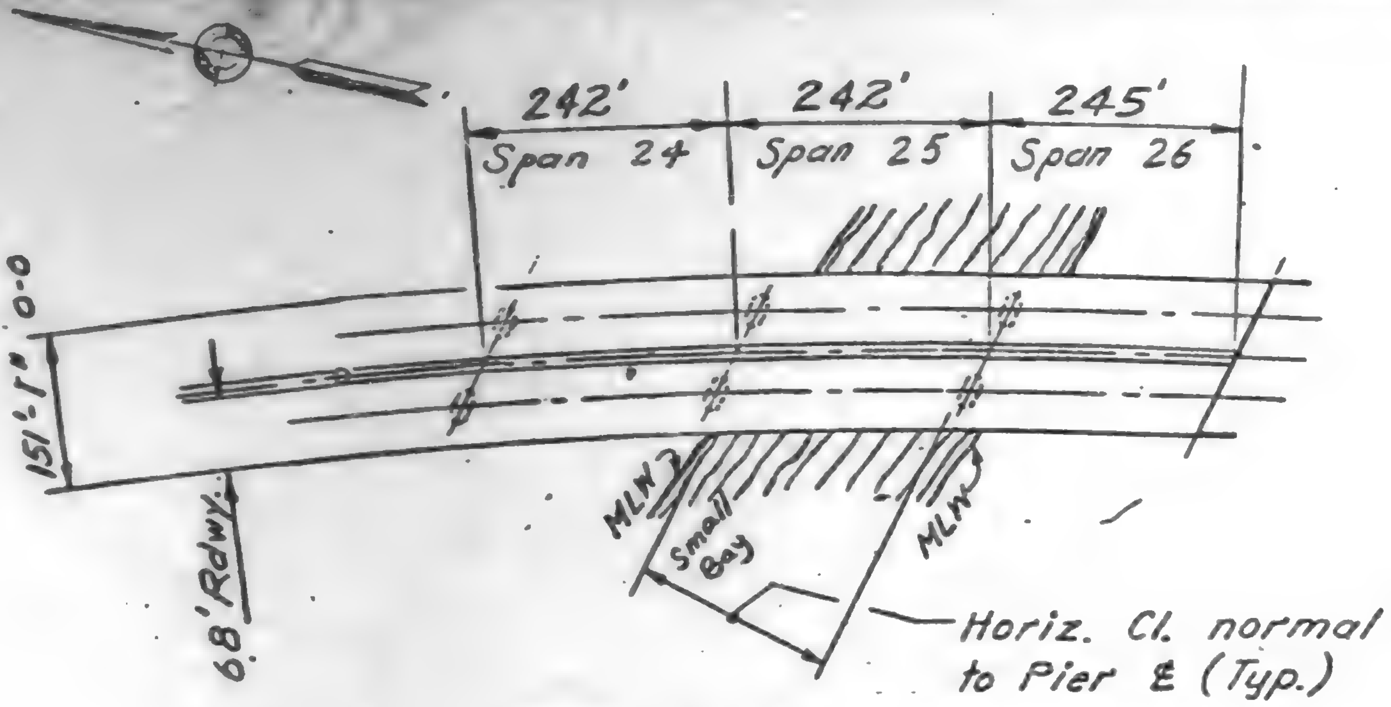
APPROVED
30 NOV 76
P(41-70?)
U.S.
COAST GUARD

0 100 200 300
Scale in Feet

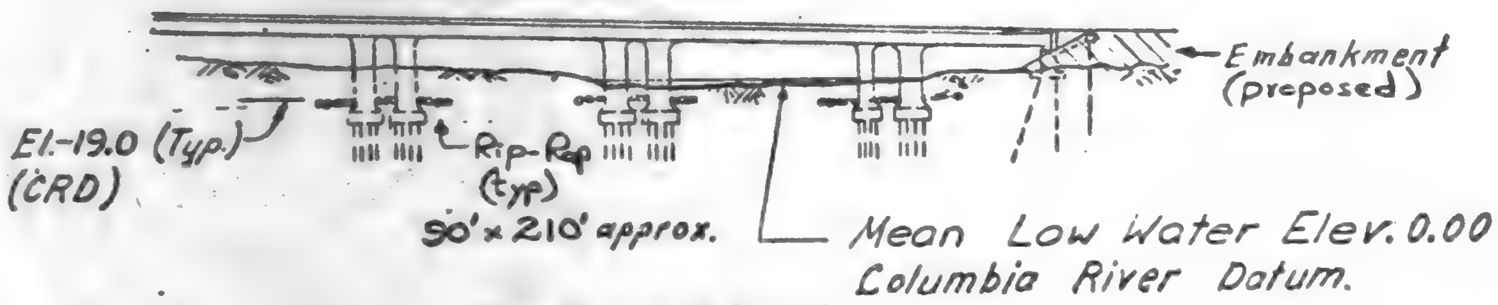
SPAN	HORIZ. CL.	VERT. CL.
19	214'	80'

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
SHEET 7 OF 12
August 1975

APPROVED
30 NOV 76
P(41-70a)
U.S.
COAST GUARD


242'
Span 24
242'
Span 25
245'
Span 26
151'-1" 0-0
68' Rdwy.
MLW
Small Bay
MLW
Horiz. Cl. normal to Pier ℄ (Typ.)

PLAN
MAIN CHANNEL STRUCTURE


Embankment (proposed)
El.-19.0 (Typ.) (CRD)
Rip-Rap (typ)
90' x 210' approx.
Mean Low Water Elev. 0.00 Columbia River Datum.

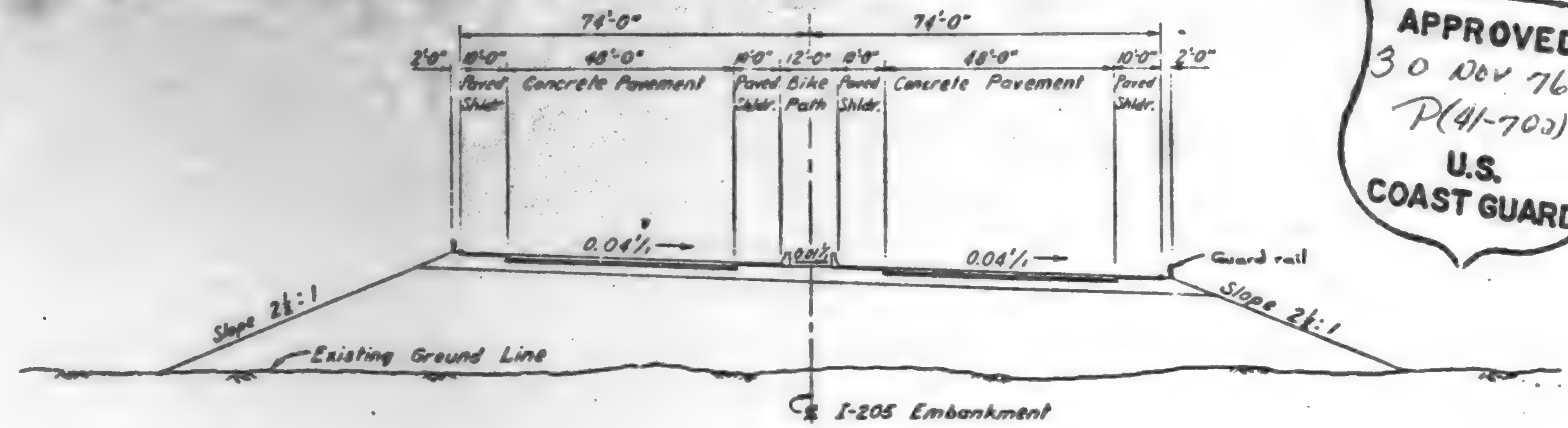
ELEVATION

0 100 200 300
Scale in feet

SPAN	HORIZ. CL.	VERT. CL.
25	196'	35'

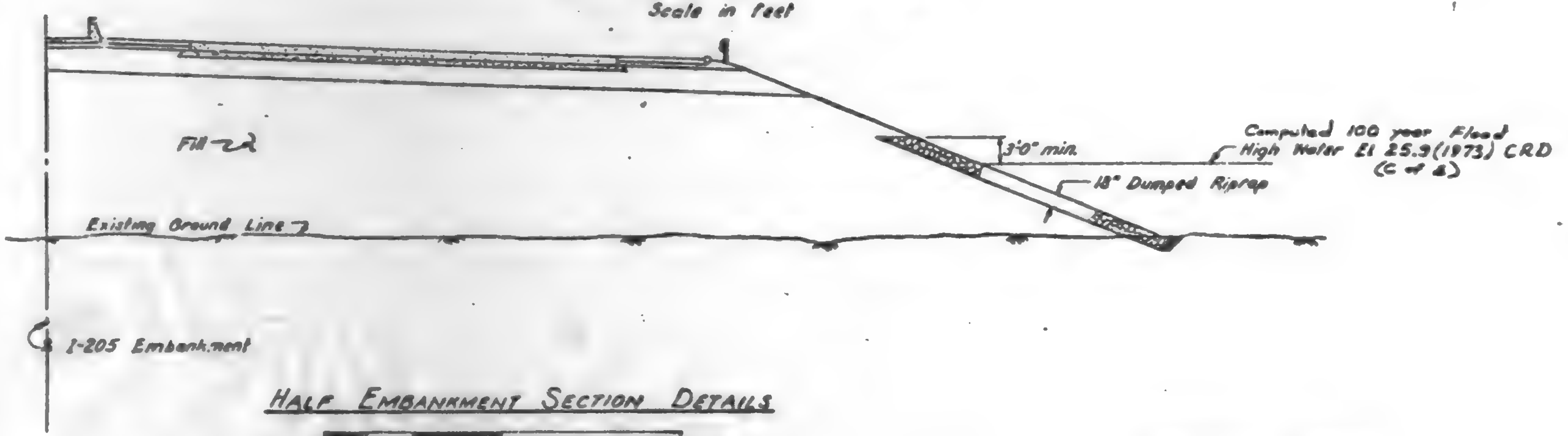
PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
August 1975 SHEET 8 OF 12

APPROVED
30 Nov 76
P(41-703)
U.S.
COAST GUARD


74'-0"
74'-0"
2'-0"
10'-0"
48'-0"
10'-0"
12'-0"
10'-0"
48'-0"
10'-0"
2'-0"
Paved Shldr.
Concrete Pavement
Paved Shldr.
Bike Path
Paved Shldr.
Concrete Pavement
Paved Shldr.
0.04'/1 →
0.04'/1 →
Guard rail
Slope 2½:1
Slope 2½:1
Existing Ground Line
℄ I-205 Embankment

TYPICAL EMBANKMENT SECTION

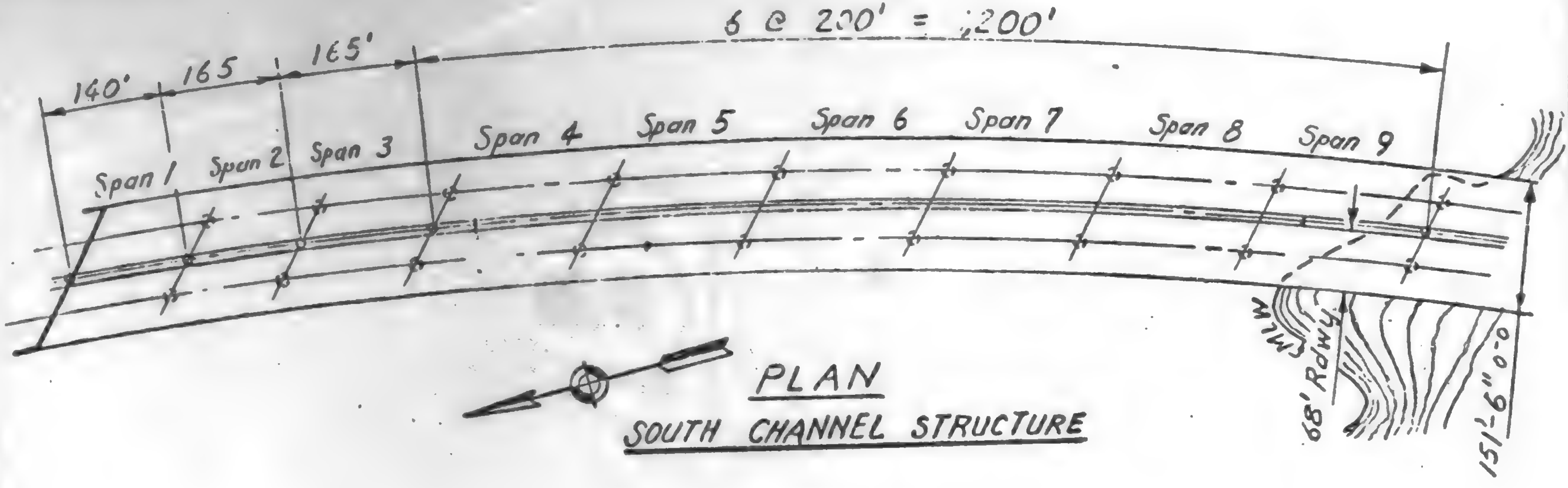
0 20 40 80
Scale in Feet


Fill
3'-0" min.
Computed 100 year Flood High Water El 25.9 (1973) CRD (C of E)
18" Dumped Riprap
Existing Ground Line
℄ I-205 Embankment

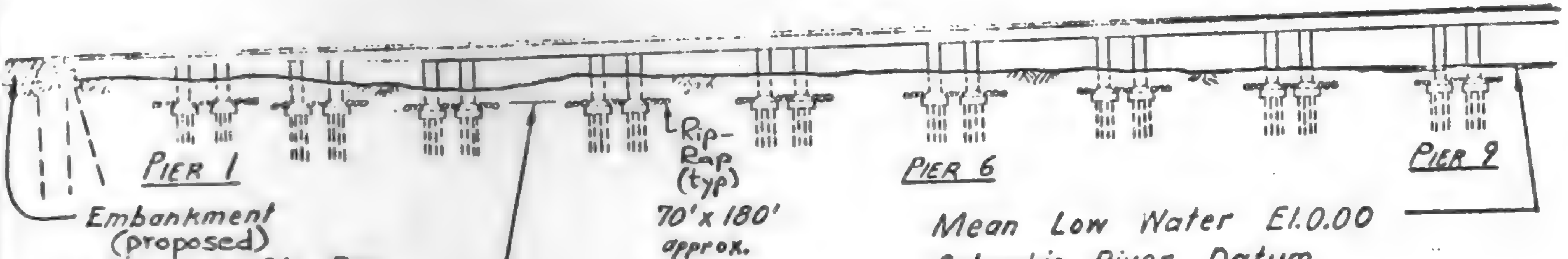
HALF EMBANKMENT SECTION DETAILS

0 10 20 40
Scale in Feet

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
August 1975 SHEET 9 OF 12


6 @ 200' = 1200'
140'
165
165'
Span 1
Span 2
Span 3
Span 4
Span 5
Span 6
Span 7
Span 8
Span 9
MLW
68' Rdwy.
151'-6" o-o

PLAN
SOUTH CHANNEL STRUCTURE

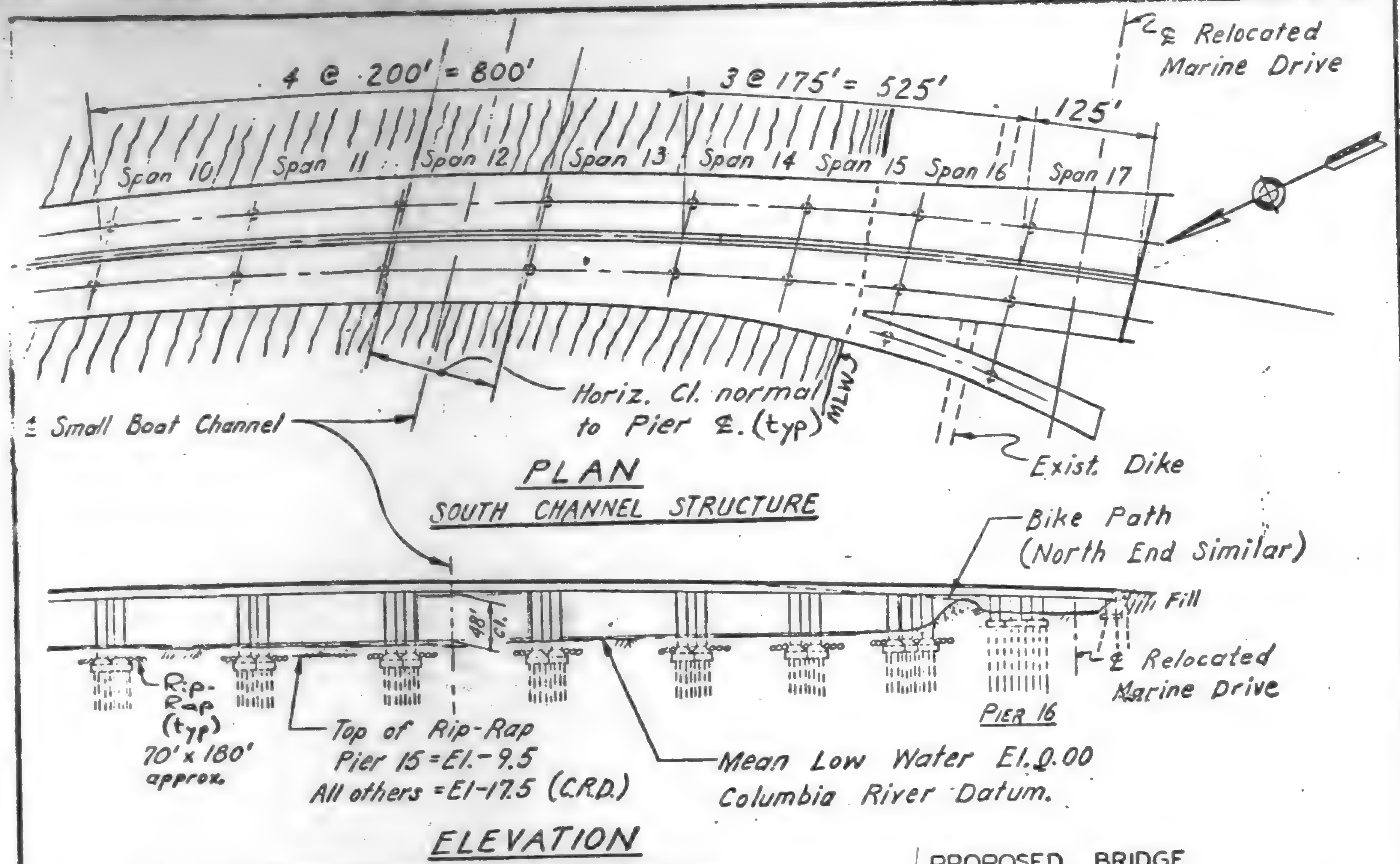

Pier 1
Pier 6
Pier 9
Rip-Rap (typ)
70'x 180' approx.
Embankment (proposed)
Top of Rip Rap
Pier 1 = El. 0.00
Pier 2 = El. - 4.5
All others = El. -17.5
C.R.D.
Mean Low Water El. 0.00
Columbia River Datum.

ELEVATION

0 100 200 300
Scale in feet

APPROVED
30 NOV 76
P(11-702)
U.S.
COAST GUARD

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
August 1975 SHEET 10 OF 12



℄ Relocated Marine Drive
4 @ 200' = 800'
3 @ 175' = 525'
125'
Span 10
Span 11
Span 12
Span 13
Span 14
Span 15
Span 16
Span 17
℄ Small Boat Channel
Horiz. Cl. normal to Pier ℄. (typ)
MLW
Exist. Dike
Bike Path (North End Similar)
Fill
48' Cl.
℄ Relocated Marine Drive
Pier 16
Rip-Rap (typ) 70' x 180' approx.
Top of Rip-Rap Pier 15 = El. -9.5 All others = El -17.5 (C.R.D.)
Mean Low Water El. 0.00 Columbia River Datum.

PLAN
SOUTH CHANNEL STRUCTURE

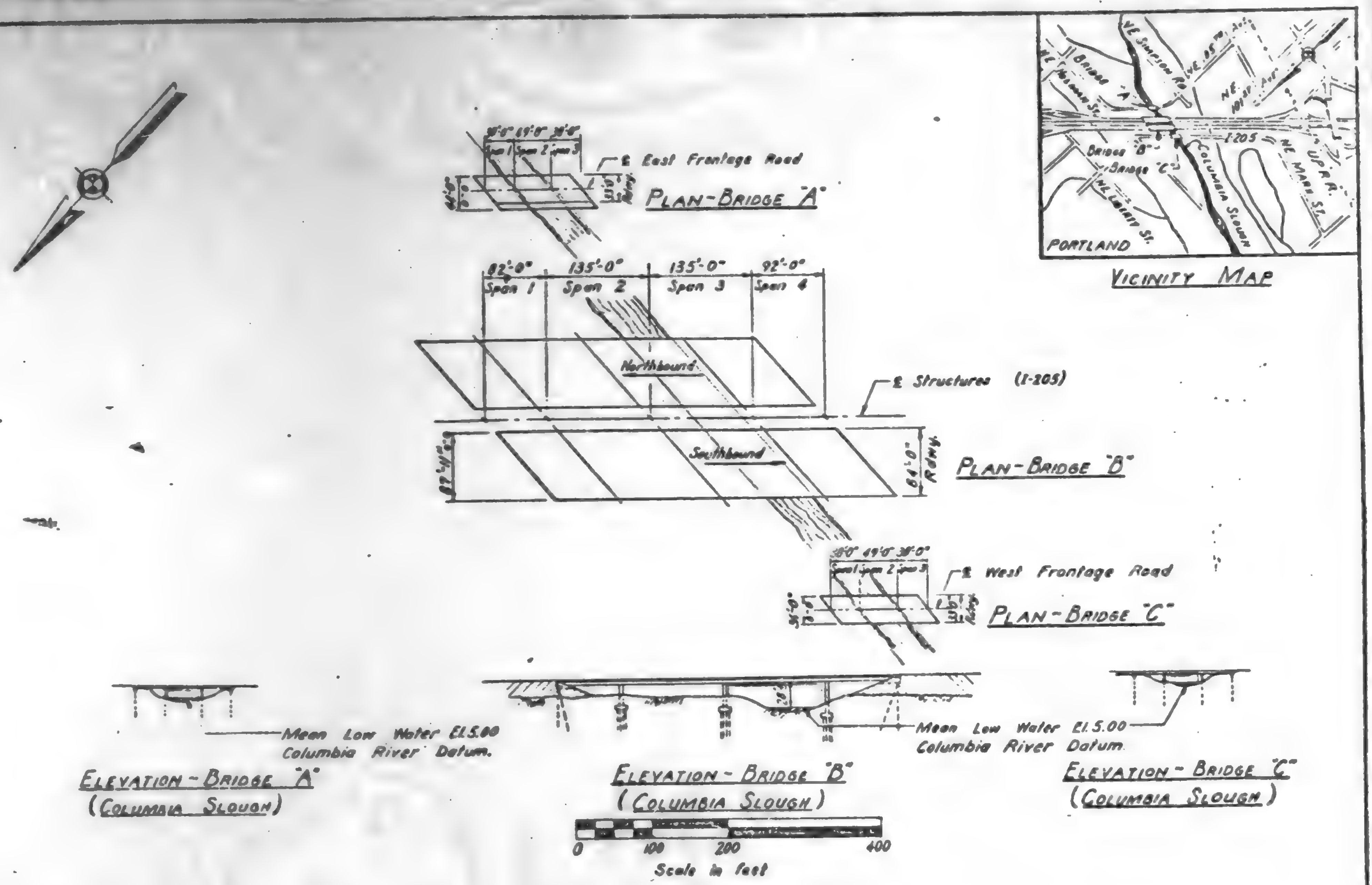
ELEVATION

SPAN	HORIZ. CL.	VERT. CL.
10	170'	46'
11	172'	47'
12	174'	48'
13	176'	45'
14	153'	44'

0 100 200 300
Scale in feet

APPROVED
30 NOV 76
P(41-90a)
U.S.
COAST GUARD

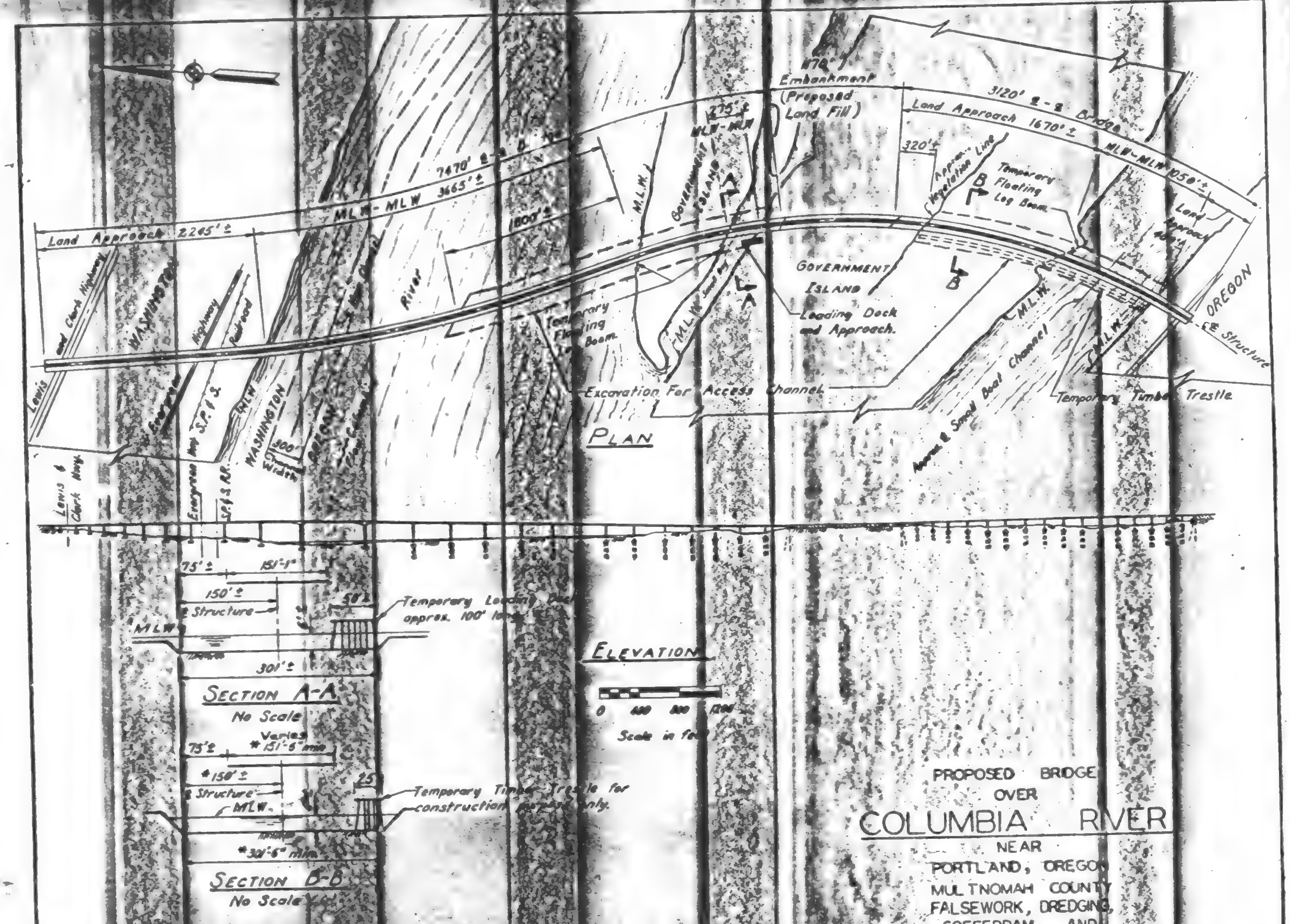
PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
August 1975 SHEET 11 OF 12


Vicinity Map
Portland
NE Simpson Rd
NE 85th Ave
NE 101st Ave
Bridge "A"
NE Holman St
Bridge "B"
Bridge "C"
NE Liberty St
I-205
Columbia Slough
NE Marx St
U.P.R.R.
35'-0" 49'-0" 35'-0"
Span 1 Span 2 Span 3
℄ East Frontage Road
Plan-Bridge "A"
92'-0" 135'-0" 135'-0" 92'-0"
Span 1 Span 2 Span 3 Span 4
Northbound
Southbound
℄ Structures (I-205)
64'-0" Rdwy.
Plan-Bridge "B"
35'-0" 49'-0" 35'-0"
Span 1 Span 2 Span 3
℄ West Frontage Road
Plan-Bridge "C"
Mean Low Water El. 5.00 Columbia River Datum.
Elevation - Bridge "A" (Columbia Slough)
Elevation - Bridge "B" (Columbia Slough)
Elevation - Bridge "C" (Columbia Slough)
0 100 200 400
Scale in feet

BRIDGE	SPAN	HORIZ. CL.	VERT. CL.
A	2	35'	13'
B	3	37'	28'
C	2	30'	11'

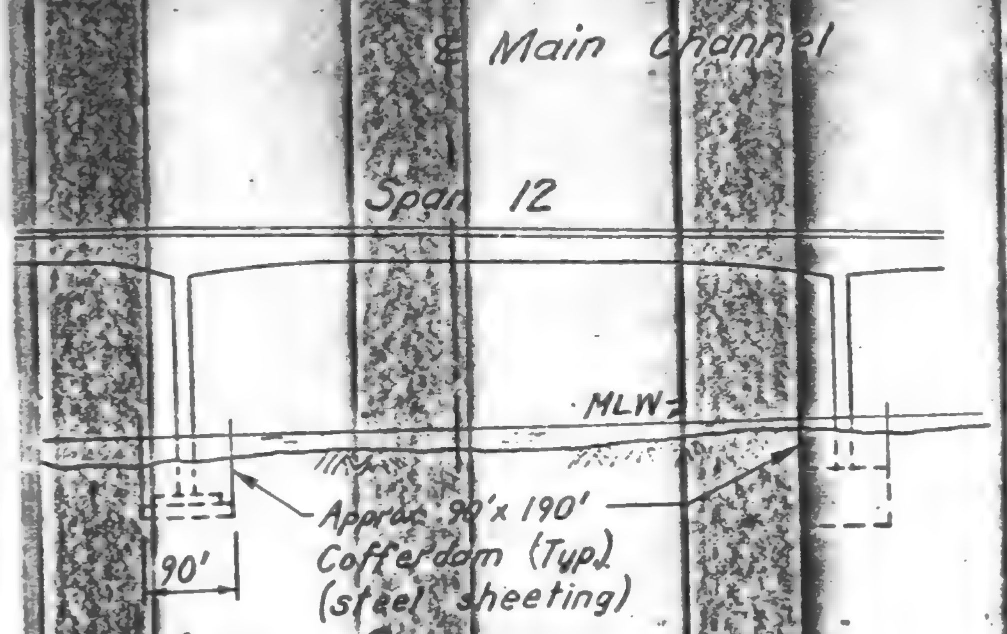
APPROVED
30 NOV 76
P(41-70a)
U.S.
COAST GUARD

PROPOSED BRIDGES
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
August 1975 SHEET 12 OF 12


Land Approach 2245' ±
MLW - MLW 3665' ±
7470' ± ± Bridge
1800' ±
Lewis and Clark Highway
WASHINGTON
Highway
Railroad
Evergreen Hwy
S.P.& S.
S.P.& S. RR.
MLW
WASHINGTON
OREGON
300' Width
River
Temporary Floating Log Boom.
M.L.H.
GOVERNMENT ISLAND
M.L.W.
Excavation For Access Channel
PLAN
1470' Embankment (Proposed Land Fill)
275' ±
MLW-MLW
3120' ± ± Bridge
Land Approach 1670' ±
320' ±
Approx. Vegetation Line
Temporary Floating Log Boom
MLW-MLW 1050' ±
Land Approach
GOVERNMENT ISLAND
Loading Dock and Approach.
A
B
M.L.W.
M.L.H.
Small Boat Channel
Temporary Timber Trestle
OREGON
℄ Structure
Lewis & Clark Hwy.
Evergreen
S.P.& S. RR.
75' ±
151'-1"
150' ±
℄ Structure
50'
MLW
Temporary Loading Dock approx. 100' long
301' ±
SECTION A-A
No Scale
75' ±
Varies
* 151'-6" min.
* 150' ±
℄ Structure
25'
MLW.
Temporary Timber Trestle for construction purposes only.
* 301'-6" min.
SECTION B-B
No Scale
ELEVATION
0
400
800
1200
Scale in feet

Notes:
* Structure width varies spans 8 thru 16 of south channel. Maintain 75' ± channel each side of structure.

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
FALSEWORK, DREDGING,
COFFERDAM AND
WORK TRESTLES
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1975 SUPPLEMENTAL SHEET [illegible] OF 6

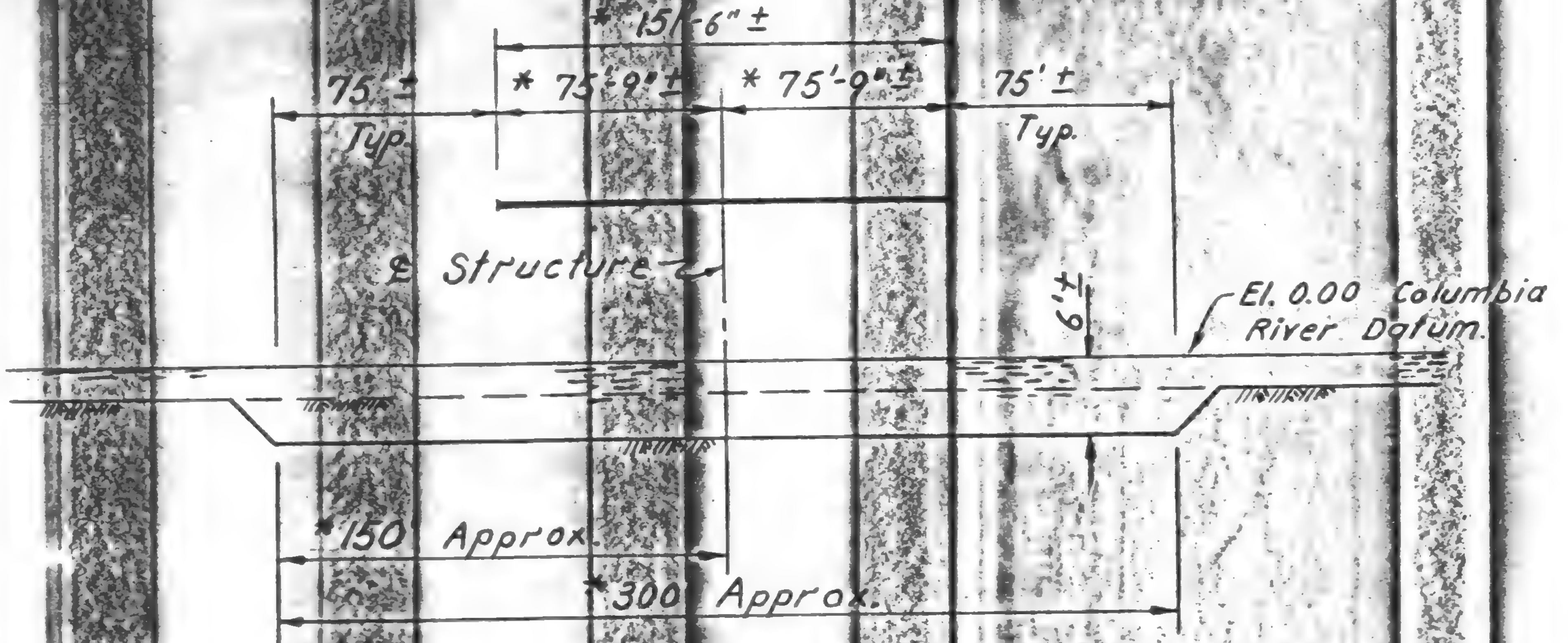

℄ Main Channel
Span 12
MLW
Approx. 90'x 190'
Cofferdam (Typ.)
(steel sheeting)
90'

MAIN CHANNEL

COFFERDAM DETAILS

0 100 200 300
Scale in feet

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
FALSEWORK, DREDGING, COFFERDAM
WORK TRESTLES AND OTHER
TEMPORARY CONSTRUCTION
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1975 SUPPLEMENTAL SHEET 2 OF 6

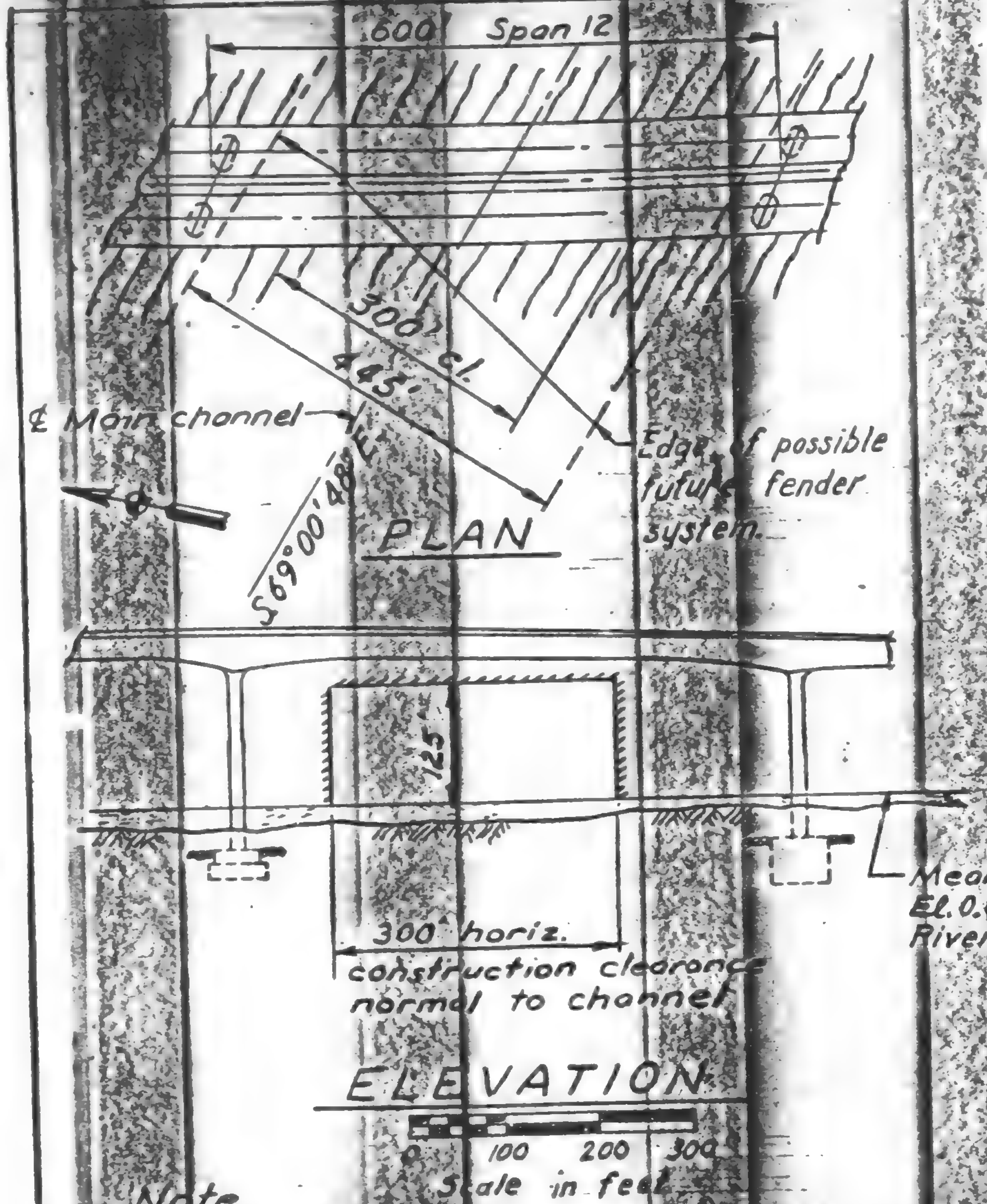

* 151'-6" ±
75' ±
Typ.
* 75'-9" ±
* 75'-9" ±
75' ±
Typ.
℄ Structure
6' ±
El. 0.00 Columbia River Datum.
* 150 Approx.
* 300 Approx.

TYPICAL ACCESS CHANNEL FOR CONSTRUCTION

No Scale

Note:
* Structure width varies spans 11 thru 16 of south channel. Maintain 75'± channel each side of structure.

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
FALSEWORK, DREDGING, COFFERDAM
WORK TRESTLES AND OTHER
TEMPORARY CONSTRUCTION
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1975 SHEET 3 OF 6


600' Span 12
300' cl.
445'
℄ Main channel
S69°00'48"
Edge of possible future fender system.
PLAN
125'
Mean Low Water El. 0.00 Columbia River Datum.
300' horiz. construction clearance normal to channel
ELEVATION
0 100 200 300
Scale in feet

Note
Location of navigation channel within span 12 may be shifted during construction period.

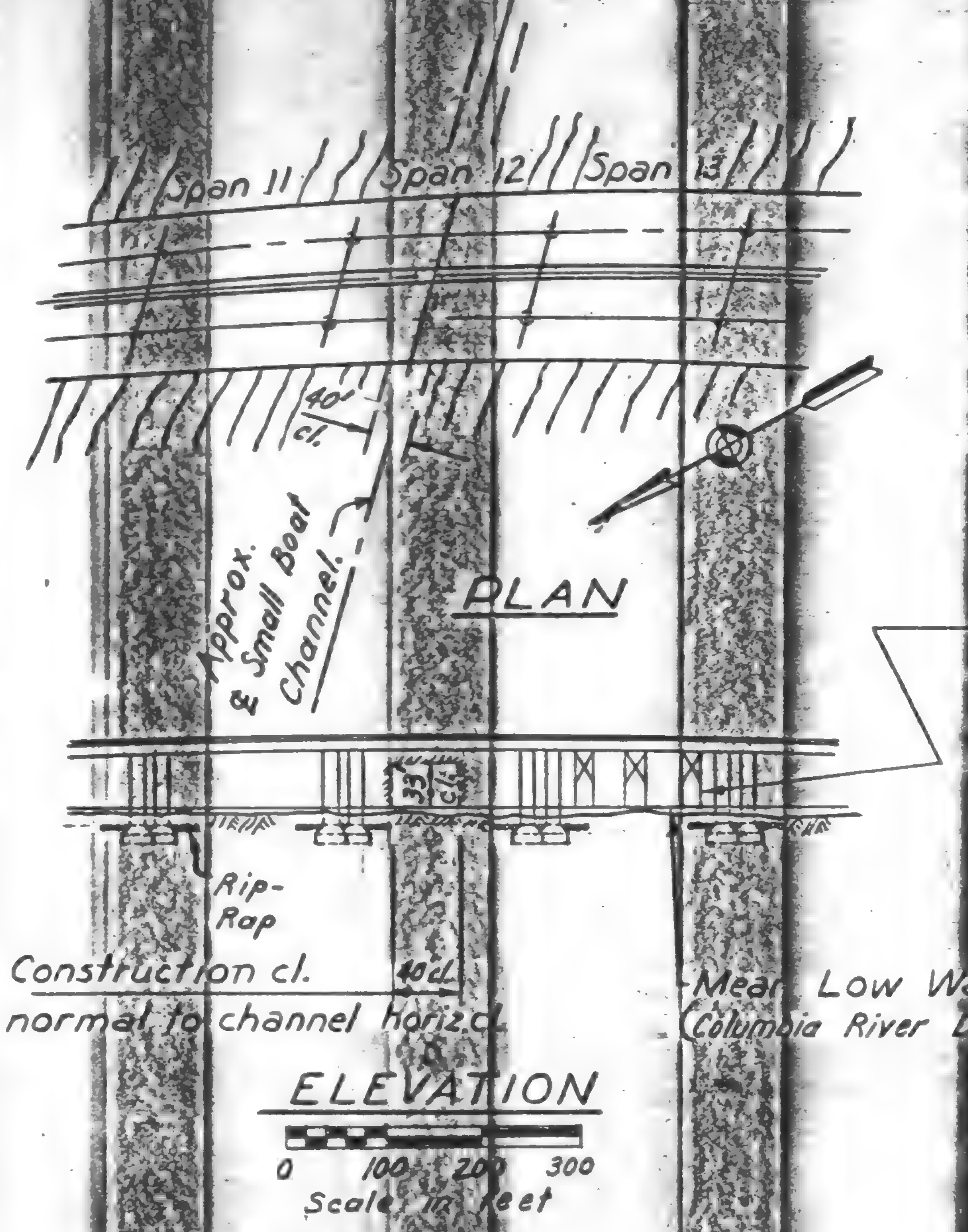
REVISED May 1976

MAIN CHANNEL CONSTRUCTION CLEARANCE

A clear minimum navigation channel of 300' horizontal (measured normal to main channel) and of 125' vertical shall be provided within Span 12 at all times.

Floating Construction Equipment may be moored within 300 ft. opening and will be removed for passage of a vessel when requested.

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
FALSEWORK, DREDGING, COFFERDAM
WORK TRESTLES AND OTHER
TEMPORARY CONSTRUCTION
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1975 SHEET 4 OF 6

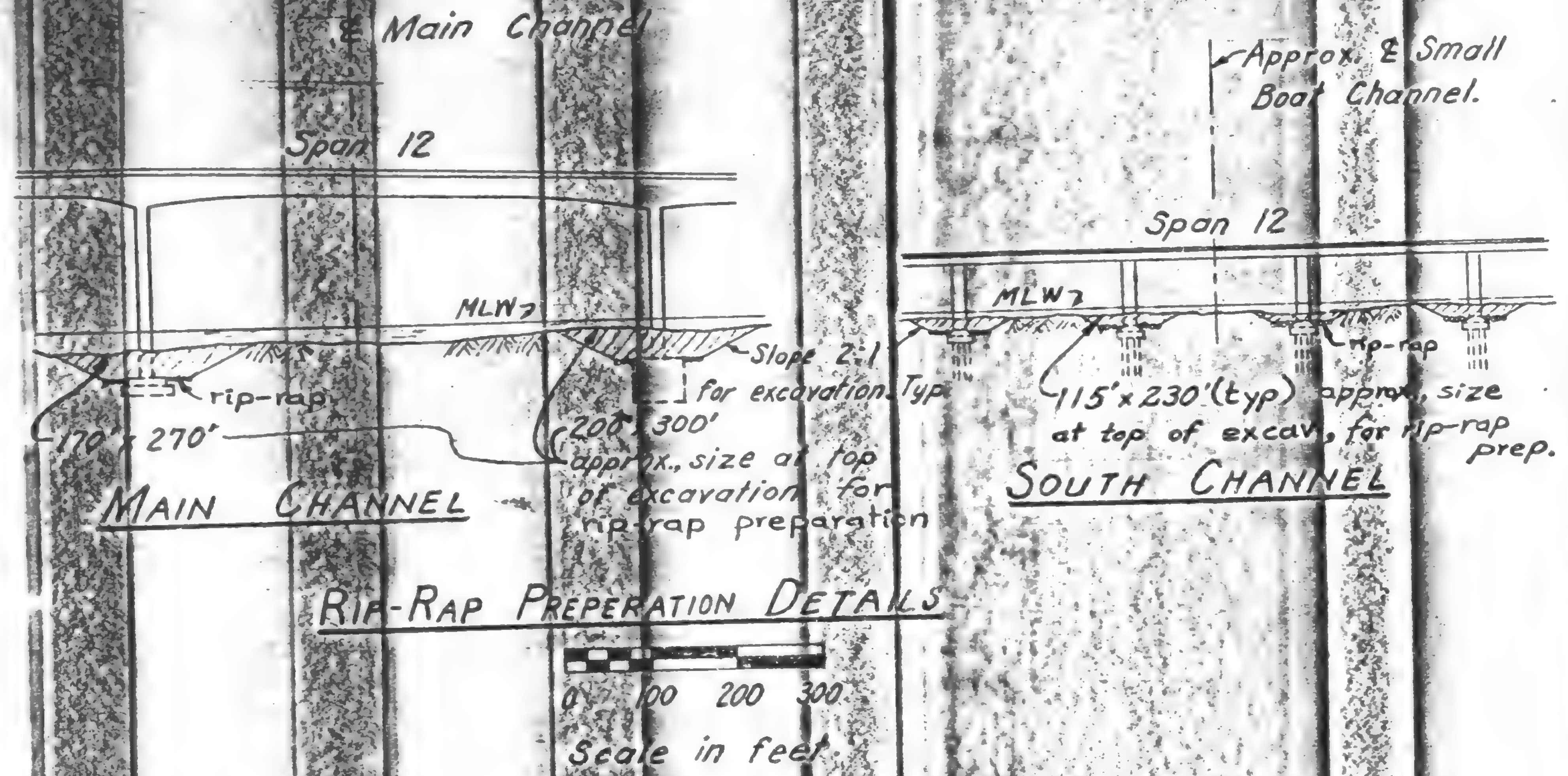

Span 11
Span 12
Span 13
40' cl.
Approx. ℄ Small Boat Channel.
PLAN
33' cl.
Rip-Rap
Construction cl. 40 cl.
normal to channel horiz.cl.
Mean Low Water El.0.00
(Columbia River Datum)
ELEVATION
0 100 200 300
Scale in feet

SOUTH CHANNEL
CONSTRUCTION CLEARANCE

A clear minimum navigational channel of 40' horizontal (measured normal to small boat channel) and 33' vertical (above Low Water Datum) shall be provided within span 12 at all times. Other spans in south channel may be blocked by falsework during construction.

Typical falsework support will totally block all spans for navigation at some time except for span 12 (small boat channel) which will be open at all times per above.

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
FALSEWORK, DREDGING, COFFERDAM
WORK TRESTLES AND OTHER
TEMPORARY CONSTRUCTION
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1975 SHEET 5 OF


℄ Main Channel
Span 12
MLW
Slope 2:1
for excavation. Typ
rip-rap
170' x 270'
200' x 300'
approx., size at top of excavation for rip-rap preparation
MAIN CHANNEL
Approx. ℄ Small Boat Channel.
Span 12
MLW
rip-rap
115' x 230' (typ) approx., size at top of excav., for rip-rap prep.
SOUTH CHANNEL
0 100 200 300
Scale in feet

RIP-RAP PREPERATION DETAILS

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
FALSEWORK, DREDGING, COFFERDAM
WORK TRESTLES AND OTHER
TEMPORARY CONSTRUCTION
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1975 SUPPLEMENTAL SHEET 6 OF 6

8905

8

May 27, 1976

Commander
13th Coast Guard District
Aids to Navigation Branch
U.S. Coast Guard
Federal Building
915 Second Avenue
Seattle, Washington 98174

bc H. S. Coulter
R. L. Schroeder
R. N. Bothman (enc.)
Gary Potter "
Walt Hart "
Frank Terpin "

Dear Sir:

Columbia River (I-205) Bridge
Bridge Permit Application
Revised Drawings

Your February 11, 1976 letter regarding a bridge permit for the subject structure indicated the need for corrected sheets of the permit application drawings to show the correct alignment of the navigation channel. The sheets involved are No. 4 of 6 and Nos. 3 and 5 of 12. One reproducible and six copies of each drawing are attached.

The change in alignment is very slight and does not alter the total horizontal clearance available perpendicular to channel centerline. It does cause a minor shift of two feet in the channel centerline.

It is our understanding that submittal of these corrected drawings and clarification of the 4(f) issue with the Department of Interior will clear up the last of the items which have caused delay in issuance of the bridge permit.

If any additional information is required, please let me know.

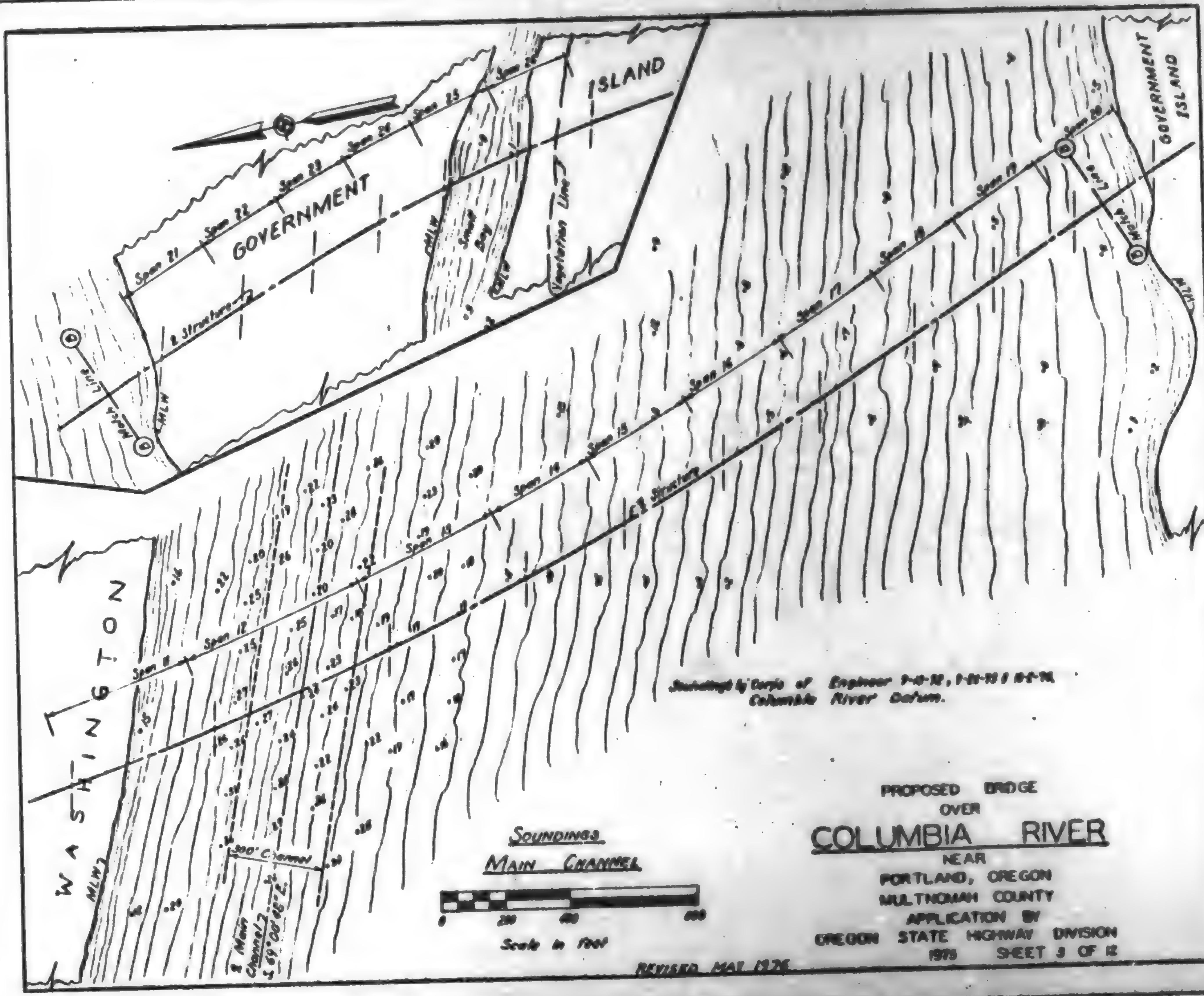
Very truly yours,

E. S. Hunter
Deputy State Highway Engineer

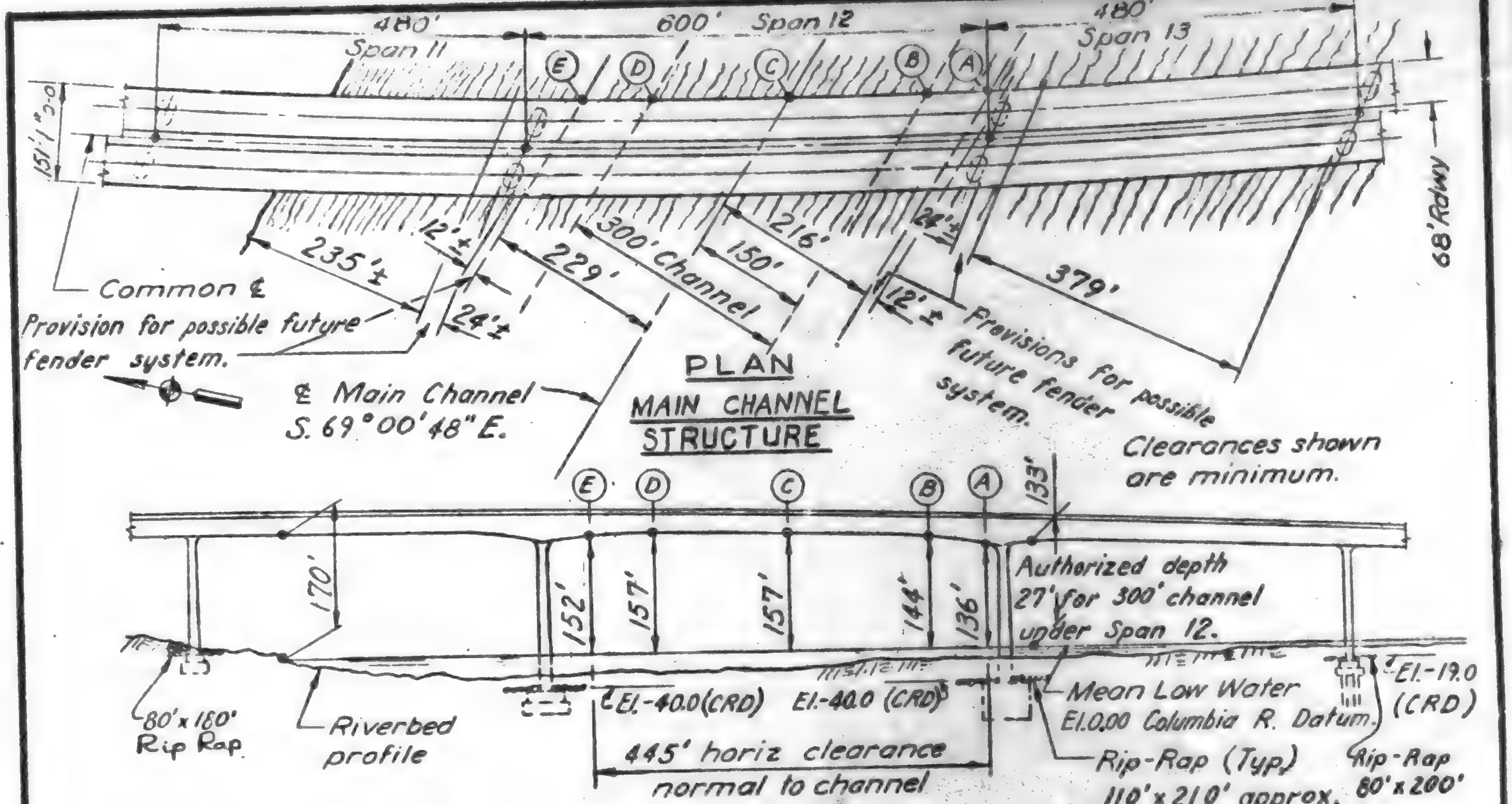
RWE:ag/ESH:ja

Enc.

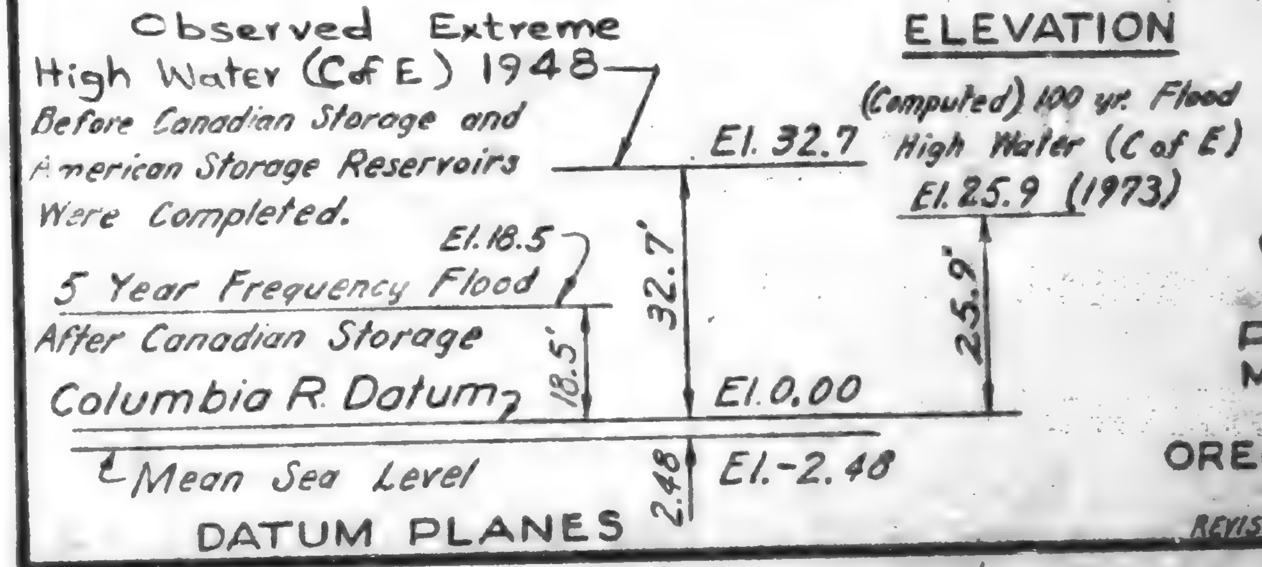
cc Glen Green
Federal Highway Administration


WASHINGTON
MLW
GOVERNMENT
ISLAND
GOVERNMENT ISLAND
Match Line
℄ Structure
Span 11
Span 12
Span 13
Span 14
Span 15
Span 16
Span 17
Span 18
Span 19
Span 20
Span 21
Span 22
Span 23
Span 24
Span 25
Span 26
Small Bay
Vegetation Line
℄ Main Channel S.69°00'46"E.
300' Channel
SOUNDINGS
MAIN CHANNEL
0
200
400
600
Scale in Feet
Soundings by Corps of Engineer 9-13-72, 9-21-73 & 10-2-75, Columbia River Datum.
REVISED MAY 1976

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1975 SHEET 3 OF 12


480'
Span 11
600' Span 12
480'
Span 13
E
D
C
B
A
151'1" c-c
68' Rdwy
235'±
12'±
24'±
229'
300' Channel
150'
216'
24'±
12'±
379'
Common ℄
Provision for possible future fender system.
℄ Main Channel S. 69° 00' 48" E.
Provisions for possible future fender system.
PLAN
MAIN CHANNEL STRUCTURE
Clearances shown are minimum.
133'
170'
152'
157'
157'
144'
136'
Authorized depth 27' for 300' channel under Span 12.
80' x 180' Rip Rap
Riverbed profile
El. -40.0 (CRD)
El. -40.0 (CRD)
Mean Low Water El. 0.00 Columbia R. Datum.
El. -19.0 (CRD)
445' horiz clearance normal to channel
Rip-Rap (Typ) 110' x 210' approx.
Rip-Rap 80' x 200'

ELEVATION


Observed Extreme High Water (C of E) 1948 Before Canadian Storage and American Storage Reservoirs Were Completed.
El. 32.7
(Computed) 100 yr. Flood High Water (C of E) El. 25.9 (1973)
El. 18.5
5 Year Frequency Flood After Canadian Storage
Columbia R. Datum
El. 0.00
32.7'
25.9'
18.5'
Mean Sea Level
2.48
El. -2.48

DATUM PLANES

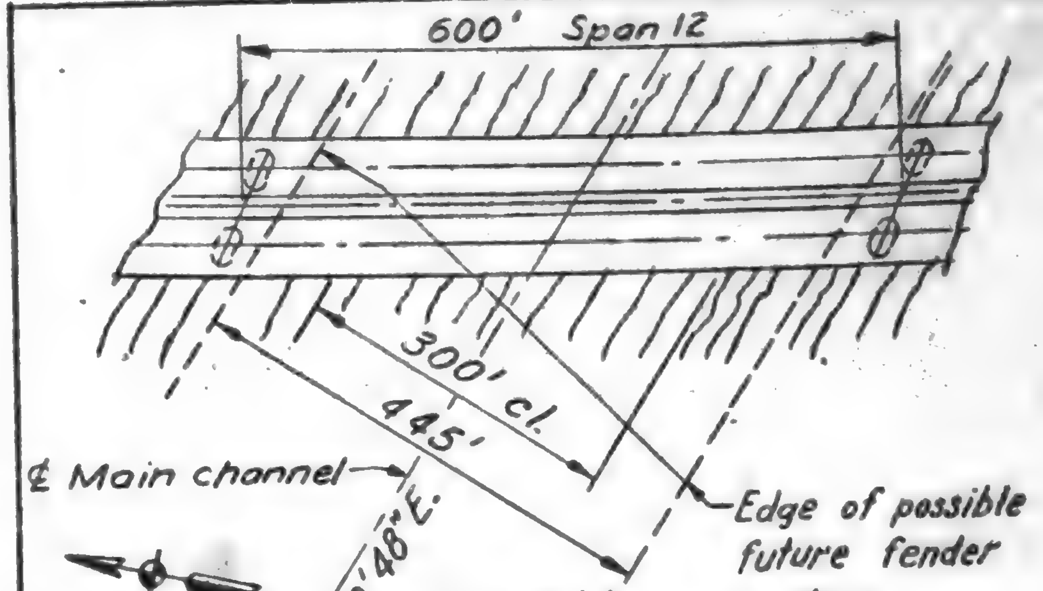
SCALE IN FEET
0 100 200 400

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1975
REVISED May 1976
SHEET 5 OF 12

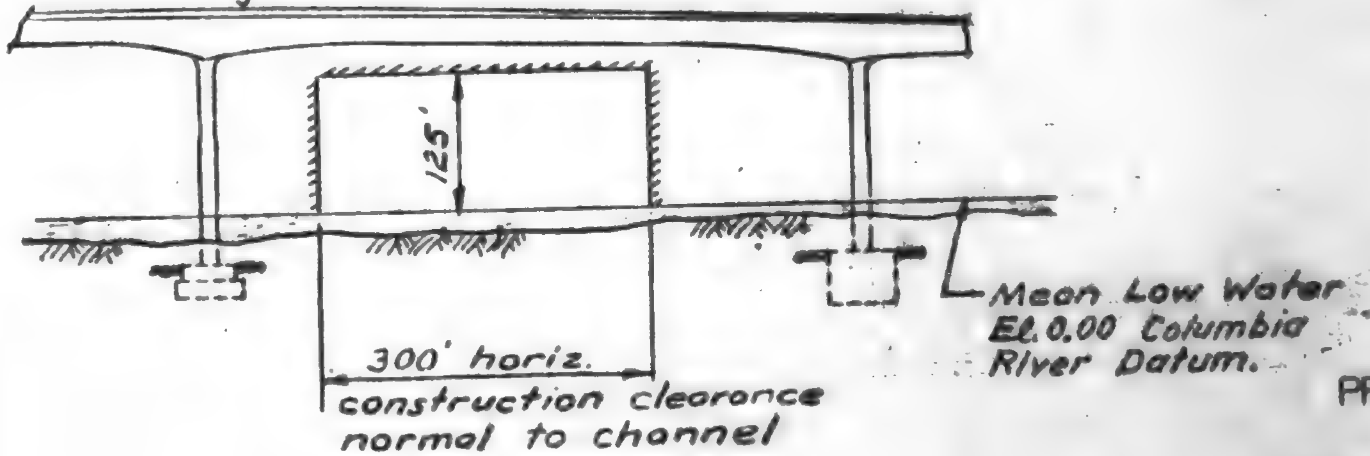
MAIN CHANNEL CONSTRUCTION CLEARANCE

A clear minimum navigation channel of 300' horizontal (measured normal to main channel) and of 125' vertical shall be provided within Span 12 at all times.

Floating Construction Equipment may be moored within 300 ft. opening and will be removed for passage of a vessel when requested.


600' Span 12
300' cl.
445'
℄ Main channel
S69°00'48"E.
Edge of possible future fender system.

PLAN


125'
300' horiz. construction clearance normal to channel
Mean Low Water El. 0.00 Columbia River Datum.

ELEVATION

0 100 200 300
Scale in feet

Note
Location of navigation channel within span 12 may be shifted during construction period.

REVISED May 1976

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
FALSEWORK, DREDGING, COFFERDAM
WORK TRESTLES AND OTHER
TEMPORARY CONSTRUCTION
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1975 SHEET 4 OF 6

8905

8

April 6, 1976

Commander
Aids to Navigation Branch
U.S. Coast Guard
13th Coast Guard District
Federal Building
915 Second Avenue
Seattle, Washington 98174

608-H

Dear Sir:

Columbia River (I-205) Bridge
Future Fender System

Your February 11 letter requested we review the installation of fenders at the piers adjacent to the navigation channel under the subject structure.

As indicated on the drawings accompanying our bridge permit application, we have made provision for installation of fenders at a future date when warranted by river traffic. The existing structure between Oregon and Washington at Vancouver is not equipped with fenders. The lack of fenders there has not been a great problem for river navigation, even though the clearances are less than those proposed for the I-205 Bridge. Since the existing structure provides safe passage without fendering, there appears to be no need for fenders on the proposed structure at this time. When future navigational activities demonstrate the need for fenders, they can be installed as a separate project.

On the basis of a lack of demonstrated need, the Federal Highway Administration has denied Federal-aid participation in the funding of the fender construction.

The bridge piers themselves are designed to withstand impact at low velocities, or glancing impact at higher velocities. The addition of fenders will merely provide capability to withstand greater impact. There is doubt that a pier with a fender could withstand a direct blow by the fully loaded

23,000-ton barge represented by the drawings you previously furnished us. The configuration of the barge allows it to contact the bridge at an unusually high distance above the water. A direct impact by such a barge would cause severe damage to any of the bridges across the Columbia River.

Preliminary engineering studies indicate that installation of fenders around the piers adjacent to the navigation channel will add $2.5 million to the cost of the subject bridge.

Because of the high cost, the lack of fenders at the existing bridge, and the lack of demonstrated need for fenders at this time, we do not plan to install them as part of the bridge construction work. Provisions have been made for installation of fenders at a future date when the need for them is determined.

Very truly yours,

E. S. Hunter
Deputy State Highway Engineer

cc Glen L. Green
Division Administrator
Federal Highway Administration

bc F. B. Klaboe
R. L. Schroeder
R. N. Bothman
Gary Potter
Walt Hart
Frank Terpin

RWE:ag ja

DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

MAILING ADDRESS:
COMMANDER (oan)
THIRTEENTH COAST GUARD DISTRICT
915 SECOND AVE.
SEATTLE, WASH. 98174
PHONE: (206) 442-5864

ENGR
FEB 19 '76
REFER TO
Hart

3271
Serial 88
11 February 1976

Oregon State Highway Division
Attention: Mr. C. S. Hunter
Deputy State Highway Engineer ✓
Highway Building
Salem, Oregon 97310

cc Potter

Dear Mr. Hunter:

Your letter of 30 January 1976 is at hand concerning the I-205 bridge. You have listed three outstanding items and have requested assurance that these items are all that remains to be resolved.

The drawings furnished to this agency show a space for a future fender system of 12 feet width reduction on each side of the principal navigation opening. During the meeting in Corps of Engineers' office in Portland on 10 September 1975, Mr. Robert Ellison of your bridge design staff was present. The towboat companies expressed at that time a need for a fender system to be constructed for the principal opening. This point is still not resolved.✓

I am requesting that you investigate your capability to construct a fender system at these bridge piers. I sent a drawing of a barge now under construction in Seattle to Mr. Robert Ellison for general information relative to size configuration and total weight that might be anticipated at your bridge site. The barge shown on drawings may be slightly larger than what can pass the Columbia River Navigation Locks after reconstruction of Bonneville Locks, a project upon which the Corps of Engineers is presently engaged. The size barge passing your bridge may be quite comparable with the above-mentioned large barge considering the anticipated life of bridge and the rapid increase in barge sizes. In fact, this barge could today be taken to Camas-Washougal. The towboat industry did operate the Barge KENAI to Kennewick for several years prior to loss of the barge in the North Pacific Ocean. When the KENAI passed the bridge, it generally contained approximately 9,500 tons of cargo.

The majority of barges on Columbia River do not leave the river to proceed out onto the ocean. Many of these barges are of a size of 200 to 250 feet long and 40 feet wide. Each barge may carry up to 3,500 tons of cargo and a four-barge tow is very common. The impact forces of such a flotilla approach that of an ocean-going barge.

RECEIVED
FEB 20 1976
BRIDGE SECTION

NOTE
R. W. ELLISO

NOTED
P. M. OAKLEY

NOTED
W. J. HART

Subj: Columbia River Bridge, Highway I-205, Bridge Permit

It is requested that you investigate the size and general cost to construct fenders adequate for the intended purpose. On the other hand, if the fender system is not capable of preventing or minimizing damage to either the bridge or vessel, it does not serve any useful purpose. The permit could be issued with no fenders on the bridge, but with a clause in the permit whereby the Coast Guard could direct the bridge owner to install fenders at some later date, if found to be necessary. Such a clause would defer the fender question until after the bridge has been constructed and the marine industry obtained experience in operating through the bridge opening. The views of Oregon State Highway Division to inclusion of a clause in the permit, as described above, is requested.

Relative to the other three items, the Corps of Engineers had indicated the Columbia River main channel will be maintained through the principal span of the bridge. The Section 4(f) item must be resolved before a permit can be issued. It is presumed that FHWA acting as lead agency with the same requirements will not approve the EIS prior to resolution of 4(f) issues. Accordingly, we will assume for now that when the EIS has been finally prepared that the 4(f) issue will also be resolved.

The Coast Guard requires the FINAL EIS before the bridge permit is issued. We will appreciate a review of the rough document prior to printing. This will allow revision of any portion which we might believe necessary. Inclusion in the FINAL EIS of a full discussion of necessary channel changes, pile dikes, channel dredging and disposal, channel maintenance necessary to maintain the channel through the principal span of the bridge, dredging for temporary access during bridge construction, access to "Beer Can Lake" and all other environmental effects in or adjacent to the water which are causally related to the bridge should be included with the FINAL EIS.

Another minor item is the necessary correction of the drawings to reflect final alignment of the channel, final navigation clearances based on channel alignment and delineation of fenders if found necessary now. If the fender question is to be deferred, as discussed above, the drawings should so note.

Should you have additional questions, we will be pleased to provide whatever assistance is possible.

Sincerely,

R. C. Walton

R. C. WALTON
Commander, U. S. Coast Guard
Chief, Aids to Navigation Branch
By direction of the District Commander

RECEIVED
FEB 20 1976
BRIDGE SECTION

Copy to:
FHWA, Salem, OR
FHWA, Portland, OR

8905

FORM 81-734-3030

OREGON STATE HIGHWAY DIVISION
INTER-OFFICE CORRESPONDENCE
Salem, Oregon
March 18, 1976

FILE: BR 9555

FROM: R. W. Ellison
Bridge Administration Engineer

TO: Mr. Ray Stose
Safety Officer

SUBJECT:

Columbia River (I-205) Bridge
Bridge 9555
Access to Navigation Lights
Personnel Safety

NOTED
E. S. HUNTER

The Coast Guard requires that we install navigation lights on certain piers of the subject project. The lights must be installed near the high water line and must be serviced periodically by state personnel. We are now considering installing permanent ladders on each pier to provide access to the lights (see attached sketch). Service personnel would reach the ladder by boat. Due to the varying river level (high water elevation 28 to low water elevation 2.5), portions of the ladder will often be inundated.

We believe that a cage around the ladder will be a constant maintenance problem because of damage from floating debris.

Our Bridge Design Consultant has suggested the use of TULITO Climbing System as described in the attached brochure.

Will installation of such a system meet the safety requirements for state personnel servicing the navigation lights? It is assumed that a permanent installation (except for clamp) will be required at each navigation light location.

RWE:dh
Attachments

cc E. S. Hunter
R. N. Bothman
P. M. Oakley

RECEIVED
STATE HWY ENG
MAR 19 '76
REFER TO
FOR
Info Inves R/D D/R Sign Act File

8905

File BR 9555

9

OREGON STATE
HIGHWAY DIVISION

1859

HIGHWAY BUILDING • SALEM, OREGON • 97310

ROBERT W. STRAUB
GOVERNOR

F. B. KLABOE
Administrator of Highways

December 24, 1975

NOTED
E. S. HUNTER

RECEIVED
STATE HWY ENGR
DEC 24 '75
REFER TO
FOR
Info Inves R/C D/R Sign Act File

Commander (OAN)
U. S. Coast Guard
Thirteenth Coast Guard District
915 Second Ave.
Seattle, WA 98174

Dear Sir:

Columbia River (I-205) Br.
Department of Interior Correspondence

In accord with your letter request of December 10, 1975, I enclose a copy of all correspondence we have had with the U. S. Department of Interior bearing on the subject of the EIS and Section 4(f). Please note our letter of December 22, 1975, which indicates we are currently studying the Department of Interior's remaining areas of concern and will have a reply to them in January, 1976.

The EIS and 4(f) documents are in their final stage. It is hoped that final documents can be released in late spring or early summer of next year. Your agency will receive copies when they are available.

The Corps of Engineers' channel realignment to which you have reference is in the formative stage and now appears to involve straightening the channel above the bridge with no channel change at the bridge location. The Corps has concurrence from the navigation interests as to the concept and will issue a public notice concerning the proposal in the near future. The matter will be discussed in our EIS to the extent deemed necessary.

Very truly yours,

Walter J. Hart
Bridge Engineer

ORIGINAL SIGNED
R. W. ELLISON
R. W. Ellison
Bridge Administration Engineer

RWE/ag
Encl.
cc E. S. Hunter w/encl.
H. Schell-FHWA w/encl.
Irvin Lloyd-FHWA w/encl.
John W. Kincheloe-USDOI w/encl.

OREGON STATE
HIGHWAY DIVISION

ROBERT W. STRAUB
[redacted]
GOVERNOR

F. B. KLABOE
Administrator and
State Highway Engineer

December 22, 1975

Mr. John Kincheloe, Field Supervisor
Fish and Wildlife Service
Division of Ecological Services
Portland Field Office
919 NE 19th Avenue
Portland, OR 97232

Dear Mr. Kincheloe:

We have been working closely with the Northwest Region, Bureau of Outdoor Recreation, to resolve the Section 4(f) issues concerning the Interstate 205 project in Multnomah County, Oregon.

A synopsis of this effort is as follows: The Lundy correspondence from the Bureau of Outdoor Recreation to the Fish and Wildlife Service received on November 14, 1975, refers to a May 5, 1975 letter from Deputy Assistant Secretary of the Interior Doremus, commenting on the Interstate 205 project. To resolve the 4(f)-related concerns expressed in that letter, representatives of the Oregon State Highway Division toured the right-of-way area on Government Island on November 7, 1975 with Mr. Sid Malbon, representing BOR, as well as representatives from the Corps of Engineers and Fish and Wildlife Service.

A meeting was held at the conclusion of the field inspection to discuss needs and procedures to resolve Interior concerns regarding the Government Island issue. Two problems were emphasized by BOR. They were (1) preserving public recreation use along the shores of Government Island, and (2) minimizing impacts of the fill on Government Island.

Potential solutions to these two problems are currently under investigation by this agency. The Oregon State Highway

RECEIVED
DEC 22 1975
BRIDGE SECTION

Division intends to respond to the Department of Interior by letter in January of 1976. It is anticipated this correspondence will lead to a resolution of the issues outlined in the May 5, 1975 letter.

Very truly yours,

ORIGINAL SIGNED
R.L. SCHROEDER

R. L. Schroeder
Assistant State Highway Engineer

cc Environmental Protection Agency, Seattle
Bureau of Outdoor Recreation, Seattle
National Marine Fisheries Service, Portland
Corps of Engineers
Department of Environmental Quality
Division of State Lands
Washington Department of Fisheries
Washington Department of Game
Washington Department of Ecology
U. S. Coast Guard

bc George M. Baldwin
F. B. Klaboe
E. S. Hunter
R. N. Bothman
~~W. J.~~ Hart
G. A. Potter
J. H. Versteeg
L. W. Rulien

JZ:sz: ab

RECEIVED
DEC 22 1975
BRIDGE SECTION

626-1909
150

ME FE PRE PR2 DE
O.S.H.D. • METRO
NOV 19 1975
FILE
DTA

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF OUTDOOR RECREATION
NORTHWEST REGION
~~[illegible]~~
~~SEATTLE, WASHINGTON [illegible]~~
915 SE[illegible] AVENUE, RM. [illegible]
SEATTLE, WASHINGTON 98174

IN REPLY REFER TO:
E3039
ER-75/221

Georg

NOV 14 1975

Memorandum

To: Regional Director, Fish & Wildlife Service, Region 1

From: Regional Director, Northwest Region, Bureau of Outdoor Recreation

Subject: Interstate 205 Project, Multnomah County, Oregon

Deputy Assistant Secretary Doremus' May 5, 1975, letter to Mr. Schroeder of the Oregon State Highway Division commented on the combined Draft Environmental Statement and Section 4(f) Determination for this project. It objected to Federal Highway Administration approval of the project until the Secretary concurred that all Section 4(f) aspects of the project were satisfied. It assigned the Departmental responsibility to this office for working with the Oregon State Highway Division to resolve the Section 4(f) issues. Until such time as the Secretary of the Interior's office advises that the Department concurs in the Section 4(f) aspects of the project, no agreement by the Fish and Wildlife Service as the representative of the entire Department should be expressed to any of the specific Coast Guard or Corps of Engineers' permits that may be required to implement the project.

We are currently working with the State and hope to secure the Secrerary's concurrance in the near future.

Interesting

/s/ E. E. [illegible]
Acting Regional Director

Maurice H. Lundy
Regional Director

Jeff, pls discuss
Geo

cc:
Robert T. Ewen, OSHD, Portland ✓

Make Copy For:
Ewen
6.[illegible] File
Walt Hart
Verstig

United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

George

E3039
ER-75/221

MAY 5 1975

~~Xc Hewitt~~

Dear Mr. Schroeder:

This is in response to your March 7 request for the Department of Interior's comments on the Draft Environmental/Section 4(f) Statement for the Lewis and Clark Highway, I-205, from Clark County, Washington, to S.E. Foster Road, Multnomah County, Portland, Oregon.

General Comments

We note that this is a revised draft environmental/Section 4(f) statement for this project. Our letter of March 12, 1973 (letter E of Chapter VIII - Consideration and Disposition of Comments, of the more recent statement), provided extensive comments on the project as originally conceived. Your response to those comments as summarized immediately following letter E satisfies many of our concerns except as indicated here. Those concerns which have been previously resolved will not be repeated in this correspondence.

The statement sufficiently describes project effects on fish and wildlife. We are pleased that the project may have a positive effect on the Fort Vancouver National Historic Site by reducing cross park traffic presently using State Highway 14 as access to the I-5 bridge.

We see no major problems regarding geology and only one potential hydrological problem not considered in this statement. It does not assess the impact of the planned storm sewer on ground water. The area to be severed is a sizable part of the recharge area for the Portland terrace. Removing storm water from an area of that size will reduce the volume of recharge and, therefore, will affect the water levels in the local aquifer which is the source for a number of public and commercial supplies. Because recharge water serves to dilute sewage that is emplaced in the ground, the reduction of recharge also will affect ground-water quality. We believe the impact of these sewers warrants more detailed analysis.

Section 4(f) Comments

The context of this project has changed from that described in the initial statement. Whereas before it was closely coordinated with the former plan of the Port of Portland to expand the Portland International Airport northward into the Columbia River, it is now solely an interstate highway project as the Port has now eliminated that aspect of its expansion proposal. However, the Port, prior to abandoning its northward expansion plan, acquired all but 200 acres of Government Island from the Oregon State Game Commission; the Game Commission replaced the land lost to the Port with other lands; and the Port adopted a policy statement indicating that Government Island would be managed primarily for wildlife and recreation purposes in concert with other land uses which may be proposed as a result of current planning efforts. It is because of this current recreational and wildlife use that Government Island falls in the Section 4(f) category.

The new statement describes additional alternatives to the use of a portion of the western end of Government Island. The initial statement confined its discussion of alternatives solely to a bridge versus tunnel alternative. We concurred, at that time, that there was no feasible or prudent alternative to the bridge proposal because of the tremendous cost of a tunnel proposal. The alternative routes now described on Plate 42a are also considered not feasible or prudent. Available information indicates that each of these would create 4(f) situations.

We, therefore, concur that there is no feasible or prudent alternative to the use of Government Island for this project. By use, we refer not only to the 10.5 acres that would be acquired for right-of-way, but also the impacts of noise and air pollution on the wildlife and recreation use of adjacent lands on Government Island.

We are concerned that not all planning to minimize harm to the Section 4(f) land appears to have been incorporated in the project. Chapter IV, Planning to Minimize Harm, pages 4-16 and 4-17, describes the 1969 agreement between the Port and the Oregon State Game Commission for replacement of Government Island as a mitigating measure for this interstate highway project. We cannot agree with this conclusion. The 1969 agreement was initiated as part of the Port's former plan to expand the airport and is not attributable to the independent interstate highway project.

The only other mitigating measure discussed is the design of the bridge itself. Of the design options discussed on pages 4-14 and 4-15, the continuous bridge option is preferable. Disruption and permanent loss of wildlife habitat would be substantially reduced and adverse impacts to fishery resources caused by dredging would be eliminated. Such a completely elevated bridge would allow longitudinal movement of larger wildlife, particularly black-tailed deer, and recreationists. There may be some reduced mobility of small mammal populations.

Because of the Port's altered plan for the airport expansion, the penultimate paragraph of our March 12, 1973, letter is no longer applicable. At that time, we had suggested that the inclusion of certain recreational items, formerly proposed by the Port, would satisfy the Section 4(f) requirement to include all possible planning to minimize harm. The alteration of the Port's plan now precludes most of these items because the extensive dredging essential to accomplishing most of them will not occur.

However, we believe Section 4(f) could be satisfied if the Oregon State Game Commission entered into an agreement with the Port and, if necessary, other appropriate local recreation authorities to insure in perpetuity a public right to use the beaches and a riparian strip of Government Island for recreational purposes. Without such a provision, it appears the Port could unilaterally dispose of its equity in the Island with a resultant loss of public recreational use. Since the Island had been acquired by the Port initially for airport expansion, this could occur unless the kind of legally-binding agreement, that is a deed restriction, that we propose is included.

The importance of a relatively wild island accessible only by boat in the midst of a major metropolitan area cannot be over emphasized. Measures to insure its continued public use would be of immeasurable value to future generations and would fully satisfy the requirement of Section 4(f) to minimize harm.

Environmental Statement Comments

1. Timing of Dredging Activities: The statement contradicts itself in several instances on the best time for dredging activities so far as fish resources are concerned. Page 3-62, second paragraph, says there are fewer migrating fish from late July to early September, and this is an advantageous time to dredge. Page 3-64, second from last paragraph, states that the preferred time for dredging is late October to February because the number of salmonids present is lowest. This same contradiction appears on page 3-190, last paragraph, and page 3-191, third paragraph; and in the Section 4(f) statement on page 4-9, fourth paragraph. Adult coho and fall chinook salmon migrate through the project area in late summer while peak migration for winter steelhead occurs from December to February. Dredging during the October to December period would least interfere with fishery resources.

2. Water Resources: The statement contains some misinformation or lacks data regarding water resources in several places as indicated below:

Page 3-52, 2nd paragraph. While little irrigation water is withdrawn from the Columbia River for irrigation downstream from river mile 240, in the past few years the situation has changed considerably above that point. Present irrigation season withdrawals between Arlington, Oregon, and Snake River mouth total approximately 4,000 cfs, with over 200,000 acres being irrigated. Imminent increases in water withdrawal and irrigated acreages are planned.

Page 3-53. Temperature data reported by the U.S. Geological Survey (Circular 551) shows annual low temperatures in the 30's (not 40's) during January and February (not March). Highest temperatures occur in August but generally are less than 70° F.

Lowest flows in the Columbia River generally occur in September and October, sometimes in November, rarely in August. (See U.S. Geological Survey Circular 550.) Before regulation, January and February were sometimes the lowest flow months.

The Geological Survey monitors water quality at Warrendale and The Dalles. Survey data show lower turbidity values (commonly 2 JTU) than those given.

Page 3-55. On line 6, the fluoride value should be 3.2 ppm, not 32 ppm.

Page 3-58. On line 6, the Johnson Creek flows given are at the gaging station at stream mile 10.2. The drainage area above the gage is only 28.2 mi^2, not the entire basin as referred to on page 3-55.

Page 3-59. In paragraph 4, it should be noted that recent investigations by the State Engineer's office and DEQ show that Columbia Slough also is affected by domestic sewage-disposal practices. (See also comment on page 3-68.

Page 3-62. Here and elsewhere, the term "ground water" should be changed to the two-word form accepted and used by most hydrologists and scientific organizations.

Page 3-68. Paragraph 1 - Most of the single-family sewage-disposal systems utilize cesspools, not septic tanks.

Page 3-70. Paragraph 5 is incorrect. In the project area, much of the subsurface material is a mixture of clay, sand, and pebbles.

3. Wetlands:

Page 3-55, 4th paragraph. Although most of the lands between Columbia Slough and the river are diked and drained, the area continues to meet the criteria for a Type I wetland as sdt forth in USF&WS Circular 39, Wetlands of the United States. Type I wetlands are seasonally flooded basins or flats in which the soil is covered with water or waterlogged during variable seasonal periods; but usually well drained during most of the growing season. Ponding occurs in these areas during the winter precipitation.

Summary Comments

Because of the Department of the Interior's continuing concern for the measures to minimize harm to the Section 4(f) lands to be traversed, we would be willing to work with you in the resolution of our concerns and we would be willing to review on a technical assistance basis any subsequent material you may prepare. The field office assigned the responsibility for coordination with you in this effort is the Regional Director, BOR, Federal Bldg., 915 Second Avenue, Seattle, Washington 98174.

In-as-much as we do not now concur that the present documentation includes all measures to minimize harm, we would expect further consultation with this Office about the Section 4(f) facet. In our opinion, the most propitious time for this would be when you have completed consideration and resolution of the suggestions and recommendations in this letter.

Sincerely yours,

(Sgd) Stanley D. Doremus

Deputy Assistant Secretary of the Interior

Mr. R. L. Schroeder
Assistant State Highway Engineer
Project Management Section
Oregon State Highway Division
Salem, Oregon 97310

United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

E3039
ER 72/1375

MAR 1 2 1973

Dear Mr. Schroeder:

This is in response to your request for the Department of the Interior's comments on the draft environmental/Section 4(f) statement (DES) for Interstate 205, Lewis and Clark Highway, Multnomah County, Oregon. As you know, this Department has been involved in many facets of the proposed Portland International Airport expansion, including the location of I-205, over the last several years.

General Comments

We recognize that the necessary steps have been taken to provide for the orderly replacement of the Government Island Game Management Area (GIGMA) which was managed by the Oregon State Game Commission (OSGC). This replacement of lands, agreed to by the Bureau of Sport Fisheries and Wildlife in 1969, is pursuant to the provisions of the Pittman-Robertson Wildlife Restoration Act through which the Federal Government had earlier contributed 75 percent of the acquisition and development costs. We are, therefore, appreciative of the efforts to which the highway project sponsors have gone to address the Section 4(f) matters and the impacts of the various alternatives under consideration.

Section 4(f) Comments

Based on the involvement of the various bureaus of this Department with the many facets of the Portland International Airport (PIA) expansion, including the location of I-205, we concur that there is no feasible and prudent alternative to the use of the GIGMA. However, this conclusion cannot be reached solely from the Section 4(f) statement "per se." It is also based on the information provided in the DES and, to a larger degree, the information and familiarity we have gained from our earlier contacts.

The Section 4(f) statement lacks a clearly identified, specific discussion of "feasible and prudent alternatives," to quote the language of Section 4(f) and the subsequent implementing regulations of the Federal Highway Administration (FHWA). The only material in the Section 4(f)

RECEIVED
MAR 1 6 1973
Office of
Assistant State Highway Engineer

statement referring at all to a consideration of alternatives appears on pages 4-9 under C. Relation to Portland International Airport Expansion. (This is repeated nearly verbatim in the DES on pages 3-148 and 149). This discusses two alternatives, but only in the context of contingency alternatives should the I-205 freeway and bridge not be constructed as a coordinated feature of the PIA expansion and not require the removal by dredging of most of Government, Sand, and Lemon Islands. Both of these alternatives are predicated on I-205 in the same location as envisioned in the PIA expansion proposal.

The first alternative, 1. Extended Bridge Scheme, would eliminate most of the abutment fill in the PIA expansion proposal by substituting a longer bridge. This would preserve more of the recreational resources and opportunities of Government Island remaining after dredging for the PIA expansion. However, it would still constitute "use" of Government Island for transportation purposes and, therefore, not remove it from the Section 4(f) category.

We would prefer this alternative. However, we recognize its feasibility is a function of the PIA expansion and not solely a matter of design of I-205.

The second alternative, 2. Tunnel Scheme, either Options One or Two, is not prudent because of the enormous costs of tunneling.

Additional alternatives do not appear in the Section 4(f) statement as such. However, reference to the DES, Chapter IV - ALTERNATIVES TO THE PROPOSED ACTION, pages 3-140 to 3-149, does present additional alternatives to the use of Government Island.

We concur that the 39th Avenue, the 52nd Avenue, and the 82nd Avenue routes are not feasible and prudent alternatives to the recommended 96th Avenue route. This concurrence is predicated on the previous commitment to the PIA expansion, including the I-205 location, as expressed in former Interior Under Secretary Train's May 19, 1969, letter to General Koisch. In this letter, the Under Secretary stated Interior's views regarding the PIA expansion when withdrawing Interior objections to the Port of Portland (POP) application to the U. S. Army Corps of Engineers (CE) for a permit for dredging and filling in the Columbia River, including the GIGMA. The Under Secretary said:

> "The Department of the Interior has interests in seeing that the game refuge, recreational facilities, and maintenance of water quality during dredging operations be given due consideration. It appears that the Port of Portland will be able and willing to meet the minimum conditions we consider necessary -- with regard to these three matters."

Both the recommended 96th Avenue route and the alternate 109th Avenue are integral aspects of the PIA expansion. We believe that the total adverse impact on recreational use of the seven-mile stretch of the Columbia River, including the various islands through which the various alternate routes pass, would be minimized by concentrating the impact at the site of the PIA expansion to which Interior has already committed itself to Mr. Train's 1969 letter.

Organizationally, the inclusion of C. Alternatives Affecting Government Island (Section 4(f) Land) in Chapter IV of the DES, pages 3-147 to 3-149, is confusing. This material properly belongs in PART 4 - SECTION 4(f) STATEMENT.

C. Design Features to Reduce Adverse Effects, pages 4-11, appears to incorporate only normal design features that would reasonably be expected to be included in an urban freeway. We believe they fall short of what should be provided to mitigate the impact of I-205 on the GIGMA.

More appropriate mitigation measures should be included. They should assure: (1) the continued recreational use of the remaining portions of the former GIGMA not needed for aviation use by the POP, and (2) commitment to the development of the Columbia Bay recreational facilities. These facilities were outlined in the PIA brochure prepared by the POP for the CE public hearing August 1, 1968, on POP's application for a CE permit for dredging.

The final statement should include details of any school playgrounds which may be affected by the proposed project. If any of these playgrounds are used by the general public, the Section 4(f) statement should be expanded to discuss this matter, including alternatives and measures to minimize harm. As you may know, school playgrounds which are being used by the general public fall under the protection of Section 4(f).

Environmental Statement Comments

Available information, not contained in the DES, indicates that right-of-way acquisition, clearing, and other pre-construction activities have, to a large degree, taken place over much of the proposed route. In this respect, many of the impacts described in the future tense in the DES have in fact taken place. Since these actions are irreversible, the DES may be misleading. Indications are that the DES, to some extent, was written to justify these accomplishments and other apparently predetermined actions.

This matter could be clarified by specifically delineating the extent of right-of-way acquired, cleared, and the nature and extent of any associated construction activities. The exception to this is the status of GIGMA which is adequately described.

Although the DES recognizes recreational use within the project and the Columbia River area, there is little or no information pertaining to existing amounts or how the project will affect this significant use.

Because the PIA expansion which requires various approvals by the Federal Aviation Administration (FAA) is so intimately related to the location of I-205, a single DES with either the FAA or the FHWA serving as the lead agency would have assisted reviewers. Separate DES's by each agency would have not been required. The Council on Environmental Quality Guidelines provides for a lead agency in the preparation of a joint DES.

Specific Comments

The project description should be expanded to discuss location of any borrow and/or spoil areas needed for project purposes. Other sections of the statement dealing with the description of the existing environmental setting can describe the borrow and/or spoil area locations under preproject conditions as they relate to flora, fauna, and aesthetics.

There is often the opportunity to design and develop highway fills and/or borrow areas for the benefit of fishery resources and fishing opportunities. We recommend that this opportunity be explored in coordination with the appropriate State agency, and that the final statement reflect the results of this coordination.

Wildlife, Page 3-66: We agree that Government Island is of value as a home for wildlife and equally disagree that "The impact of bridge and highway construction here would be that of wildlife displacement along with loss of habitat." Contrary to popular opinion, wildlife cannot be displaced; when habitat is lost, so is the wildlife that was dependent upon it.

Urban Environment, Page 3-69: Efficient transportation and better access within and beyond the Portland metropolitan area are prime considerations of this project. It follows, then, that land use and zoning would eventually change to more industrial development adjacent to the project. Secondary environmental impacts may be more significant than the impact resulting from initial construction activity. Secondary impacts should be thoroughly discussed in the final statement.

Geologic Considerations: In most respects, the DES gives adequate coverage to the quantitative and qualitative effects that will be imposed on the stream and groundwater environment during and after construction of the I-205 project.

The relative change in the hydrology of most of the land area involved will be minimal because it is primarily residential.

The increased suspended sediment in the Columbia River, caused by bridge construction, will be one of the most significant effects on stream hydrology. Although the DES outlines construction procedures to minimize turbidity in the Columbia River, there is no apparent attempt being made to monitor the river quality during construction, unless it is assumed that the Federal Environmental Protection Agency or State Department of Environmental Quality will perform this task.

Construction will involve excavations in coarse gravel with a sandy matrix, sand and silt, and some sandstone, conglomerate and basalt. The unconsolidated material of the river bed is fine to very fine, poorly graded sand. The depth of the sand varies from two to over 200 feet. There are no active slides reported in the project area. Earthquakes, capable of causing moderate damage, might be experienced. The DES does not discuss potential earthquake problems. The Columbia River bridge and the structures at the interchanges and grade separation would probably be most vulnerable.

Historic Values: No established or studied units of the National Park System would be affected. Also, no eligible sites for registration as National Historic, Natural, or Environmental Education Landmarks are involved. The State Liaison Officer for the National Register should be consulted for matters pertinent to the Historic Preservation Act of 1966 (P. L. 89-665).

In summary, whereas this project was some years ago a pure Section 4(f) involvement, it is now considerably modified by the acquisition of GIGMA by POP. Notwithstanding this fact, we believe you will agree that the spirit of Section 4(f) can be meaningfully applied in the future management of the island property. Respecting assurance of public use, OSGC has advised that they have no written agreement with POP for continued public use of the former GIGMA. We further understand that applicable Oregon law requires that construction, operation, and maintenance of recreational facilities by an Oregon

Port District must be financially self-supporting. The POP, in its September 1969 Portside publication, page 2, left little doubt regarding its non-commitment to execution of the sundry recreational aspects of the PIA expansion as it affects the GIGMA and the Columbia Bay, including the I-205 route. We quote:

> "In summary, the Port Commission was advised that its approval of the program would not be a commitment of the details of any plan, concept or contract, but would merely establish the expansion plan as an official total project to be accomplished."

In view of this, we suggest that the Oregon State Highway Commission enter into an agreement with the POP and, if necessary, other appropriate local recreational authorities to assure the maximum provision of recreational benefits associated with the PIA expansion. These were presented in the "PIA" brochure at the CE hearing of the POP application in 1969 as follows:

	ITEM	EXISTING	PROPOSED	CHANGE
1.	Lineal feet of waterfront	131,000	119,000	12,000 less
2.	Lineal feet of developed beach accessible by auto	25,000	39,000	14,000 more
3.	Number of moorage slips	789	3,370	2,581 more
4.	Boat ramps	5 lanes	11 lanes	6 more
5.	Park and picnic areas	None	22 acres	22 more
6.	Miles of scenic drive	5.7 miles	6.4 miles	.7 more
7.	Boat anchorage (water area)	45 acres	80 acres	35 more
8.	Swimming beaches	None	3,000 lin. ft.	3,000 more
9.	Acres of water change	730 acres	827 acres	97 more

We would consider firm commitments to develop a substantial portion of Items 4, 5, and 8 as partially satisfying Section 4(f)'s requirement to include all possible planning to minimize harm. Full satisfaction of the requirement would be contingent upon guaranteed public recreational use in perpetuity of Items 2 and 7. FHWA's PPM 21-19, Joint Development of Highway Corridors and Multiple Use of Roadway Properties, should assist in these efforts.

The final position of the Department of the Interior on the Section 4(f) aspects of this project will be made to the Department of Transportation when we are requested to review the final combined statement.

Sincerely yours,

Deputy Assistant Secretary of the Interior

Mr. R. L. Schroeder
Assistant State Highway Engineer
Oregon State Highway Division
Highway Building
Salem, Oregon 97310

~~1. STU~~
2. Project FILE

United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

ER 72/1375

JAN 11 1973

Dear Mr. Young:

This is in regard to your letter of November 15, 1972, requesting the Department of the Interior's review and comments on a draft environmental/Section 4(f) statement for Interstate 205, Lewis and Clark Highway, Multnomah County, Oregon.

This is to inform you that the Department will have comments on the draft environmental/4(f) statement but will be unable to reply by the date you requested. Our comments should be available about late-January.

Sincerely yours,

Bruce Blanchard

~~Bruce~~ B Blanchard, Director
Environmental Project Review

Mr. L. H. Young
Programing Engineer
Oregon State Highway Division
Highway Building
Salem, Oregon 97310

NOTED
S. J. COUPER

NOTED
R. D. ASBURRY

January 15, 1973

cc: G. L. Green, FHWA
E. S. Hunter
F. L. Hall
R. E. Royer
D. H. Byard✓
R. H. Chase
H. S. Cox
B. L. Gifford
D. R. Adams
L. W. Rulien

BEN GIFFORD

RECEIVED
JAN 15 1973
PLANNING SECTION

RECEIVED
JAN 15 1973
PROGRAMING SECTION

MARCH 3, 1849

United States Department of the Interior

OFFICE OF THE SECRETARY
PACIFIC NORTHWEST REGION
P.O. Box 3621, Portland, Oregon 97208

DEC 7 1971

Mr. George E. Hyde
Chief, Navigation Division
Portland District Corps of Engineers
P. O. Box 2946
Portland, Oregon 97208

Re: Public Notice NPP-71-327
Columbia River near Portland, OR
Pacific Northwest Dredging Assoc.

Dear Mr. Hyde:

The Department of the Interior opposes the issuance of this permit until the applicant agrees in writing to the four (4) conditions stipulated in the attached memorandum from the Bureau of Sport Fisheries and Wildlife dated December 2, 1971.

Once these assurances have been received in writing by this office, the Department of the Interior will withdraw its objection to the permit.

Sincerely,

Emmet E. Willard
Acting Field Representative

Attachment

cc: Messrs. Agee, Burroughs, Cleaver,
Day, Findlay, Lundy, Rutter, Simmons

NOTED
S. J. COUPER

United States Department of the Interior
FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE
730 N. E. PACIFIC STREET
P. O. BOX 3737
PORTLAND, OREGON 97208

Reference: RBS

December 2, 1971

MEMORANDUM

To : Field Representative, Office of the Secretary
Pacific Northwest Region, USDI, Portland

Acting
From : Regional Director, BSFW, Portland

Subject: Public Notice NPP 71-327 - application by Pacific Northwest Dredging Association for a permit to dredge in the South Channel of the Columbia River, mile 114 near Portland, Oregon (CE, Portland)

The applicant proposes to hydraulic dredge to a maximum depth of -20 feet C.R.D. removing approximately 1 million cubic yards of sand. Spoils are to be used for construction of Highway I-205.

In the interest of maintaining water quality suitable for fish and wildlife we recommend the permit be conditioned to include the following stipulations:

1. The hydraulic dredge be operated with the intake on or below the surface of the material being removed.

2. Reverse purging of the hydraulic dredge intake line be held to an absolute minimum and, when purging is necessary, the intake not be raised more than 3 feet above the bed material.

3. Extreme care be taken to insure that no debris, petroleum products, or other deleterious materials are allowed to fall, flow, leach, or otherwise enter the water.

4. Bureau of Sport Fisheries and Wildlife be notified at least 2 weeks prior to any dredging activity.

Clay E. Crawford

cc:
RBS, PAO

.1971

NOTED
S. J. COUPER

8905

8

BI 555

**OREGON STATE
HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

ROBERT W. STRAUB
GOVERNOR

F. B. KLABOE
Administrator of Highways

November 10, 1975

Commander R. W. Walton
13th Coast Guard District
Federal Building
915 Second Avenue
Seattle, WA 98174

NOTED
E. S. HUNTER

Dear Sir:

Columbia River (I-205) Bridge
Bridge Permit

Your letter of September 15, 1975, addressed two comments received in response to your Public Notice regarding a revised permit for the subject bridge.

One comment, from the U. S. Department of Interior, concerned filling of wet lands on Government Island; the other comment, from the Columbia R. Towboat Association, concerned the reduction of horizontal clearance in the main channel.

On November 6, 1975, a meeting was held with the Department of Interior and other interested parties to view and discuss the wet lands to be filled on Government Island. The designation of the low areas as wet lands seemed somewhat dubious; however, in order to prevent an impasse, the State agreed to mitigate any possible harm by replacing the filled-over low lands in a manner to be determined in cooperation with the Department of Interior. This matter will be addressed in the final Environmental Impact Statement.

During a meeting with the Coast Guard, Corps of Engineers, and navigation interests (On September 11, 1975), the State of Oregon explained that the

A DIVISION OF THE DEPARTMENT OF TRANSPORTATION

reduction in clearance (from 500 feet as shown on the existing permit to 420 as indicated on the drawings for the revised permit) was due to a mistake in the width of provision for future fenders and a realignment of the channel by the Corps of Engineers. Since that meeting we have corrected the provision for future fender and submitted corrected drawings to your office. This correction provides the same physical horizontal clearance as the existing permit. However, when measured perpendicular to the channel, the horizontal clearance is now 445 feet instead of 500 feet as shown on the original permit. This is because of a recent channel change made by the Corps of Engineers.

The Corps is currently studying plans for a realignment of the designated navigation channel to provide satisfactory clearance and will consult with navigation interests regarding the adequacy of same.

Very truly yours,

ORIGINAL SIGNED
WALTER J. HART
Walter J. Hart
Bridge Engineer

RWE/dh/ag

cc E. S. Hunter
R. N. Bothman
Robert Ewen
Gary Potter
Glen Green, FHWA, Salem,
Roy Tokerud, FHWA, Portland
John W. Kincheloe, Dept. of Interior(Portland)

RECEIVED
STATE HWY ENGR
NOV 12 '75
REFER TO
FOR
Info Inves R/D D/R Sign Act File

8905

File BR 9555

8

OREGON STATE
HIGHWAY DIVISION

HIGHWAY BUILDING • SALEM, OREGON • 97310

ROBERT W. STRAUB
GOVERNOR

F. B. KLABOE
Administrator of Highways

November 7, 1975

RECEIVED
STATE HWY ENGR
NOV 7 '75
REFER TO
FOR
Info Inves R/D D.R. Act.

Commander (OAN)
U. S. Coast Guard
13th Coast Guard District
Federal Building
915 Second Avenue
Seattle, WA 98174

Attention Ed Shields

Dear Mr. Shields:

Columbia River (I-205) Br.

During the meeting you arranged with the Corps of Engineers regarding the navigation channel in vicinity of the subject project, it became evident that we had an error on our permit application drawings. Use of an erroneous dimension for future fender provision caused the horizontal navigation clearance normal to the channel (in Span 12) to be shown as 420 feet. The correct clearance is 445 feet as shown on the attached corrected drawings. This restores the same physical clearance that is shown on the existing permit for this structure. This correction involves Sheet 5 of 12 and Sheet 4 of 6.

Enclosed for your use are one reproducible and four copies each of the corrected drawings.

The drawings are now correct and should not be cause for delay in permit processing.

NOTED
MARIE STEPHENS

Very truly yours,
ORIGINAL SIGNED
WALTER J. HART
Walter J. Hart
Bridge Engineer

RWE/ag
Encls.
cc F. B. Klaboe
E. S. Hunter
R. Bothman w/encl.
R. Ewen w/encl.
G. Potter w/encl.
J. Allen w/encl.
R. Carroll w/encl.

A DIVISION OF THE DEPARTMENT OF TRANSPORTATION

8905

File BR 9555

8

1859

OREGON STATE
HIGHWAY DIVISION

HIGHWAY BUILDING • SALEM, OREGON • 97310

ROBERT W. STRAUB
GOVERNOR

F. B. KLABOE
Administrator of Highways

NOTED
E. S. HUNTER

October 29, 1975

RECEIVED
STATE HWY
OCT 29 '75
REFER T
FOR
Info | Inves | R/D | D/R | Sign | File

Mr. R. L. Carroll
District Engineer
Washington Department of Highways
4200 Main St.
P O Box 1717
Vancouver, WA 98663

Dear Mr. Carroll:

Columbia River Bridge
Coast Guard Permit
Agency Comments

Enclosed is a copy of a letter from the U. S. Coast Guard with attachments. The letter concerns comments received in answer to the Coast Guard Public Notice for a Bridge Permit for the subject project.

These comments are from the Washington State Department of Ecology relative to the shoreline permit and from the Washington State Department of Fisheries. In the past you have contacted these agencies regarding this bridge, and I would appreciate your doing the same in this instance.

I was under the impression that a shoreline permit had previously been issued for this project and am at a loss as to the concern over same at this time. Are any other permits necessary from Washington State agencies before construction can commence on this project?

If you need further information in order to resolve matters with these agencies, please do not hesitate to call me.

Very truly yours,

Walter J. Hart
Bridge Engineer

ORIGINAL SIGNED
R.W. ELLISON
R. W. Ellison
Bridge Administration Engineer

RWE/ag
Encls.
cc G. Andrews w/attachs.
E. S. Hunter w/attachs.
R. Bothman w/attachs.
G. Potter w/attachs.

DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

MAILING ADDRESS:
COMMANDER (oan)
THIRTEENTH COAST GUARD DISTRICT
915 SECOND AVE.
SEATTLE, WASH. 98174
PHONE: (206) 442-5864

3271
Serial 544
16 October 1975

Oregon State Highway Division
Attention: Mr. Robert Ellison
Assistant Bridge Engineer

Highway Building
Salem, Oregon 97310

Gentlemen:

It was a pleasure to meet the staff member of Oregon State Highway Division with whom we have concerns relative to bridge permits. Personal acquaintance with the key members of your organization will assist in a smoother flow of information on these projects and early awareness on the Coast Guard part concerning the future highway plans.

The enclosed letter from Washington State Department of Ecology concerning the I-205 bridge should be self-explanatory. A release from this agency and a Water Quality Certificate from Washington as well as Oregon is required under the FWPCA. From information expressed during my visit, you are presently working on complying with Washington State requirements.

Sincerely,

R. C. Walton

R. C. WALTON
Commander, U. S. Coast Guard
Chief, Aids to Navigation Branch
By direction of the District Commander

Encl:
(1) Dept. of Ecology ltr 8 Oct 1975

Copy to:
FHWA Division Engineer, Salem, Oregon

RECEIVED
OCT 21 1975
BRIDGE SECTION

NOTED
R. W. ELLISON

October 8, 1975

State of
Washington
Department
of Ecology

Commander
Thirteenth Coast Guard District
915 Second Avenue
Seattle, Washington 98174

Attn: Chief Navigation Division

Re: Status Report - Public Notice No. 75-N-19
Oregon St. Highway Division

Gentlemen:

On behalf of the State of Washington, we wish to report the subject public notice has not been released because of the agencies listed below and their corresponding responses coded on the attached page:

Ecology: S. W. Regional Office
Shoreline Permit: 10c

Fisheries: 1

We wish to advise that approval of this work is being held in abeyance by the State of Washington pending the satisfactory resolution of the above mentioned problem.

The applicant may wish to contact the agency noted above to determine the exact status of the review within that agency.

Sincerely,

Edrea Peterson

Edrea Peterson
Authorization Control &
Compliance Section

U. S. COAST GUARD
13tH Coast Guard District
SEATTLE, WASHINGTON
OCT 14 1975
RECEIVED
MERCHANT MARINE SAFETY DIV.

cc: Applicant
Above noted agency

RECEIVED
OCT 21 1975
BRIDGE SECTION

STATUS REPORTS

Frequently Used Comments

1. The subject public notice is presently under review.

3. Approval withheld pending further investigation.

5. Approval withheld pending receipt of a lease application.

7. The Department of Ecology's Regional Office is awaiting receipt of an affidavit of publication for water quality certification before further action can be taken. (Please, disregard this comment if this material has already been forwarded.)

8. Objects to the project as proposed in the subject public notice.

10. If the applicant has not already done so, the local governmental agency having jurisdiction over the work site involved should be contacted to insure that the appropriate action will be taken to comply with the Shoreline Management Act of 1971. Notification of the local governments action should be sent to a,b,c,d,e, f, or g.

   a. Herm Huggins, Department of Ecology, 15345 Northeast 36th, Redmond, Washington 98052, phone (206) 885-1900.

   b. Robert Aggas, Department of Ecology, 15345 Northeast 36th, Redmond, Washington 98052, phone (206) 885-1900.

   c. Bill Miller or ~~Dick Carter~~, Department of Ecology, 7272 Cleanwater Lane, Olympia, Washington 98504, phone (206) 753-2353.

      Jim Krull or Howard Steeley, Department of Ecology, 7272 Cleanwater Lane, Olympia, Washington 98504, phone (206) 753-2353.

   d. James Lyerla, Department of Ecology, East 103 Indiana Avenue, Spokane, Washington 99207, phone (509) 456-2926.

   e. Ben Turner, Department of Ecology, East 103 Indiana Avenue, Spokane, Washington 99207, phone (509) 456-2926.

   f. Sam Bailey, Department of Ecology, 2802 Main Street, Union Gap, Washington 98903, phone (509) 248-0981.

   g. Morgan Cooper, Department of Ecology 2802 Main Street, Union Gap, Washington 98903, phone (509) 248-0981.

PLEASE DON'T HESITATE USING THE STATE AGENCY CONTACT LIST YOU'LL FIND ON THE BACK OF THIS SHEET

RECEIVED
OCT 21 1975
BRIDGE SECTION

STATE AGENCY CONTACT LIST

Department of Fisheries
Stream Improvement & Hydraulics Ph: (206) 753-2908
Attention: Hank Harder
5803 Capitol Boulevard South
Olympia, Washington 98504

State of Washington
Department of Game Ph: (206) 753-5715
600 North Capitol Way
Olympia, Washington 98504

Department of Highways
Engineering Services Division of
Highway Development Ph: (206) 753-7193
Attention: Keith Markoff
Highway Administration Building
Olympia, Washington 98504

Department of Social & Health Services
Environmental Programs
Health Services Division Ph: (206) 753-3473
Attention: John Laubach
Mail Stop 4-1
Olympia, Washington 98504

Department of Natural Resources
Marine Land Management Ph: (206) 753-5325
Attention: Pat Beehler
Olympia, Washington 98504

State Parks & Recreation Commission
Attention: Chet Miller Ph: (206) 753-2016
P. O. Box 1128
Olympia, Washington 98504

Department of Ecology
CORPS Permit Coordination Ph: (206) 753-6193
Attention: Edrea Peterson
Olympia, Washington 98504

RECEIVED
OCT 21 1975
BRIDGE SECTION

8905

9

FORM 81-734-3030

OREGON STATE HIGHWAY DIVISION

INTER-OFFICE CORRESPONDENCE

FILE: 626-1968-240

October 22, 1975
Portland, OR 97213

FROM: R. N. BOTHMAN
Ass't. State Highway Engineer

SUBJECT: I-205 Freeway bridge
CoastGuard permit

TO: WALT HART
Bridge Engineer

Attention Bob Ellison

Your comments on the transmittal slip, with the letter from R. C. Walton, U.S. Coast Guard, dated September 29, indicates that "It will take the Coast Guard approximately six months after receipt of the final environmental impact statement to issue the bridge permit."

A six-month delay after receipt of the final EIS will not be acceptable to Oregon.

Therefore, in future discussions you should assume the position that Oregon is attempting to expedite the permit for the I-205 bridge over the Columbia River.

As an example, we should perhaps consider submitting the draft EIS to the U.S. Coast Guard as a document to establish the I-205 bridge design, with indication that there would not be a revision to the draft on that portion of the facility.

ebg

cc: F. B. Klaboe
E. S. Hunter
R. L. Schroeder

NOTED
F. B. KLABOE

RECEIVED
STATE HWY ENGR
OCT 24 '75
REFER TO
FOR

Info	Inves	R/D	D/R	Sign	Act	File

RECEIVED
OCT 24 1975
BRIDGE SECTION

8905 9

October 8, 1975

Commander
Thirteenth Coast Guard District
915 Second Avenue
Seattle, Washington 98174

Attn: Chief Navigation Division

Re: Status Report - Public Notice No. 75-N-19

Oregon St. Highway Division

Gentlemen:

On behalf of the State of Washington, we wish to report the subject public notice has not been released because of the agencies listed below and their corresponding responses coded on the attached page:

NOTED
E. S. HUNTER

Ecology: S. W. Regional Office
Shoreline Permit: 10c

Fisheries: 1 7b

We wish to advise that approval of this work is being held in abeyance by the State of Washington pending the satisfactory resolution of the above mentioned problem.

The applicant may wish to contact the agency noted above to determine the exact status of the review within that agency.

Sincerely,

Edrea Peterson

Edrea Peterson
Authorization Control &
Compliance Section

RECEIVED
JAN 5 1976
Office of
Assistant State Highway Engineer

RECEIVED
STATE HWY [illegible]
DEC 24 '75
REFER TO Hant tan
FOR
cy. Wolfe

NOTED
R. L. SCHROEDER

cc: Applicant
Above noted agency

rev. - 10/75

STATUS REPORTS

Frequently Used Comments:

[✓ 1.] The subject public notice has not been responded to.

2. The subject public notice is presently under review.

3. Approval withheld pending further investigation.

4. Approval withheld pending receipt of a lease application.

5. Objects to the project as proposed in the subject public notice.

6. The Department of Ecology's Regional Office is awaiting receipt of an affidavit of publication for water quality certification before further action can be taken. (Please disregard this comment if this material has already been forwarded to a., b., c., or d. below.)

[✓ 7.] If the applicant has not already done so, the local governmental agency having jurisdiction over the work site involved should be contacted to insure that the appropriate action will be taken to comply with the Shoreline Management Act of 1971. (Notification of the local governments action should be sent to a., b., c., or d. below.)

Department of Ecology Regional Offices:

a. Northwest Office, Department of Ecology, 4350 150th NE, Redmond, Washington 98052, phone (206)885-1900.

[✓ b.] Southwest Office, Department of Ecology, 7272 Cleanwater Lane, Olympia, Washington 98504, phone (206)753-2353.

c. Eastern Office, Department of Ecology, East 103 Indiana Avenue, Spokane, Washington 99207, phone (509)456-2926.

d. Central Office, Department of Ecology, 2802 Main Street, Union Gap, Washington 98903, phone (509)575-2800.

(See reverse side)

rev.--10/75

STATE AGENCY CONTACT LIST

Department of Fisheries
Stream Improvement & Hydraulics
Attention: Hank Harder
5803 Capitol Boulevard South
Olympia, Washington 98504
Ph: (206) 753-2908

State of Washington
Department of Game
Attention: Jay Hunter
600 North Capitol Way
Olympia, Washington 98504
Ph: (206) 753-5897

Department of Highways
Engineering Services Division of
High Development
Attention Keith Markoff
Highway Administration Building
Olympia, Washington 98504
Ph: (206) 753-7193

Department of Social & Health Services
Environmental Programs
Health Services Division
Attention: John Laubach
P.O. Box 1788
Olympia, Washington 98504
Ph: (206) 753-3473

Department of Natural Resources
Marine Land Management
Attention: Pat Beehler
Olympia, Washington 98504
Ph: (206) 753-5325

State Parks & Recreation Commission
Attention: Dave Heiser
P.O. Box 1128
Olympia, Washington 98504
Ph: (206) 753-2016

Department of Ecology
CORPS Permit Coordination
Attention: Edrea Peterson
Olympia, Washington 98504
Ph: (206) 753-6193

PLEASE DO NOT HESITATE TO USE THIS STATE AGENCY CONTACT LIST.

(See reverse side)

8705

9

DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

MAILING ADDRESS:
COMMANDER (oan)
THIRTEENTH COAST GUARD DISTRICT
915 SECOND AVE.
SEATTLE, WASH. 98174
PHONE: (206) 442-5864

RECEIVED
STATE HWY ENGR
OCT 2'75
REFER TO
FOR

Info	Inves	R/D	D/R	Sign	Act	File

3271
Serial 505
29 September 1975

Oregon State Highway Division
Attention: Mr. Robert Ellison
Assistant Bridge Engineer
Highway Building
Salem, Oregon 97310

NOTED
E. S. HUNTE

Gentlemen:

The enclosed letter was received from the Portland District, Corps of Engineers. The letter appears self-explanatory.

Further processing of your request for a new permit for the I-205 bridge over Columbia River is being held pending the study by the Corps of Engineers on channel realignment as a method of reducing the impact on navigation.

Prior to forwarding the bridge permit application to the Office of the Commandant of the Coast Guard in Washington, D.C., it will be necessary to have the FINAL EIS. It is requested that information be furnished on the status of this EIS and when a preliminary copy will be available for review.

Sincerely,

R. C. Walton

R. C. WALTON
Commander, U. S. Coast Guard
Chief, Aids to Navigation Branch
By direction of the District Commander

Encl:
(1) Corps of Engineers' letter of 18 Sept. 1975

Copy to:
FHWA, Division Engineer, Salem, OR

RECEIVED
OCT 2 1975
BRIDGE SECTION

NOTED
W. J. HART

OTED
W. ELLIS

DEPARTMENT OF DEFENSE
UNITED STATES OF AMERICA

DEPARTMENT OF THE ARMY
PORTLAND DISTRICT. CORPS OF ENGINEERS
P. O. BOX 2946
PORTLAND, OREGON 97208

REPLY TO
ATTENTION OF:

NPPND

18 September 1975

SUBJECT: Public Notice 75-N-19, Proposed New Bridge, Columbia River
Mile 112.7 Near Vancouver and Portland Highway I-205

Commander
Thirteenth Coast Guard District
915 Second Avenue
Seattle, WA 98174

1. Reference is made to the recent discussions with Mr. Ed Shields of your office regarding the concern of the navigation interest with the present alignment of the navigation channel where it passes under the bridge. We are currently reviewing the requirements for an improvement of the alignment and expect to complete this review in about two weeks. We will be in contact with your office at that time.

2. The applicant should be advised that they are required to obtain a permit from Multnomah County Drainage District No. 1 for approval of the crossing of the levee right-of-way.

FOR THE DISTRICT ENGINEER:

A. J. Heineman
A. J. HEINEMAN
Chief, Navigation Division

COPY

RECEIVED
OCT 2 1975
BRIDGE SECTION

AMERICAN REVOLUTION BICENTENNIAL
1776-1976

8905

8

ROBERT W. STRAUB
GOVERNOR

OFFICE OF THE GOVERNOR
STATE CAPITOL
SALEM 97310

RECEIVED
STATE HWY ENGR
SEP 25 '75
REFER TO
FOR

Info	Inves	R/D	D/R	Sign	Act	File

September 19, 1975

NOTED
E. S. HUNTER

cc Hunt
9-26-75

Commander (oan)
Thirteenth Coast Guard District
915 Second Avenue
Seattle, WA 98174

Att: R. V. Mackney
Chief, Aids to Navigation Branch

Ref: PN 75-8-19 (Columbia River - Bridges)

Dear Sir:

I approve the design changes in the Highway I-205 bridge, providing the slough on Government Island remains accessible from the river.

Specific conditions for the necessary removal, filling, and spoil disposal in the Oregon portion of the project will be outlined in permits which the Oregon State Highway Division will obtain from the Division of State Lands.

Sincerely,

Bob Straub
Governor

RWS:kp

cc: Oregon State Highway Division
Division of State Lands
Department of Environmental Quality
Department of Fish & Wildlife
U.S. Fish & Wildlife Service
Corps of Engineers

ESH

COPY

8105

FORM 81-734-3030

OREGON STATE HIGHWAY DIVISION

FILE: BR 9555

INTER-OFFICE CORRESPONDENCE

Salem, Oregon

September 11, 1975

ORIGINAL SIGNED
R.W. ELLISON

FROM: R. W. Ellison
Bridge Administration Engineer

TO:
Memo to the File

SUBJECT:
Columbia River (I-205) Bridge
Coast Guard Permit Application
Meeting with Navigation Interests
Main Span Horizontal Clearance

NOTED
E. S. HUNTER

On September 10, 1975, I met with personnel on the attached list at the U. S. Army Corps of Engineers District Office in Portland at 10:30 a.m. The meeting had been called by Mr. Ed Shields of the Coast Guard because of a navigation interest inquiry. They wanted to know why the horizontal clearance over the main channel, as shown on our current Coast Guard permit application, is less than the 500' previously agreed upon.

I explained that there are two reasons: 1) The Corps of Engineers changed the alignment and location of the channel under the bridge, and 2) the State had erroneously shown the fenders around the piers longer than needed.

I explained that the Corps had changed the channel after the bridge design was well along and had informed the State that if the change created any problems, the Corps would change back to the original channel.

I pointed out that the Coast Guard permit application indicates a horizontal clearance of 420' between proposed pier fenders perpendicular to the existing channel alignment. When the fender size is corrected, the clearance is increased to 445'. If the channel is restored to its original position, the 500' clearance is also restored.

In response to questions, I indicated that the Washington end of the structure cannot be moved eastward because the roadway approach to the bridge is paved. The Oregon end is fixed by location procedure, approvals, right-of-way purchases, et cetera. The bridge has been designed and to widen the main span would require a complete redesign, a one-year delay, and approximately $1.5 million in redesign costs. Inflation increases the structure's cost about $1 million per month. Moving the main spans 100' south would require study, additional cost and delay.

Mr. Heineman of the Corps, stated that the bridge is committed. He and the navigation interests did some studying of channel change and dredging upstream from the bridge to provide more of a straight shot at the bridge on the old alignment. The Corps has trouble with the channel staying open in this upstream area and pile dikes, et cetera, would be required to help maintain the changed channel. It was estimated that the dikes would cost approximately $400,000 and that there would be additional dredging of about $100,000 per year to maintain the channel. The Corps asked if the State could participate in such a project. I told them we don't have such funds and that I don't believe the FHWA would approve federal funds for the work.

As the meeting ended, the Corps said they would look into the possibility of channel change work above the bridge. It was agreed that the Corps, Coast Guard, and State will meet again later to discuss solutions.

After the meeting I told Mr. Shields of the Coast Guard that the next move is his. We have submitted a permit application and expect to hear from the Coast Guard concerning approval.

RWE:dh

cc E. S. Hunter
R. N. Bothman
W. J. Hart
P. M. Oakley

RECEIVED
STATE HWY ENGR
SEP 15 '75
REFER TO
FOR
Info [illegible] R/D [illegible] [illegible] Act File

Name	Title	Company
KIRK ROBERTS	VP OPERATIONS	SHAVER TRANS. Co.
Harold Roberts	Port Captain	PAC
Robert W. Ellison	Br. Admin. Engr.	Oregon Highway.
Ed. Shields	Coast Guard -	Seattle.
DON EDY	ASTORIA MANAGER	KNAPPTON TOWBOAT Co
Ed Beall	VP. Operations	Knappton Towboat C
BOB HOPMAN		Corps of Engrs
CHUCK GALLOWAY		✓
Adam Heineman	Ch., Nav. Div.	✓

8905 8

DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

MAILING ADDRESS:
COMMANDER (oan)
THIRTEENTH COAST GUARD DISTRICT
915 SECOND AVE.
SEATTLE, WASH. 98174
PHONE: (206) 442-5864

RECEIVED
STATE HWY ENGR
AUG 11 '75
REFER TO
FOR

Info	Inves	R/D	D/R	Sign	Act	File

3271
Serial 343
4 AUG 1975

In reply refer to
Proposed New Bridge
Columbia River Mile 112.7
Near Vancouver and Portland
Highway I-205

NOTED
E. S. HUNTER

PUBLIC NOTICE NO. 75-N-19

BRIDGES

All interested parties are notified that an application has been received by Commander, Thirteenth Coast Guard District from Oregon State Highway Division for a proposed bridge across a navigable waterway as follows:

WATERWAY AND LOCATION

Columbia River at approximately Mile 112.7. Highway I-205 will cross the Columbia River on the new bridge.

CHARACTER OF WORK

The proposal is to construct two parallel fixed highway bridges between Vancouver, Washington and Portland, Oregon for Highway I-205. The proposed bridge will provide the following navigation clearances:

Main Channel of Columbia River

Horizontal	420 feet (if pier fenders are constructed) 468 feet without fenders
Vertical	136* feet minimum above low water (Columbia River Datum) 144* feet minimum central 300 feet above low water (Columbia River Datum) 157* feet High Point of span

South Channel or
Small Boat Channel
Between Government Island and
Oregon Shore

Horizontal	174 feet between piers
Vertical	48* feet on channel centerline above Columbia River Datum with slight reduction on Oregon side of Centerline.

ESH

* The horizontal and vertical clearances of all other spans are tabulated on the respective drawing. All vertical clearances will be reduced by the height of water surface above CRD, i.e., for a gage reading of 15 feet at the bridge site reduce all vertical clearances by 15 feet from that value tabulated on the drawing or listed above.

Oregon State Highway Division applied for and was granted a permit on 20 May 1970 (Permit No. 41-70) for a bridge at the same site. The present application covers a request for additional time to perform the work; design change from 3 lanes of vehicles to 4 lanes in each direction; and other design changes associated with the Port of Portland abandonment of a dredge and fill project associated with Portland International Airport.

The navigation clearances on Main Channel of Columbia River are not changed, however, the tabulated horizontal dimension appears less because of additional skew introduced by the realignment of the Federal Navigation Project maintained by the Corps of Engineers. The vertical clearances in south channel are somewhat reduced from that previously approved due to height limitations imposed by the Portland International Airport, cancellation of Portland Airport Dredge and Fill proposal, and maintenance of south channel in present location rather than the previously proposed relocation to the north.

BASIS FOR DECISION

The decision as to whether or not approval of the location and plans for the proposed bridge will be granted must rest upon the impact of the bridge on navigation and the quality of the human environment. Factors such as wildlife and waterfowl refuges, public parks, historic sites, etc., will be made a part of the record and will be considered in determining whether or not it would be in the best public interest to grant approval.

ENVIRONMENTAL CONSIDERATIONS

Consideration of the impact of the bridge on the quality of the human environment is not a subject for comment under this notice. An Environmental Impact Statement, for the highway project, which includes this bridge project as required by Section 102(2)(c) of the National Environmental Policy Act of 1969 will be prepared by Federal Highway Administration in accordance with guidelines promulgated by the Council on Environmental Quality and Department of Transportation Order No. 5610.1 (series). The Federal Highway Administration is lead agency within the Department of Transportation for the total highway project. Comments, if any, concerning the environment should be directed to FHWA Regional Office, Mohawk Building, Portland, Oregon.

The DRAFT stage of the EIS was circulated and may be examined in the Coast Guard Thirteenth District Office, Aids to Navigation Branch, 915 - 2nd Avenue, Room 3564, Seattle, Washington; Oregon Highway Division, Salem, Oregon; FHWA Division Engineer, Salem, Oregon; FHWA Regional Office, Mohawk Building, Portland, Oregon. The project involves land on Government Island which is covered by Section 4(f) of the Department of Transportation Act. This involvement will be addressed in the Environmental Impact Statement.

SOLICITATION OF COMMENTS

Interested parties are requested to express their views, in writing, upon the suitability of the location, the adequacy of the navigational clearances and need for pier protection, giving sufficient detail to establish a clear understanding of reasons for support or opposition. Comments regarding the need for fendering systems are requested.

Plans of the proposed Columbia River crossing are incorporated in this notice as drawing sheets 1 to 12 of a series of 12 sheets. Also incorporated in this notice are drawing sheets 1 to 6 of a series of 6 sheets depicting necessary construction activity, including the dimensions through falsework at both the main channel and south channel; excavation of glory holes around each pier for placement of riprap; excavation for a temporary loading dock on north side of Government Island; placement of temporary log booms; construction of temporary timber trestle and/or falsework across the South Channel; size and placement of cofferdams for bridge pier construction; dredging of temporary access channel on north and south shores of Government Island.

The navigation opening in the main channel of Columbia River during construction will provide at least 300 feet horizontal and 125 feet vertical above CRD. The navigation opening in south channel, during construction, will provide at least 40 feet horizontal and 33 feet vertical above CRD. The material dredged from access channel on north side of Government Island will be disposed of as part of the roadway fill to be constructed on Government Island. Material dredged from access channel across the South Channel of the river will be disposed of as part of the roadway fill on Government Island and/or the roadway fill on the Oregon Shore south of Marine Drive. Any excavated material not needed for roadway fills will be disposed of in the Columbia River.

4 AUG 1975

The applicant also reports the material excavated from the pier foundations and the glory holes around each pier down to the level for placing of rock riprap will be disposed of as excess in the Columbia River. This Public Notice does not cover disposal of that excess material.

All comments received by September 15, 1975 will be considered.

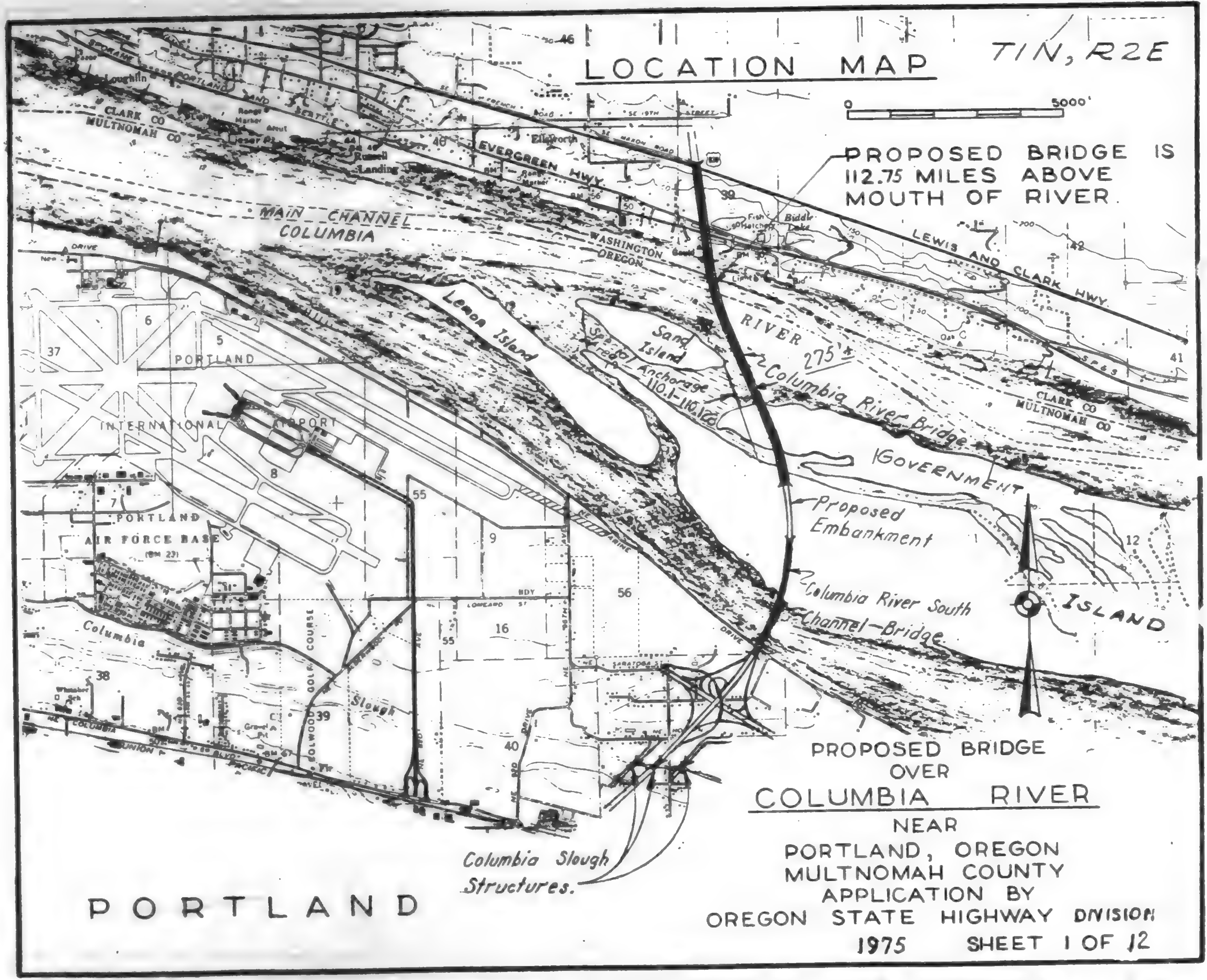
DEPARTMENT OF ARMY PERMIT

The applicant has also applied for a Department of Army permit under Section 404 of the FWPCA (PL 92-500) relating to the discharge of dredged or fill material. The Portland District Engineer will issue a separate Public Notice regarding these activities associated with the bridge construction project.

This notice consists of 4 pages, 12 sheets of plans for the completed bridges, 6 sheets of plans of construction activity, 1 sheet each of Public Notice by Washington State Department of Ecology and Oregon Department of Environmental Quality.

G. SCHMIDT
Captain, U. S. Coast Guard
Chief, Operations Division
By direction of the District Commander

Encl: (1) Plans for the completed bridges (12 sheets)
(2) Plans of construction activity (6 sheets)
(3) P/N by Wash. State Dept. of Ecology
(4) P/N Ore DEQ



LOCATION MAP

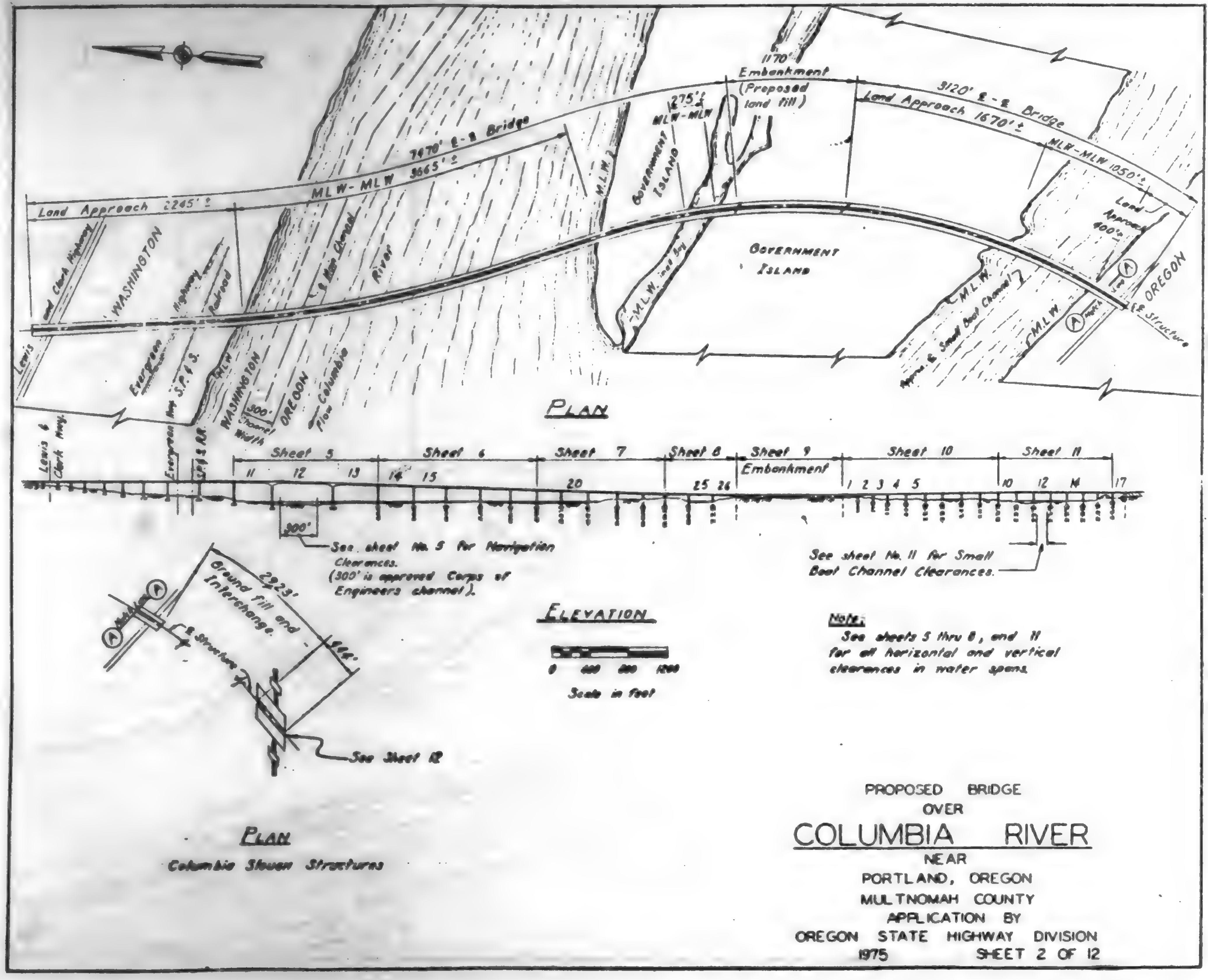
T1N, R2E

PROPOSED BRIDGE IS
112.75 MILES ABOVE
MOUTH OF RIVER.

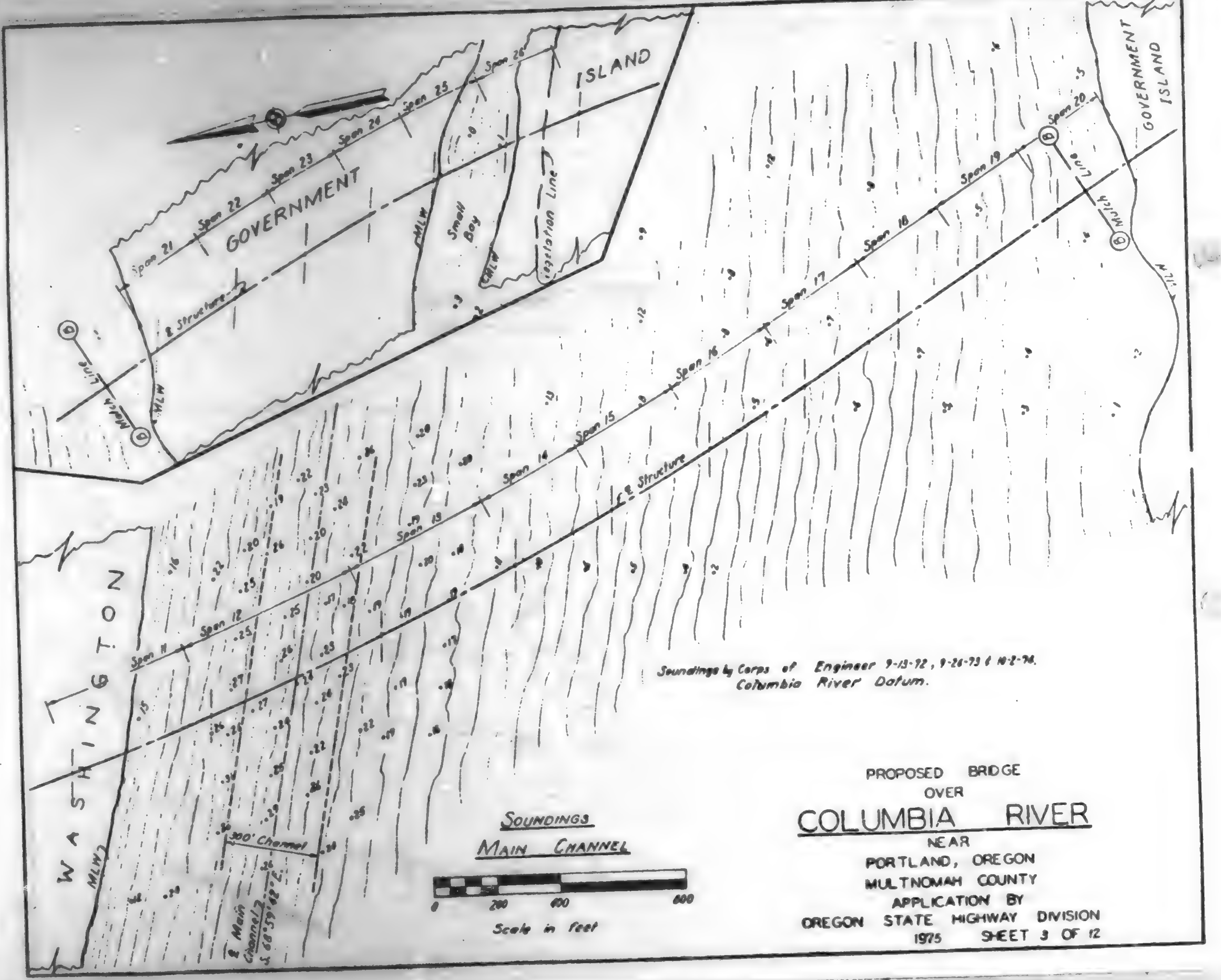
PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1975 SHEET 1 OF 12

0
5000'
EVERGREEN HWY
LEWIS AND CLARK HWY
CLARK CO
MULTNOMAH CO
WASHINGTON
OREGON
MAIN CHANNEL
COLUMBIA
RIVER
275'±
Columbia River Bridge
Lemon Island
Sand Island
Special Anchorage 110.1-110.12
GOVERNMENT
ISLAND
Proposed Embankment
Columbia River South Channel Bridge
Columbia Slough Structures.
PORTLAND
INTERNATIONAL
AIRPORT
PORTLAND
AIR FORCE BASE
Columbia
Slough
GOLF COURSE
Russell Landing
Ellsworth
Fish Hatchery
Biddle Lake
37
6
5
8
7
38
39
9
55
56
16
40
12
41
42
46
48

PORTLAND

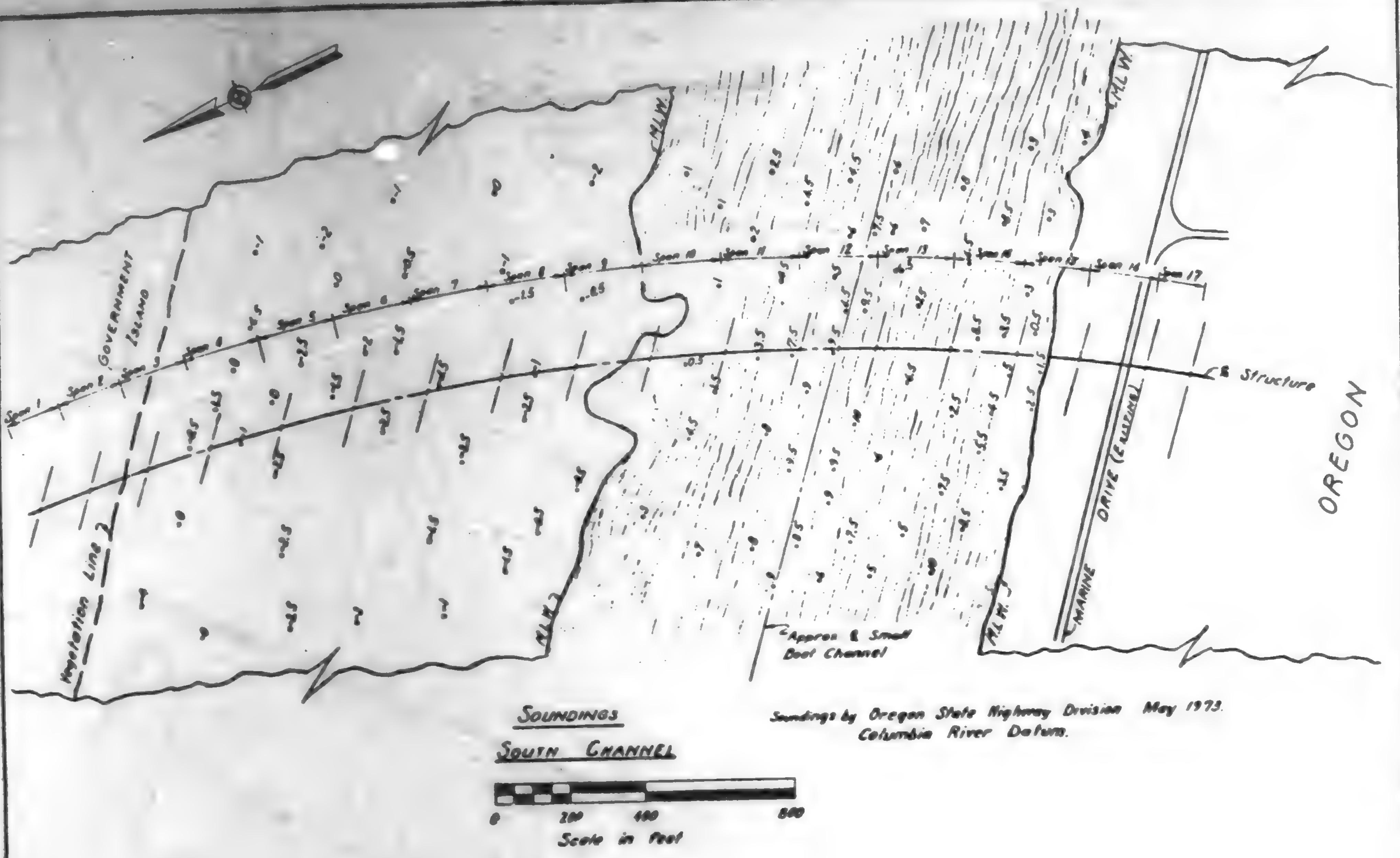

Land Approach 2245'±
MLW-MLW 3665'±
7470' ℄-℄ Bridge
Lewis and Clark Highway
WASHINGTON
Evergreen Highway
Railroad
Evergreen Hwy S.P.&S.
MLW
WASHINGTON
300' Channel Width
OREGON
℄ Main Channel
Flow Columbia River
M.L.W.
Government Island
275'± MLW-MLW
1170' Embankment (Proposed land fill)
M.L.W. incl. Sny
GOVERNMENT ISLAND
3120' ℄-℄ Bridge
Land Approach 1670'±
MLW-MLW 1050'±
Land Approach 400'±
M.L.W.
Approx. ℄ Small Boat Channel
M.L.W.
A
A
OREGON
℄ Structure
PLAN
Lewis & Clark Hwy.
Evergreen Hwy
S.P.&S. RR.
Sheet 5
Sheet 6
Sheet 7
Sheet 8
Sheet 9
Embankment
Sheet 10
Sheet 11
11
12
13
14
15
20
25
26
1
2
3
4
5
10
12
14
17
300'
See sheet No. 5 for Navigation Clearances. (300' is approved Corps of Engineers channel).
See sheet No. 11 for Small Boat Channel Clearances.
ELEVATION
0
400
800
1200
Scale in feet
Note:
See sheets 5 thru 8, and 11 for all horizontal and vertical clearances in water spans.
2923'
Ground fill and Interchange.
864'
A
A
℄ Structure
See Sheet 12
PLAN
Columbia Slough Structures

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1975 SHEET 2 OF 12


GOVERNMENT ISLAND
GOVERNMENT ISLAND
WASHINGTON
Span 11
Span 12
Span 13
Span 14
Span 15
Span 16
Span 17
Span 18
Span 19
Span 20
Span 21
Span 22
Span 23
Span 24
Span 25
Span 26
℄ Structure
℄ Structure
Match Line
Match Line
MLW
MLW
MLW
MLW
Small Bay
Vegetation Line
300' Channel
℄ Main Channel S. 68°59'48" E.
SOUNDINGS
MAIN CHANNEL
0
200
400
800
Scale in Feet

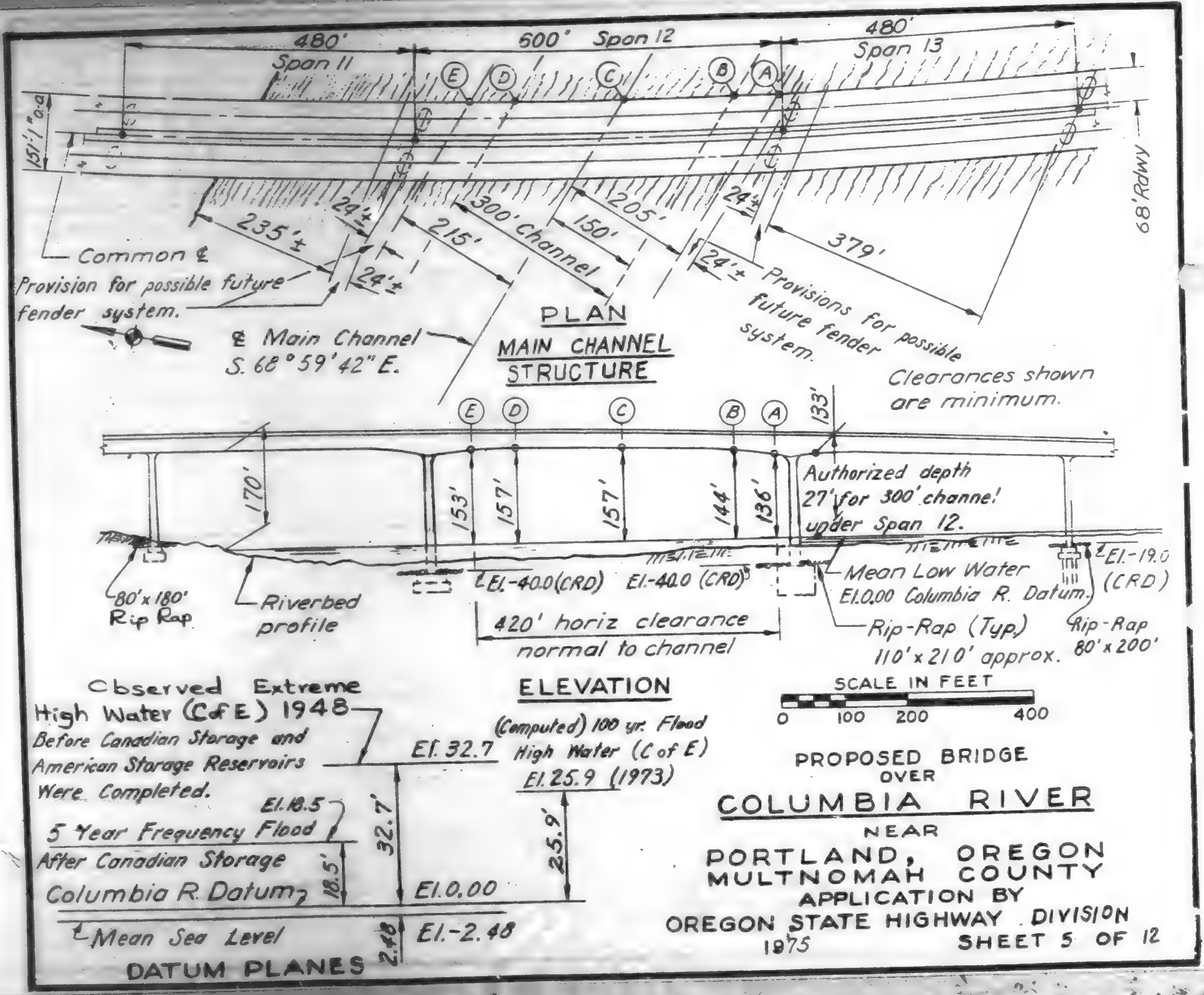
Soundings by Corps of Engineer 9-13-72, 9-26-73 & 10-2-74.
Columbia River Datum.

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1975 SHEET 3 OF 12


OREGON
MARINE DRIVE (Existing)
M.L.W.
℄ Structure
Span 1
Span 2
Span 3
Span 4
Span 5
Span 6
Span 7
Span 8
Span 9
Span 10
Span 11
Span 12
Span 13
Span 14
Span 15
Span 16
Span 17
GOVERNMENT ISLAND
Vegetation Line 2
℄ Approx. & Small Boat Channel
SOUNDINGS
SOUTH CHANNEL
0
200
400
800
Scale in Feet

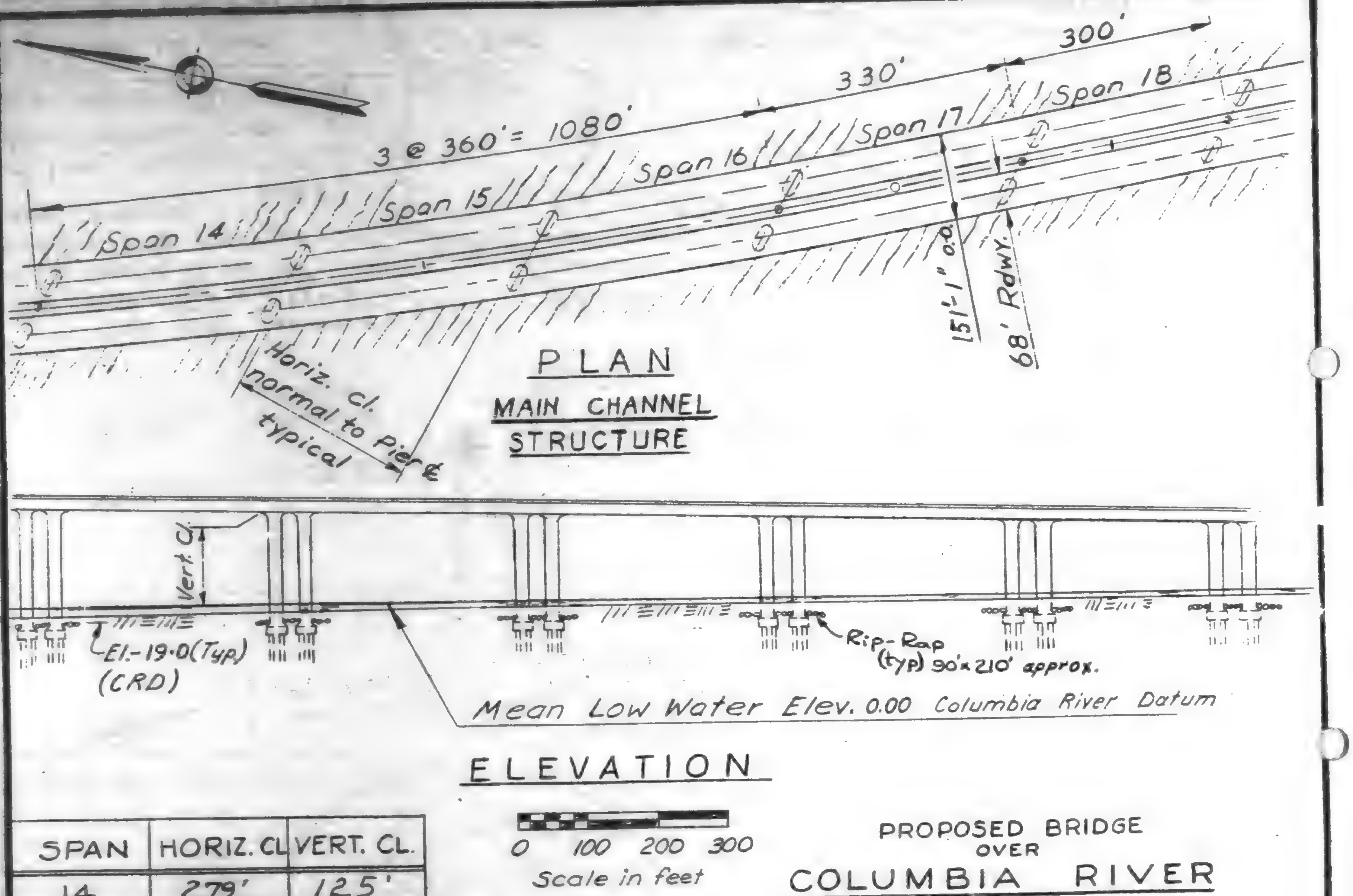
Soundings by Oregon State Highway Division May 1973.
Columbia River Datum.

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1975 SHEET 4 OF 12



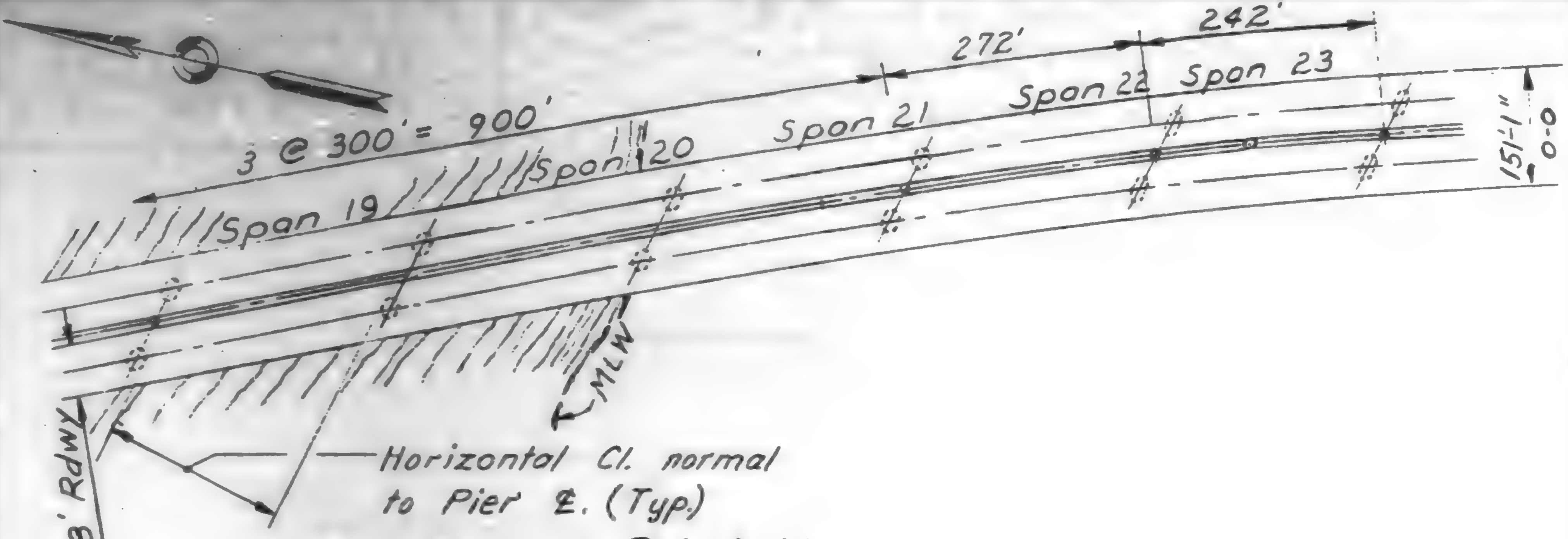
480'
Span 11
600' Span 12
480'
Span 13
E
D
C
B
A
151'-1" o.a.
68' Rdwy
235'±
24'±
215'
300' Channel
150'
205'
24'±
24'±
379'
Common ℄
Provision for possible future fender system.
Provisions for possible future fender system.
℄ Main Channel S. 68° 59' 42" E.
PLAN
MAIN CHANNEL STRUCTURE
Clearances shown are minimum.
133'
170'
153'
157'
157'
144'
136'
Authorized depth 27' for 300' channel under Span 12.
80'x 180' Rip Rap
Riverbed profile
El. -40.0 (CRD)
El. -40.0 (CRD)
Mean Low Water El. 0.00 Columbia R. Datum.
El. -19.0 (CRD)
420' horiz clearance normal to channel
Rip-Rap (Typ.) 110' x 210' approx.
Rip-Rap 80' x 200'
ELEVATION
SCALE IN FEET
0
100
200
400
Observed Extreme High Water (C of E) 1948 Before Canadian Storage and American Storage Reservoirs Were Completed.
El. 32.7
(Computed) 100 yr. Flood High Water (C of E) El. 25.9 (1973)
El. 18.5
5 Year Frequency Flood After Canadian Storage
32.7'
25.9'
18.5'
Columbia R. Datum
El. 0.00
Mean Sea Level
2.48
El. -2.48
DATUM PLANES

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1975
SHEET 5 OF 12


3 @ 360' = 1080'
330'
300'
Span 14
Span 15
Span 16
Span 17
Span 18
151'-1" o.o.
68' Rdwy.
Horiz. cl. normal to Pier ℄ typical
PLAN
MAIN CHANNEL STRUCTURE
Vert. Cl.
El.-19.0(Typ) (CRD)
Rip-Rap (typ) 90'x210' approx.
Mean Low Water Elev. 0.00 Columbia River Datum
ELEVATION
0 100 200 300
Scale in feet

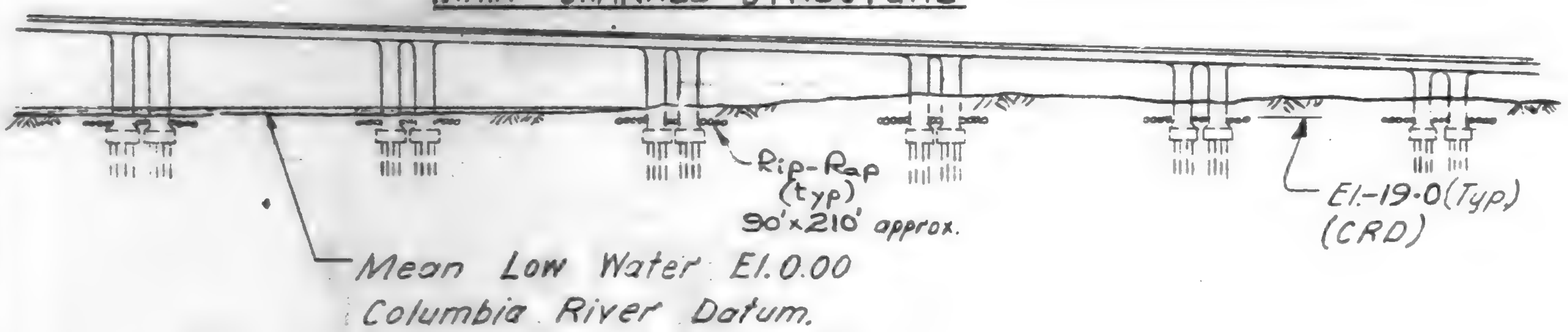
SPAN	HORIZ. CL	VERT. CL.
14	279'	125'
15	274'	116'
16	267'	106'
17	238'	96'
18	214'	90'

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1975 SHEET 6 OF 12


3 @ 300' = 900'
272'
242'
Span 19
Span 20
Span 21
Span 22
Span 23
151'-1"
0-0
MLW
68' Rdwy
Horizontal Cl. normal to Pier ℄. (Typ.)

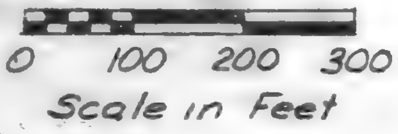
PLAN

MAIN CHANNEL STRUCTURE

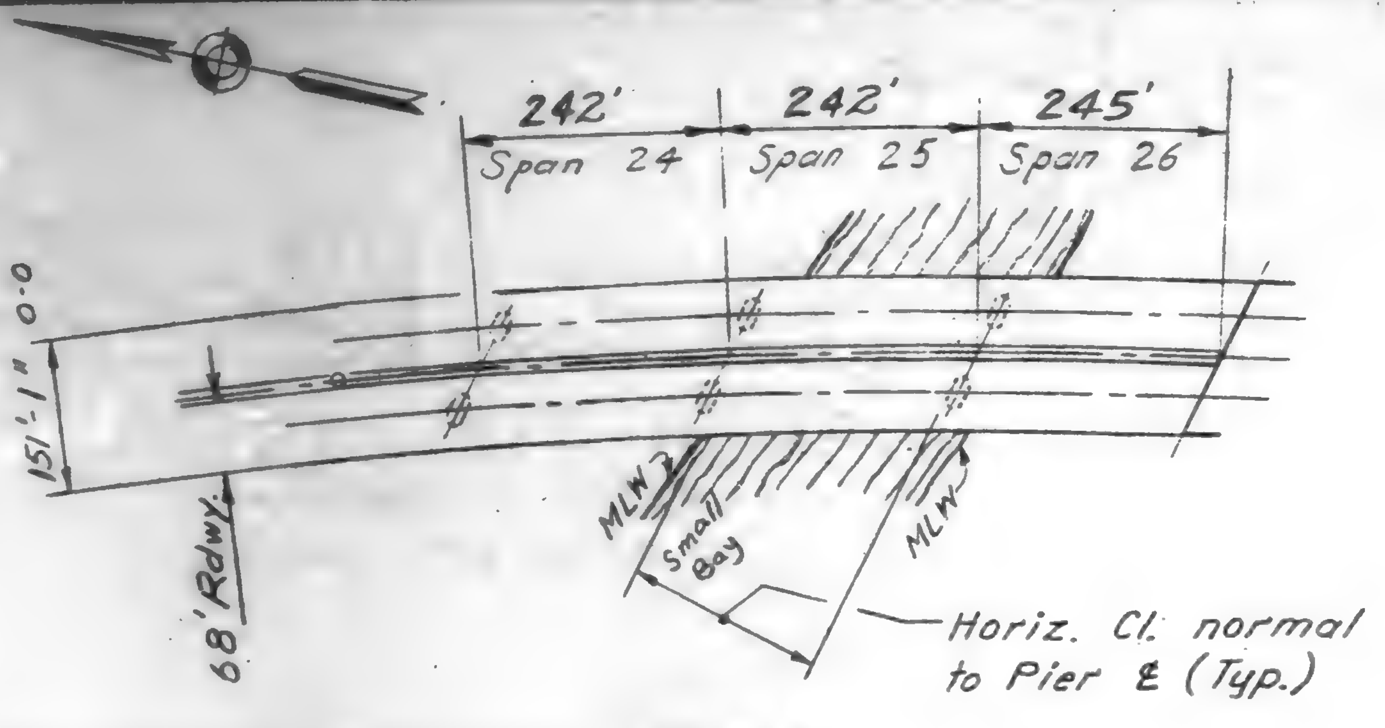

Rip-Rap (typ) 90'x210' approx.
El.-19.0 (Typ) (CRD)
Mean Low Water El. 0.00 Columbia River Datum.

ELEVATION

SPAN	HORIZ. CL.	VERT. CL.
19	214'	80'

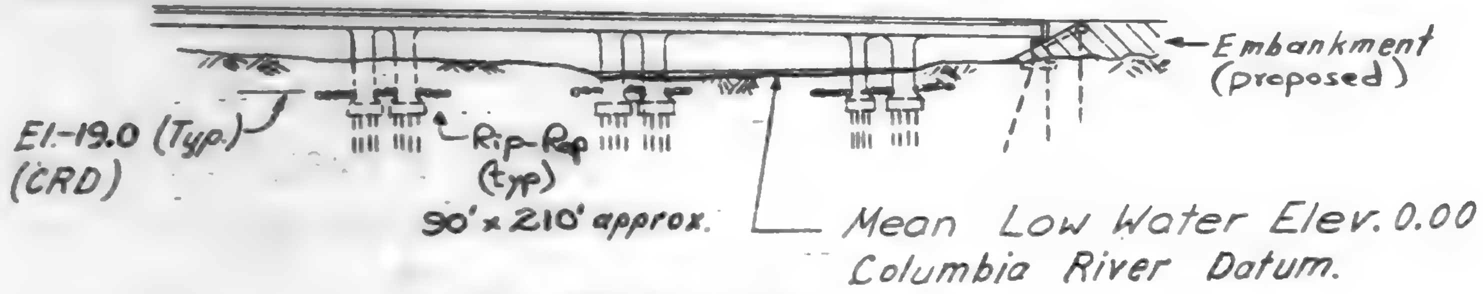

0 100 200 300
Scale in Feet

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1975 SHEET 7 OF 12


242'
Span 24
242'
Span 25
245'
Span 26
151'-1" 0.0
68' Rdwy.
MLW
Small Bay
MLW
Horiz. Cl. normal to Pier ℄ (Typ.)

PLAN

MAIN CHANNEL STRUCTURE

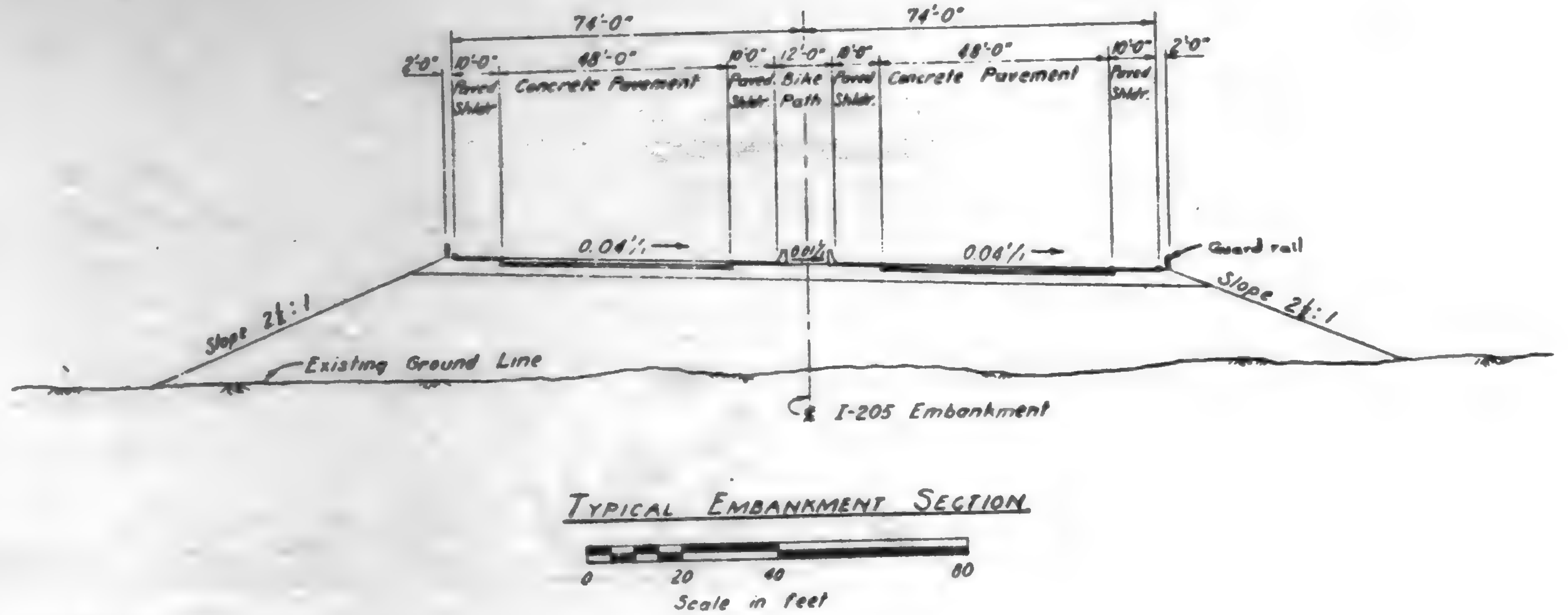

Embankment (proposed)
El.-19.0 (Typ.) (CRD)
Rip-Rap (typ)
90' x 210' approx.
Mean Low Water Elev. 0.00 Columbia River Datum.

ELEVATION

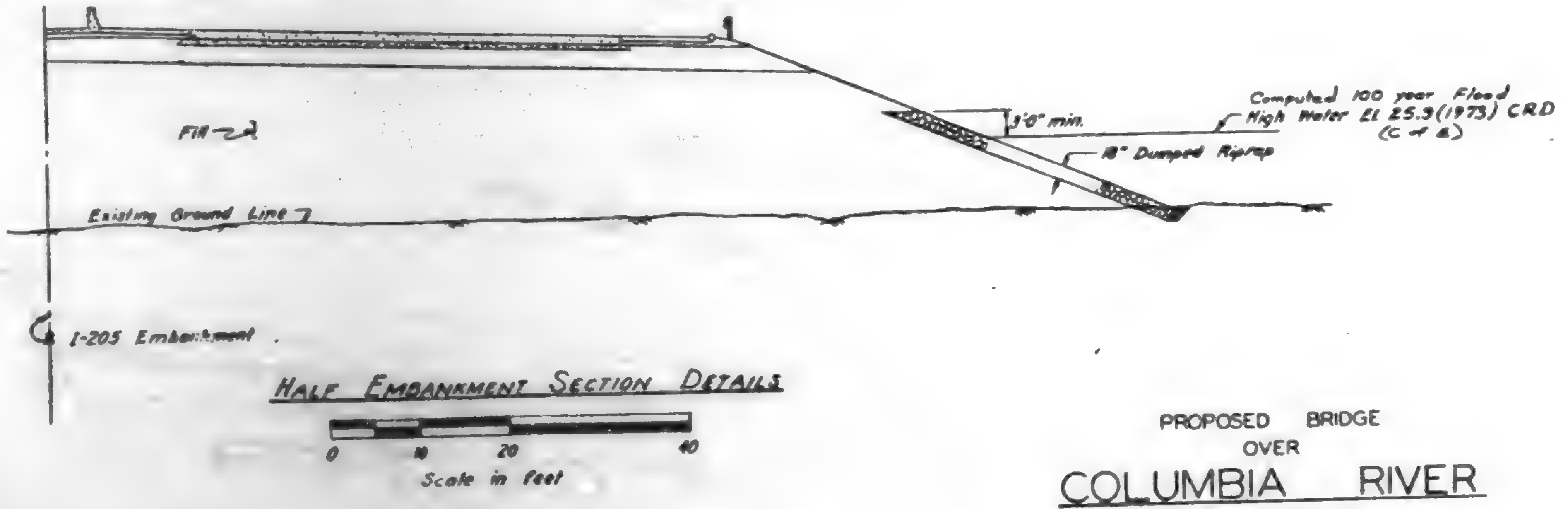
0 100 200 300
Scale in feet

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1975 SHEET 8 OF 12

SPAN	HORIZ. CL.	VERT. CL.
25	196'	35'

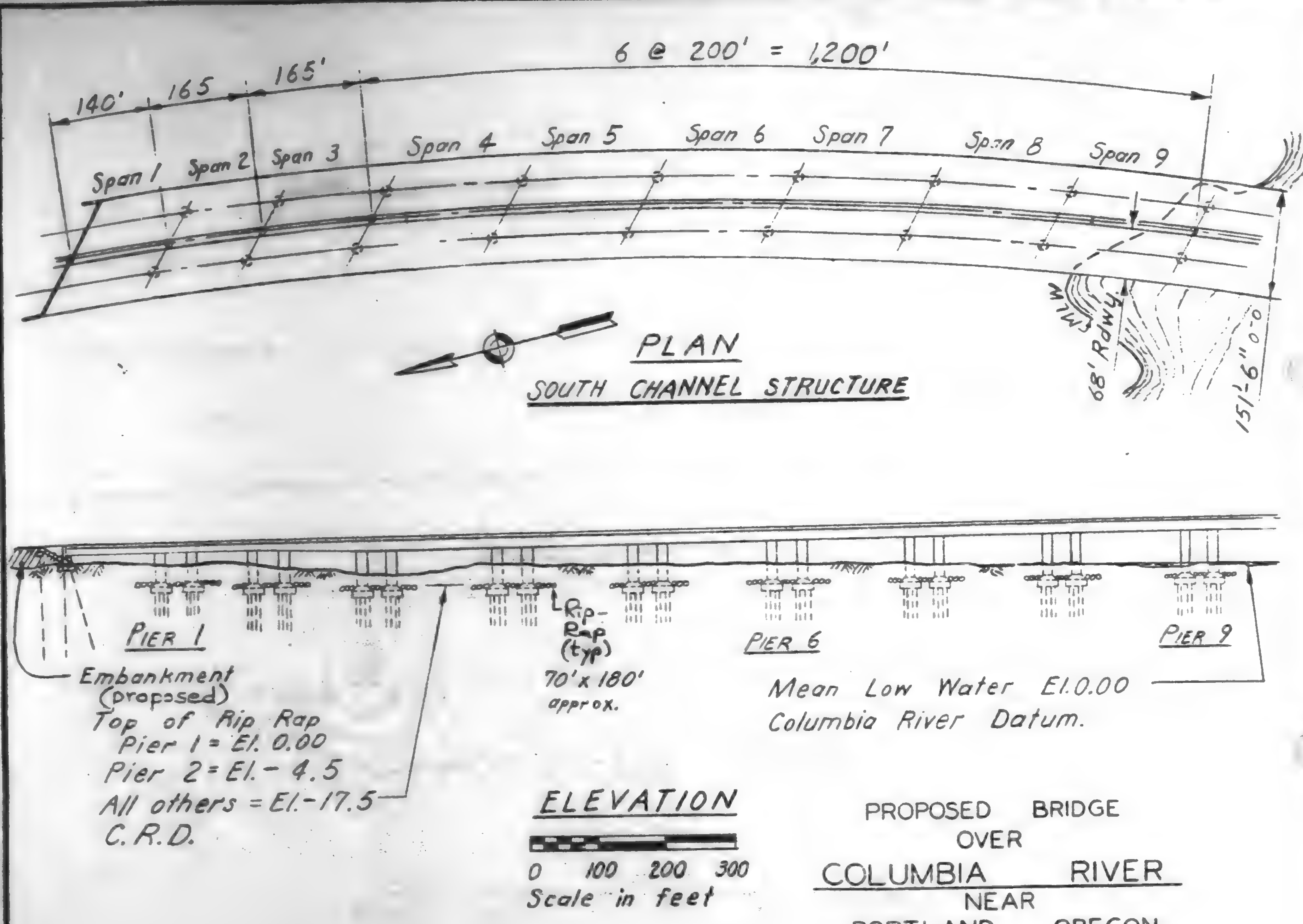

74'-0"
74'-0"
2'-0"
10'-0"
48'-0"
10'-0"
12'-0"
8'0"
48'-0"
10'-0"
2'-0"
Paved Shldr.
Concrete Pavement
Paved Shldr.
Bike Path
Paved Shldr.
Concrete Pavement
Paved Shldr.
0.04'/, →
0.04'/,
0.04'/, →
Guard rail
Slope 2½:1
Slope 2½:1
Existing Ground Line
℄ I-205 Embankment
0
20
40
80
Scale in feet

TYPICAL EMBANKMENT SECTION


Computed 100 year Flood High Water El 25.3 (1973) CRD (C of E)
3'0" min.
18" Dumped Riprap
Fill
Existing Ground Line
℄ I-205 Embankment
0
10
20
40
Scale in feet

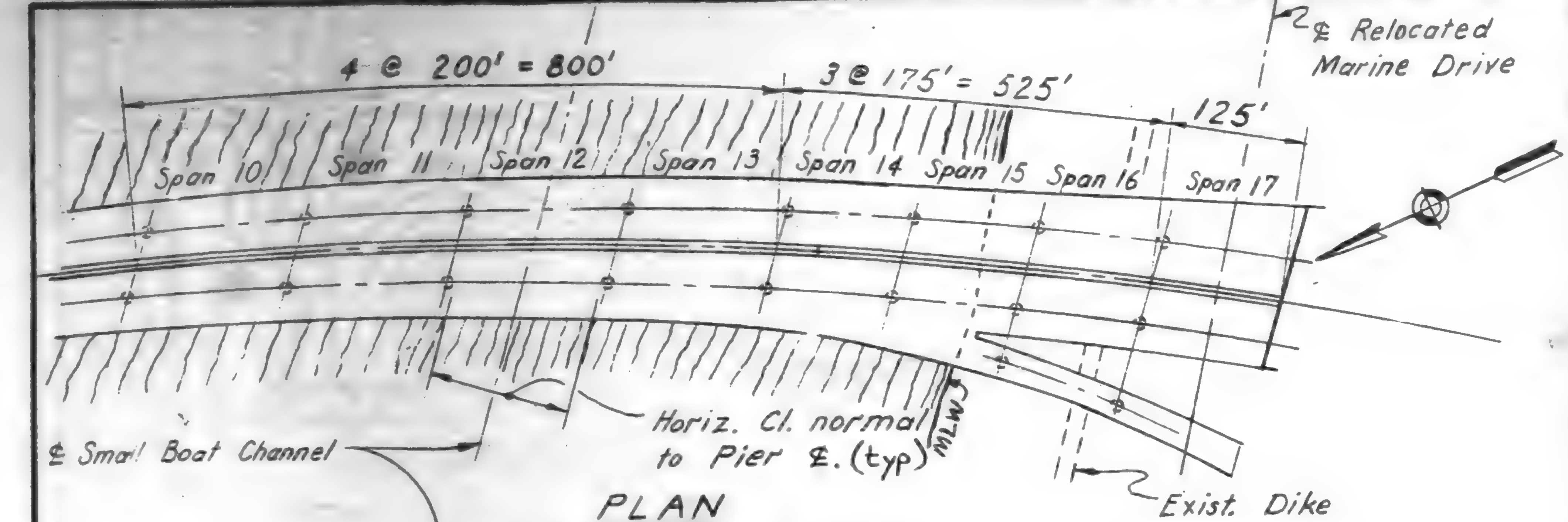
HALF EMBANKMENT SECTION DETAILS

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1975 SHEET 9 OF 12



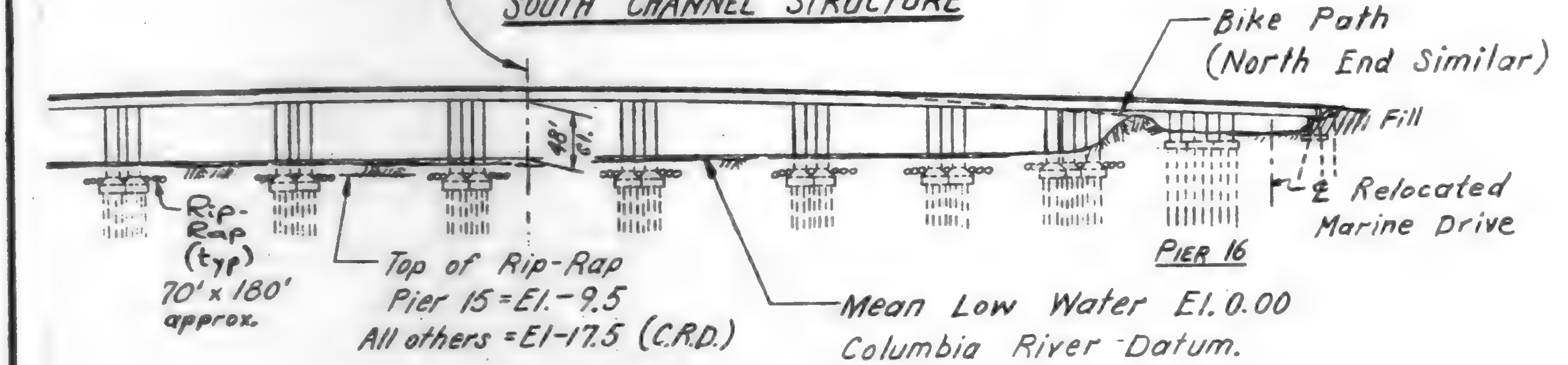
6 @ 200' = 1,200'
140'
165
165'
Span 1
Span 2
Span 3
Span 4
Span 5
Span 6
Span 7
Span 8
Span 9
M.L.W.
68' Rdwy.
151'-6" o-o
PLAN
SOUTH CHANNEL STRUCTURE
Pier 1
Rip-Rap (typ)
70' x 180' approx.
Pier 6
Pier 9
Embankment (proposed)
Top of Rip Rap
Pier 1 = El. 0.00
Pier 2 = El. - 4.5
All others = El. -17.5
C.R.D.
Mean Low Water El. 0.00
Columbia River Datum.
ELEVATION
0 100 200 300
Scale in feet

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1975 SHEET 10 OF 12



℄ Relocated Marine Drive
4 @ 200' = 800'
3 @ 175' = 525'
125'
Span 10
Span 11
Span 12
Span 13
Span 14
Span 15
Span 16
Span 17
MLW
Horiz. Cl. normal to Pier ℄. (typ)
℄ Small Boat Channel
Exist. Dike

PLAN
SOUTH CHANNEL STRUCTURE



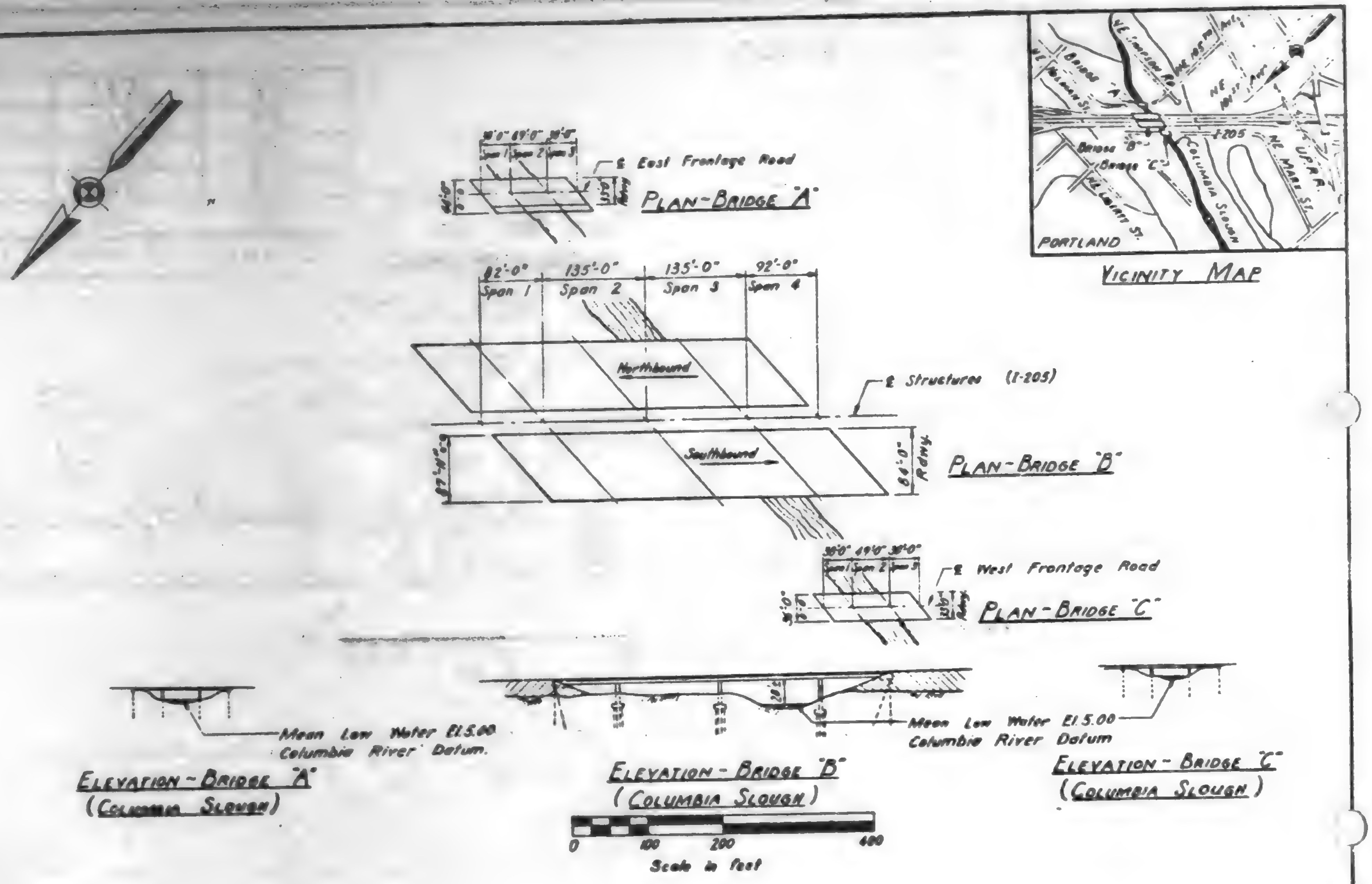
Bike Path (North End Similar)
Fill
48' Cl.
℄ Relocated Marine Drive
Pier 16
Rip-Rap (typ) 70' x 180' approx.
Top of Rip-Rap
Pier 15 = El. -9.5
All others = El -17.5 (C.R.D.)
Mean Low Water El. 0.00
Columbia River Datum.

ELEVATION

SPAN	HORIZ. CL.	VERT. CL.
10	170'	46'
11	172'	47'
12	174'	48'
13	176'	45'
14	153'	44'

0 100 200 300
Scale in feet

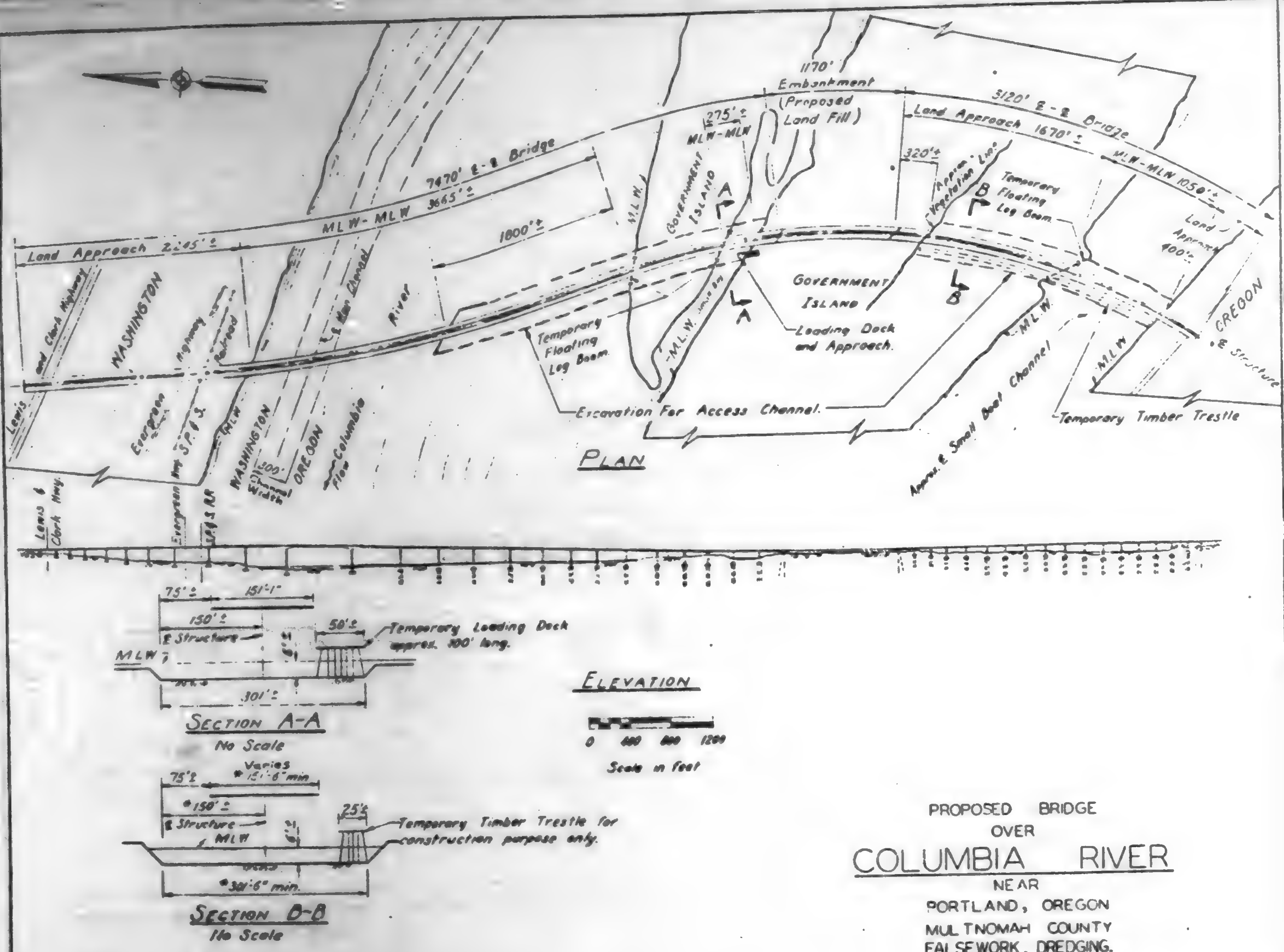
PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1975 SHEET 11 OF 12



NE Simpson Rd
NE 105th Ave
NE Holman St
Bridge "A"
NE 101st Ave
I-205
Bridge "B"
Bridge "C"
NE Lombard St
Columbia Slough
NE Marx St
U.P.R.R.
PORTLAND
VICINITY MAP
38'-0" 49'-0" 38'-0"
Span 1 Span 2 Span 3
℄ East Frontage Road
PLAN-BRIDGE "A"
82'-0" 135'-0" 135'-0" 92'-0"
Span 1 Span 2 Span 3 Span 4
Northbound
℄ Structures (I-205)
Southbound
84'-0" Rdwy.
PLAN-BRIDGE "B"
38'-0" 49'-0" 38'-0"
Span 1 Span 2 Span 3
℄ West Frontage Road
PLAN-BRIDGE "C"
Mean Low Water El. 5.00 Columbia River Datum.
ELEVATION-BRIDGE "A" (COLUMBIA SLOUGH)
Mean Low Water El. 5.00 Columbia River Datum
ELEVATION-BRIDGE "B" (COLUMBIA SLOUGH)
ELEVATION-BRIDGE "C" (COLUMBIA SLOUGH)
0
100
200
400
Scale in feet

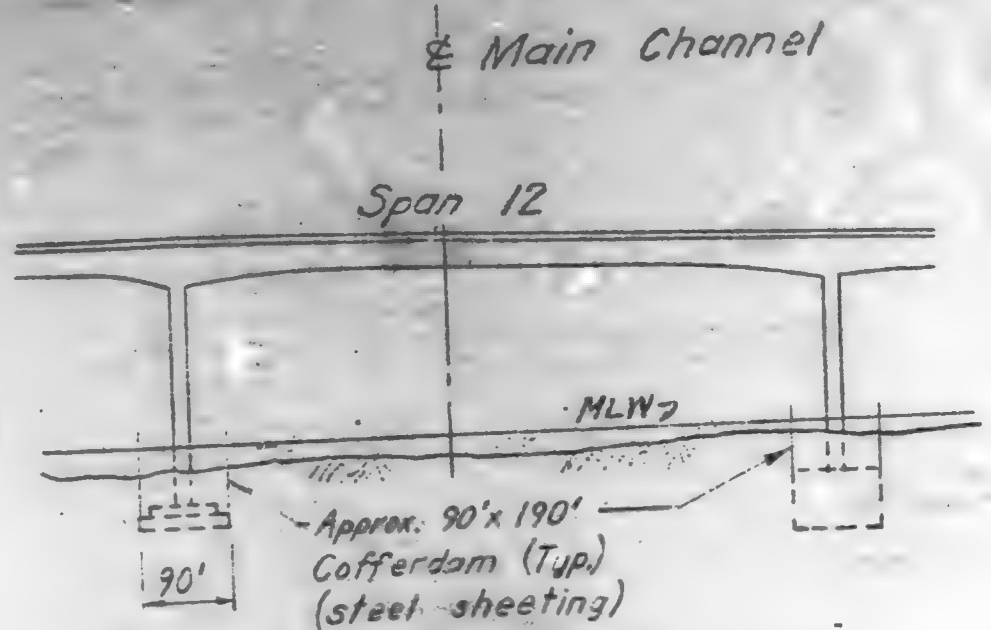
PROPOSED BRIDGES
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1975 SHEET 12 OF 12

BRIDGE	SPAN	HORIZ. CL.	VERT. CL.
A	2	35'	13'
B	3	37'	28'
C	2	30'	11'


7470' ℄-℄ Bridge
MLW-MLW 3665'±
Land Approach 2245'±
1000'±
1170' Embankment (Proposed Land Fill)
275'± MLW-MLW
320'±
3120' ℄-℄ Bridge
Land Approach 1670'±
MLW-MLW 1050'±
Land Approach 400'±
Approx. Vegetation Line
Temporary Floating Log Boom
Government Island
Loading Dock and Approach.
Excavation For Access Channel.
Approx. ℄ Small Boat Channel
Temporary Timber Trestle
℄ Structure
OREGON
WASHINGTON
Lewis and Clark Highway
Evergreen Highway
Railroad
S.P.&S.
M.L.W.
℄ Main Channel
300' Channel Width
Columbia River
Flow
PLAN
Lewis & Clark Hwy.
Evergreen Hwy.
S.P.&S. RR
ELEVATION
0 400 800 1200
Scale in feet
75'±
151'-1"
150'±
℄ Structure
50'±
Temporary Loading Dock approx. 100' long.
MLW
301'±
SECTION A-A
No Scale
75'±
* Varies 151'-6" min.
*150'±
℄ Structure
MLW
25'±
Temporary Timber Trestle for construction purpose only.
*301'-6" min.
SECTION B-B
No Scale

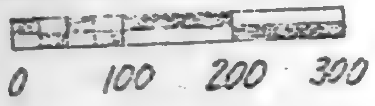
PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
FALSEWORK, DREDGING,
COFFERDAM AND
WORK TRESTLES
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1975 SUPPLEMENTAL SHEET 1 OF 6

Note:
* Structure width varies spans 11 thru 15 of south channel. Maintain 75'± channel each side of structure.


℄ Main Channel
Span 12
MLW
Approx. 90'x 190'
Cofferdam (Typ.)
(steel sheeting)
90'

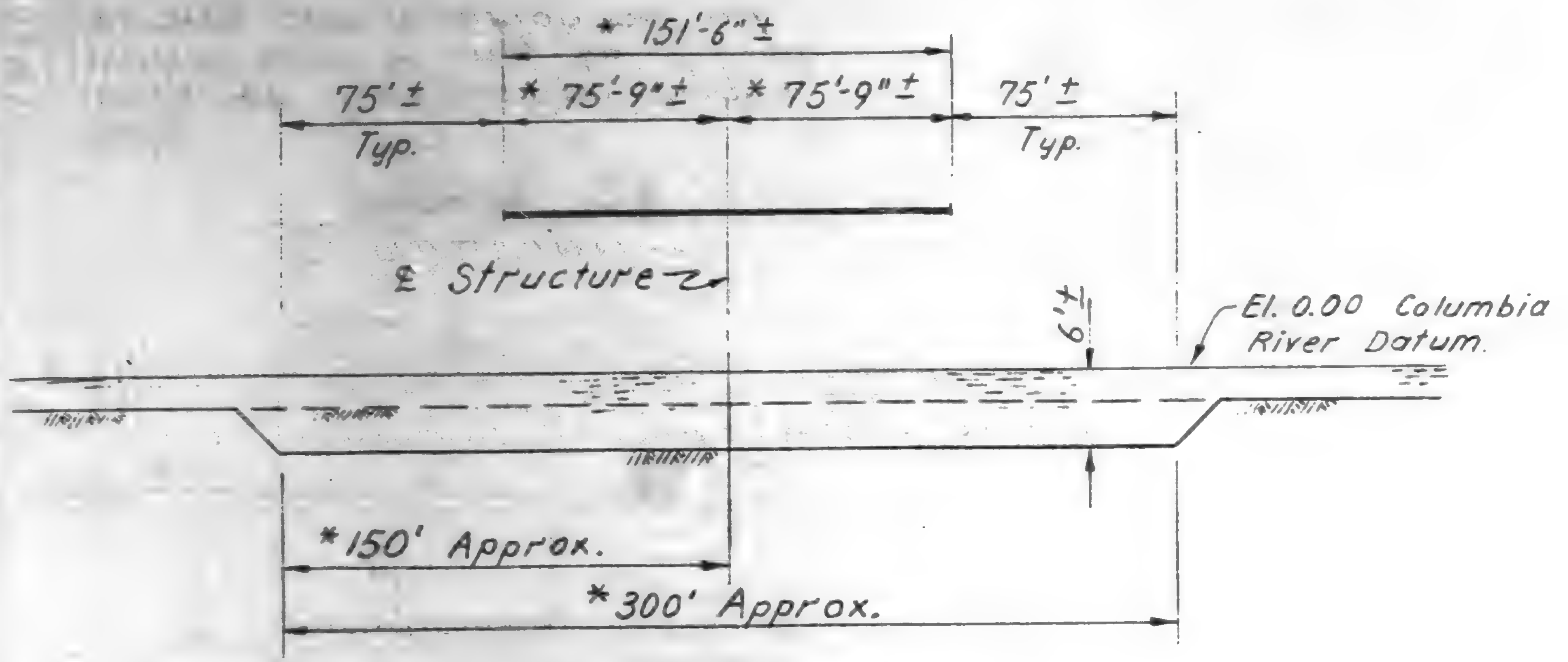
MAIN CHANNEL

COFFERDAM DETAILS


0
100
200
300

Scale in feet

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
FALSEWORK, DREDGING, COFFERDAM
WORK TRESTLES AND OTHER
TEMPORARY CONSTRUCTION
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1975 SUPPLEMENTAL SHEET 2 OF 6


* 151'-6" ±
75' ±
Typ.
* 75'-9" ±
* 75'-9" ±
75' ±
Typ.
℄ Structure
6' ±
El. 0.00 Columbia River Datum.
* 150' Approx.
* 300' Approx.

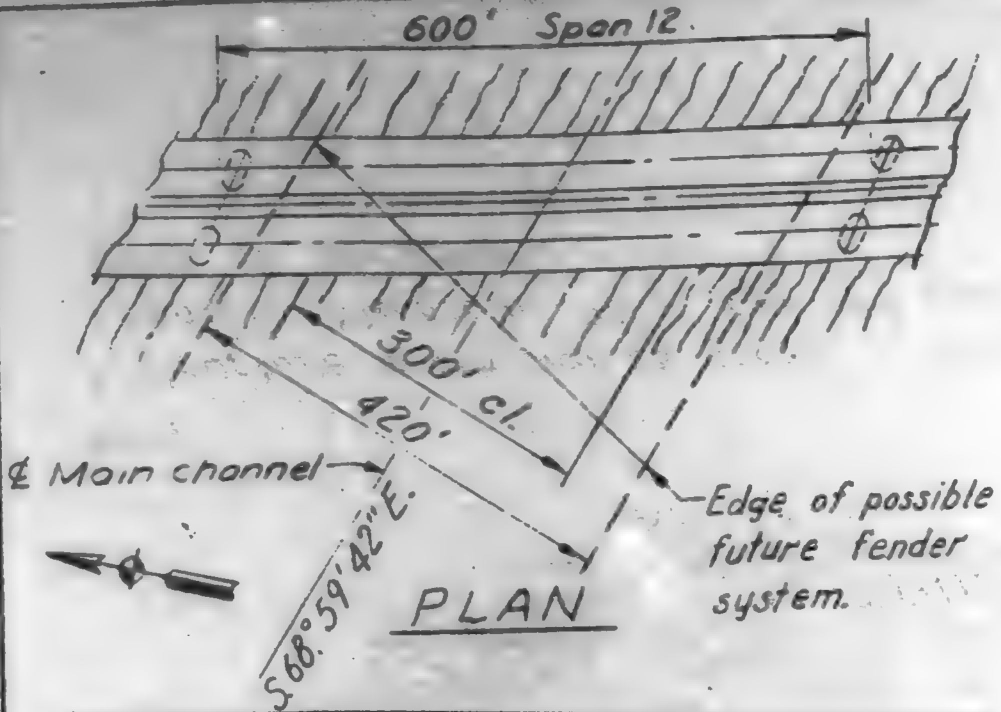
TYPICAL ACCESS CHANNEL FOR CONSTRUCTION

No Scale

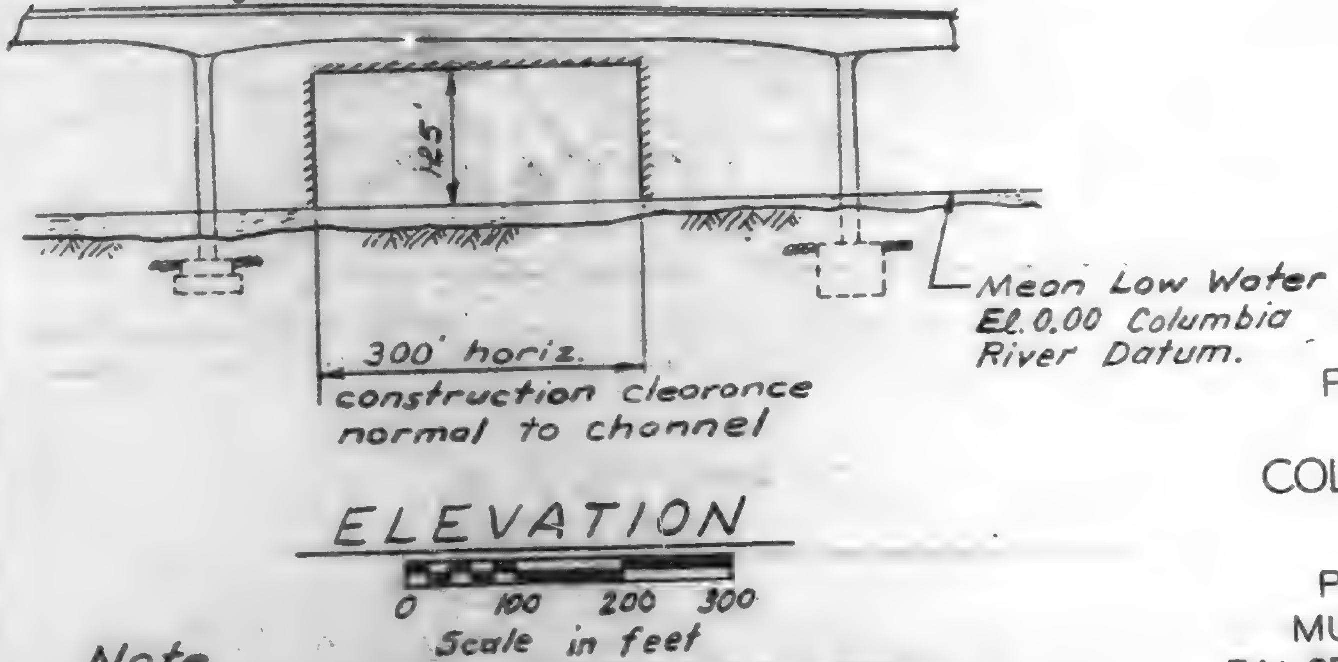
Note:

* Structure width varies spans 11 thru 16 of south channel. Maintain 75'± channel each side of structure.

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
FALSEWORK, DREDGING, COFFERDAM
WORK TRESTLES AND OTHER
TEMPORARY CONSTRUCTION
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1975 SHEET 3 OF 6


600' Span 12
300' c/.
420'
℄ Main channel
S68°59'42"E
Edge of possible future fender system.

PLAN


125'
Mean Low Water El. 0.00 Columbia River Datum.
300' horiz. construction clearance normal to channel
0
100
200
300
Scale in feet

ELEVATION

Note
Location of navigation channel within span 12 may be shifted during construction period.

MAIN CHANNEL CONSTRUCTION CLEARANCE

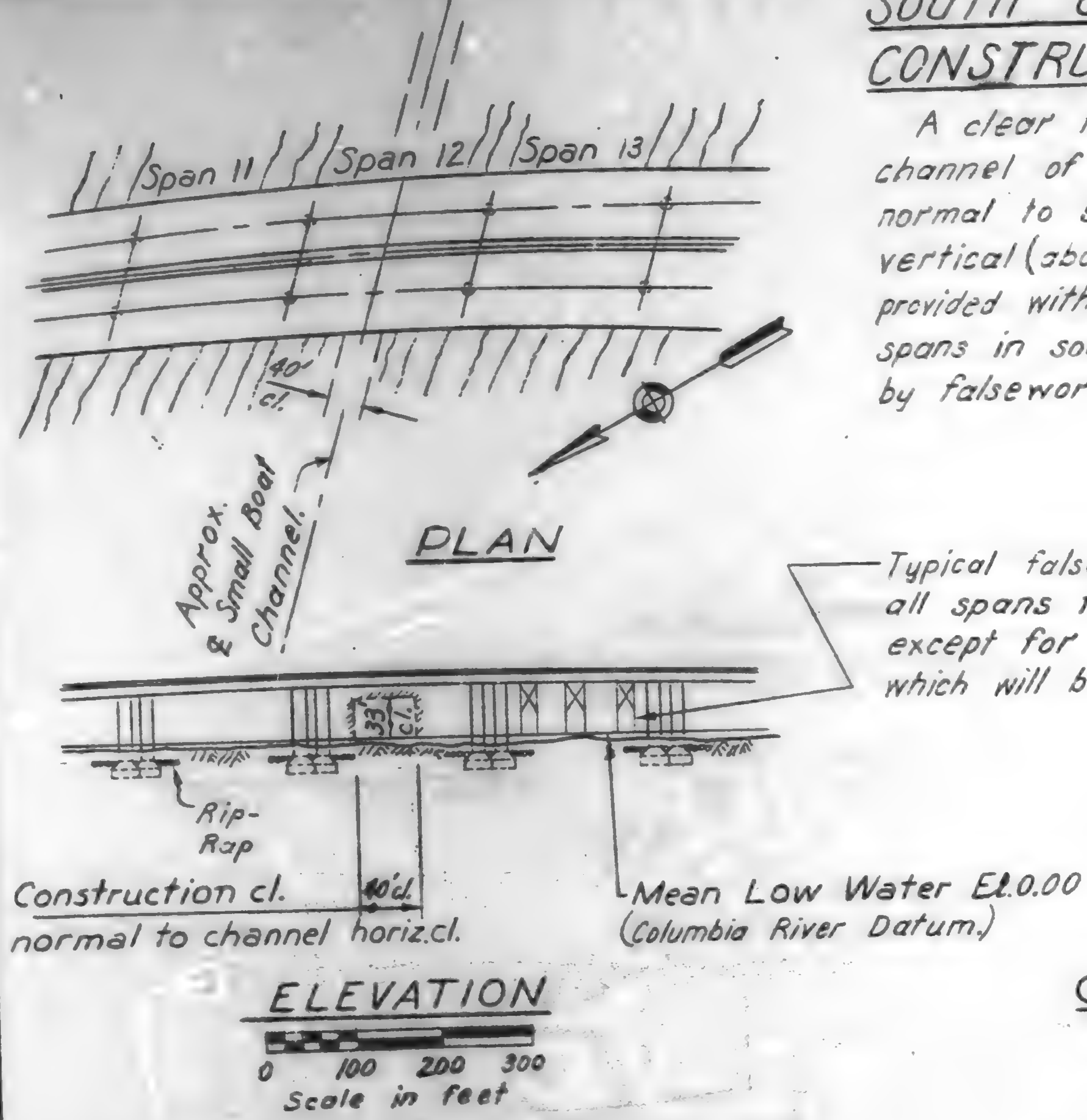
A clear minimum navigation channel of 300' horizontal (measured normal to main channel) and of 125' vertical shall be provided within Span 12 at all times.

Floating Construction Equipment may be moored within 300 ft. opening and will be removed for passage of a vessel when requested.

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
FALSEWORK, DREDGING, COFFERDAM
WORK TRESTLES AND OTHER
TEMPORARY CONSTRUCTION
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1975 SHEET 4 OF 6

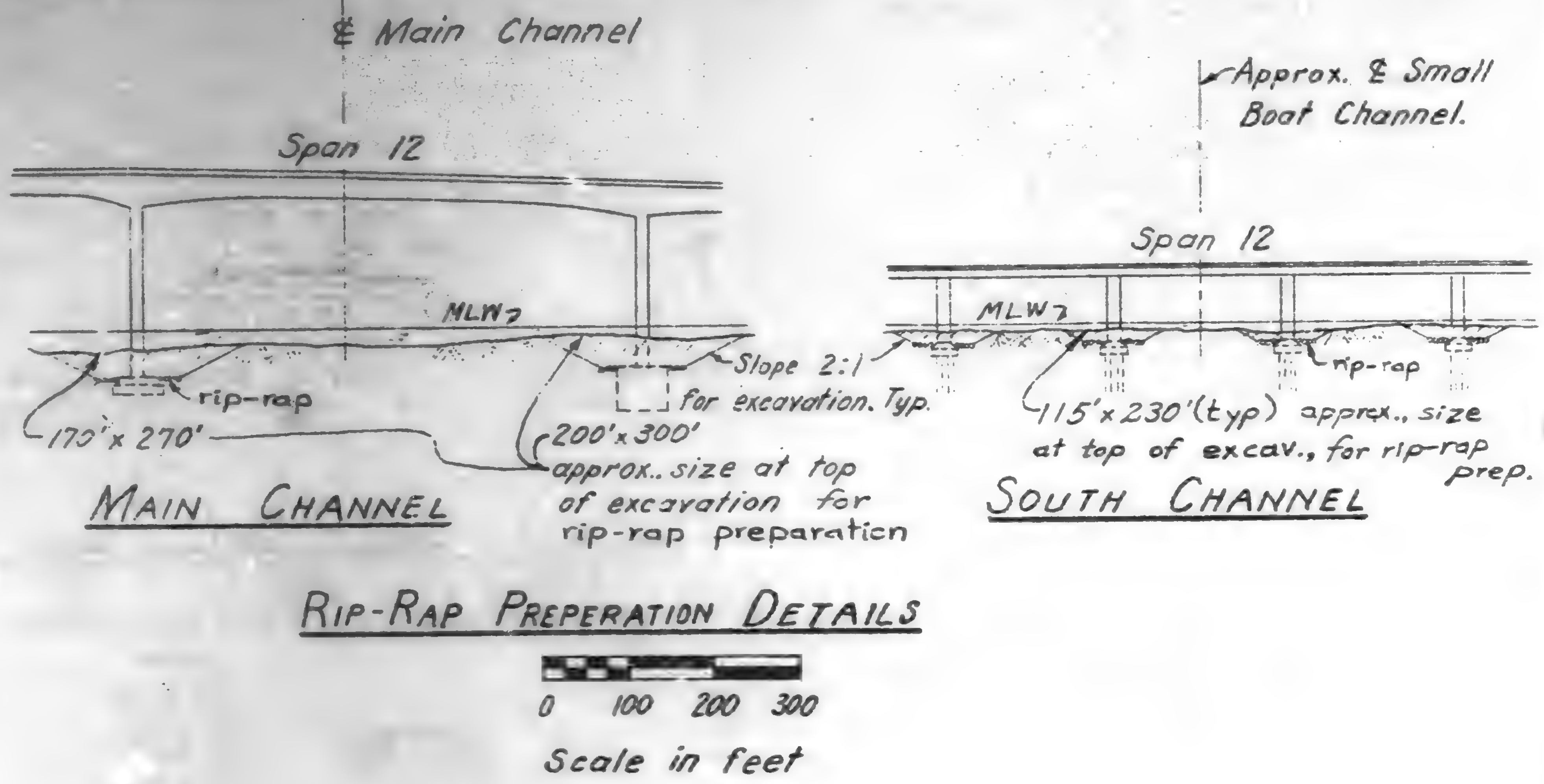
SOUTH CHANNEL
CONSTRUCTION CLEARANCE

A clear minimum navigational channel of 40' horizontal (measured normal to small boat channel) and 33' vertical (above Low Water Datum) shall be provided within span 12 at all times. Other spans in south channel may be blocked by falsework during construction.


Span 11
Span 12
Span 13
40' cl.
Approx. ℄ Small Boat Channel.
PLAN
33' cl.
Rip-Rap
Construction cl. normal to channel
40' cl. horiz. cl.
Mean Low Water El. 0.00 (Columbia River Datum.)
ELEVATION
0 100 200 300
Scale in feet

Typical falsework support will totally block all spans for navigation at some time except for span 12 (small boat channel) which will be open at all times per above.

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
FALSEWORK, DREDGING, COFFERDAM
WORK TRESTLES AND OTHER
TEMPORARY CONSTRUCTION
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1975 SHEET 5 OF 6



℄ Main Channel
Span 12
MLW
rip-rap
170'x 270'
Slope 2:1
for excavation. Typ.
200'x 300'
approx.. size at top
of excavation for
rip-rap preparation
MAIN CHANNEL
Approx. ℄ Small
Boat Channel.
Span 12
MLW
rip-rap
115'x 230'(typ) approx., size
at top of excav., for rip-rap
prep.
SOUTH CHANNEL
0 100 200 300
Scale in feet

RIP-RAP PREPERATION DETAILS

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
FALSEWORK, DREDGING, COFFERDAM
WORK TRESTLES AND OTHER
TEMPORARY CONSTRUCTION
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1975 SUPPLEMENTAL SHEET 6 OF 6

8905

8

June 30, 1975

bc Jack Allen, Sverdrup & Parcel
Glen Green, FHWA
C. S. Gloyd, State of WA
R. L. Carroll, State of WA
P. M. Oakley

Commander (oan)
13th Coast Guard District
Federal Building
915 Second Avenue
Seattle, WA 98174

Dear Sir:

Columbia River Bridge at Portland, Oregon
I-205 Highway
Permit no. 41-70
Revision

Our bridge permit application letter, dated June 24, 1975, for the subject structure requested that the permit time be revised to show construction to commence by July 1, 1976 and be completed by December 31, 1982.

It now appears that July 1, 1976 would be the most optimistic date for commencement of construction. As you know, this project has constantly been delayed by litigation and environmental issues. In order to cover any contingencies concerning these matters, we request that the bridge permit be written to indicate that construction is to commence within eight years of issuance of the permit and to be completed within fifteen years.

Your consideration in this matter is appreciated.

Very truly yours,

A. E. Johnson
Deputy State Highway Engineer

RWE:dh

cc F. B. Klaboe
E. S. Hunter
W. J. Hart

8905

8

June 24, 1975

bc Jack Allen, Sverdrup & Parcel /w/ attach.
Glen Green, FHWA /w/ attach.
C. S. Gloyd, State of WA /w/ attach.
R. L. Carroll, State of WA /w/ attach.
P. M. Oakley /w/ attach.

Commander (oan)
13th Coast Guard District
Federal Building
915 Second Avenue
Seattle, WA 98174

Dear Sir:

Columbia River Bridge at Portland, Oregon
I-205 Highway
Permit No. 41-70
Revision

On May 20, 1970 the Coast Guard issued a permit (No. 41-70) for construction of the Columbia River Bridge on Highway I-205 at Portland, Oregon.

On March 16, 1973 an extension of time for that permit was requested.

On April 24, 1973 you responded to the effect that the permit will not expire while you are considering the request for extension and that an Environmental Impact Statement will be required prior to action on the time extension. The draft EIS has now been circulated and you have a copy. We believe that our previous request for extension of time and this request for a revised bridge permit can now be processed.

Progress on this project was delayed by the environmental litigation concerning major expansion of the Portland International Airport. The abandonment of airport expansion plans because of the litigation eliminated the fill in the south channel which was to carry the south roadway approach to the structure. The project must now be extended approximately 4,000 feet across the south channel to the south shore by an alternate method.

A feasibility study for this extension has been completed. It indicates that the extension should be a combination of fill across Government Island and a structure across the south channel.

NOTED
W. J. HART

In addition to the extension, other changes to the structure have been made. The width has been increased from six lanes to eight lanes in order to accommodate vehicular traffic. For both design and economic reasons, all spans (of the original proposed structure) south of the main channel span (Span 12) have been increased in length resulting in fewer spans between the main channel and Government Island.

The physical clearances in the main navigation span remain unchanged. However, due to a change in angle and location of the main navigation channel made by the U.S. Corps of Engineers, the horizontal clearances normal to the channel and the vertical clearances have changed. The Corps indicates that if this change causes problems they will relocate the navigation channel back to its original position. The clearances in the first span south of the main channel are increased slightly, both vertically and horizontally.

The clearances for navigation in the south channel of the river are 48 feet vertical and 174 feet horizontal. The vertical clearance is limited by the aircraft glide path for the proposed extension of the existing runway (this is not the expansion which was involved in litigation). Because of these revisions, including the extension, a revised permit is requested.

Reproducibles of Sheets 1 through 12, together with six prints each of the revised permit drawings (dated 1975), are enclosed. Also enclosed are reproducibles and six prints each of supplemental sheets 1 through 6 (also dated 1975) which show the temporary construction items. The temporary items shown on Supplemental Sheets include construction access channel, loading dock, construction trestle, log booms, and cofferdams. These items will be removed at the completion of the project except for the access channel. Material dredged from the access channel on the north side of Government Island will be disposed of as part of the roadway fill to be constructed on Government Island. Material resulting from the dredging of the access channel across the south channel of the river will be disposed of as part of the roadway fill on Government Island and/or the roadway fill on the Oregon shore south of Marine Drive. Any excavated material not needed for roadway fills will be side cast and then returned to the access channel upon completion of the project.

The steel cofferdams shown on Supplemental Sheet 2 will be used to facilitate pier construction and will be removed upon completion of the pier.

This project involves land on Government Island which is covered by Section 4 (f) of the Department of Transportation Act. This involvement is addressed in the draft Environmental Impact Statement.

The shore line management permit required by the State of Washington has been issued by the appropriate local government (Clark County Board of Commissioners) and approved by the Washington Department of Ecology pending review of the EIS.

A water quality certificate has been issued by the State of Washington.

The water quality certificate from the State of Oregon will be issued in the usual manner.

This project is considered to be a major action and its effect on the quality of the human environment is also discussed in the draft Environmental Impact Statement.

We have your previous determination of requirements for navigation lights on the original length structure. Since the double pier shafts required at each pier location have been re-oriented to be in line with the current, it is believed that only two navigation lights will be required at each pier location. One light will be located on the upstream side of the upstream pier and the other located on the downstream side of the downstream pier. Your concurrence in this configuration is requested. Location of lights for the south channel crossing is also requested.

Our present tentative schedule for completion of design and start of construction indicates that the contract for the first section to be constructed (the Washington shore section - Spans 1 through 10) cannot be awarded prior to April 1976. Individual contracts for the main channel section, Government Island fill and south channel section will be awarded subsequently. Completion of all construction is estimated for mid 1981.

In order to cover this schedule and possible unforeseen contingencies, our previous request for an extension of the existing permit time is hereby revised. It is requested that the date by which construction is commenced by changed to July 1, 1976, and the date by which construction is completed changed to December 31, 1982.

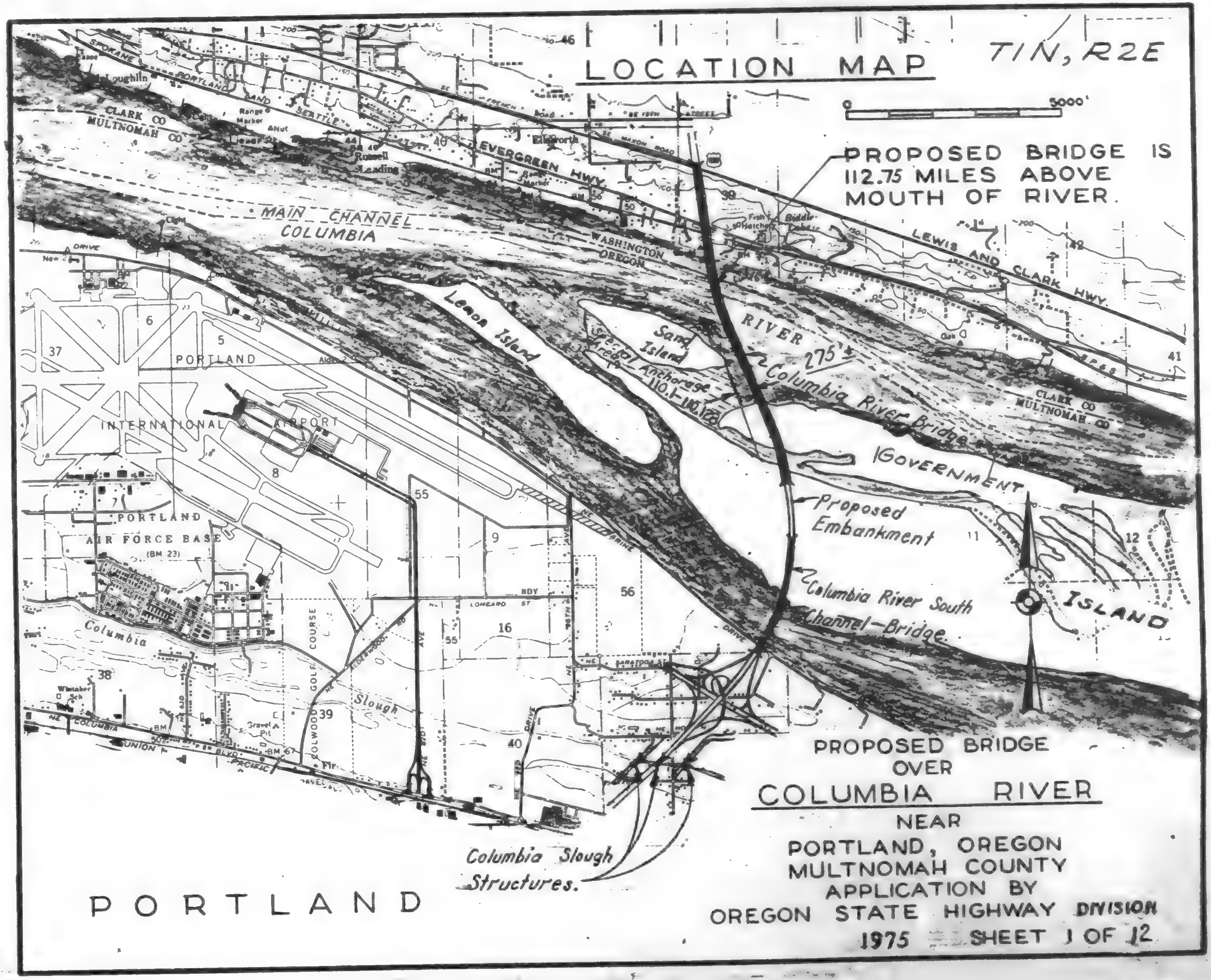
Your timely action on this request for a revision of the existing Bridge Permit will be appreciated.

Very truly yours,

A. E. Johnson
Deputy State Highway Engineer

Enclosures

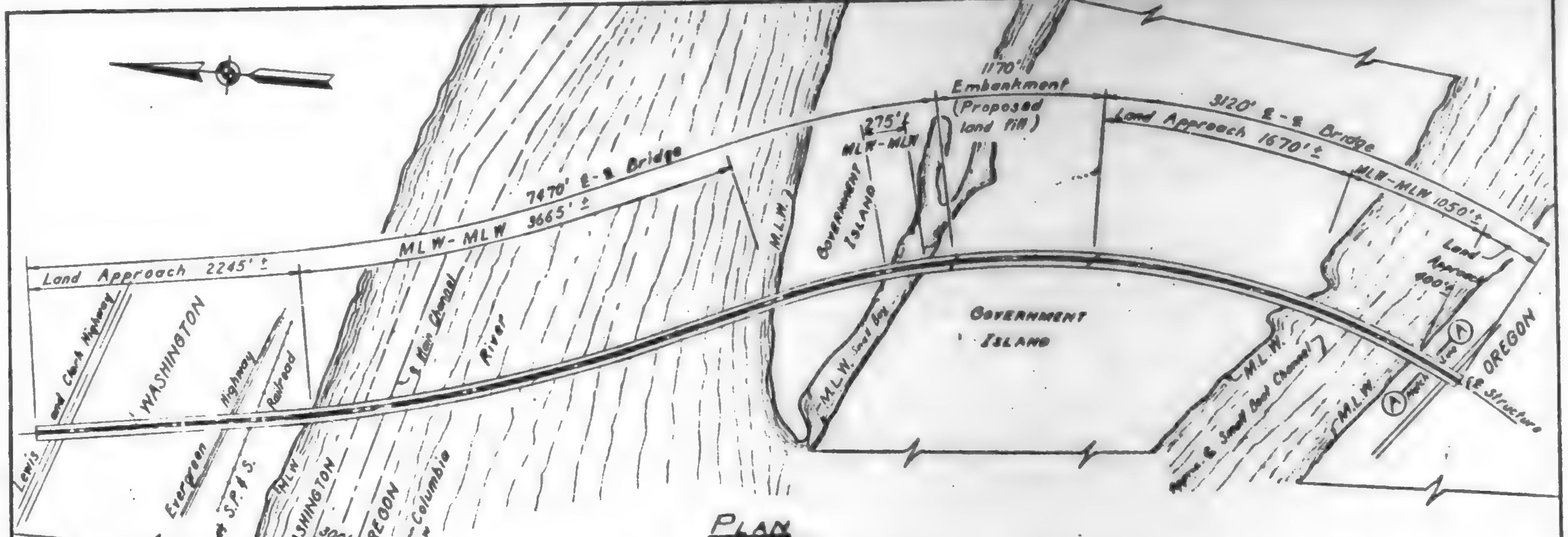
RWE:dh
cc F. B. Klaboe w/encl
E. S. Hunter w/encl
Walter J. Hart w/encl



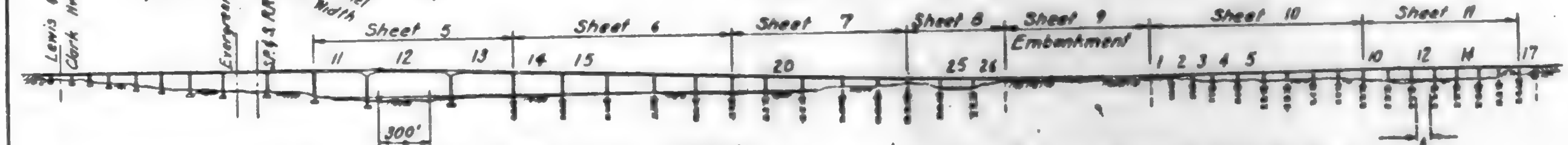
T1N, R2E
0
5000'
PROPOSED BRIDGE IS 112.75 MILES ABOVE MOUTH OF RIVER.
CLARK CO
MULTNOMAH CO
McLoughlin
SPOKANE PORTLAND AND SEATTLE
Range Marker
Russell Landing
EVERGREEN HWY
Ellsworth
WASHINGTON
OREGON
MAIN CHANNEL
COLUMBIA
RIVER
LEWIS AND CLARK HWY.
Lemon Island
Sand Island
Special Anchorage
110.1-110.18
275'±
Columbia River Bridge
GOVERNMENT
ISLAND
Proposed Embankment
Columbia River South Channel-Bridge
PORTLAND
INTERNATIONAL
AIRPORT
PORTLAND
AIR FORCE BASE
(BM 23)
Columbia
Slough
COLWOOD
GOLF
COURSE
LOMBARD ST
UNION
PACIFIC
Gravel Pit
Columbia Slough Structures.
PORTLAND
46
40
39
50
56
42
41
37
6
5
8
7
9
55
56
16
38
39
40
11
12

LOCATION MAP

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1975 SHEET 1 OF 12


Land Approach 2245'±
MLW-MLW 3665'±
7470' ℄-℄ Bridge
Lewis and Clark Highway
WASHINGTON
Evergreen Highway
S.P.&S. Railroad
MLW
WASHINGTON
OREGON
300' Channel Width
Flow Columbia
℄ Main Channel
River
M.L.W.
Government Island
MLW-MLW 275'±
1170' Embankment (Proposed land fill)
3120' ℄-℄ Bridge
Land Approach 1670'±
MLW-MLW 1050'±
Land Approach 400'±
GOVERNMENT ISLAND
M.L.W. Small Bay
M.L.W.
Small Boat Channel
M.L.W.
OREGON
℄ Structure

PLAN


Lewis & Clark Hwy.
Evergreen Hwy
S.P.&S. RR.
Sheet 5
Sheet 6
Sheet 7
Sheet 8
Sheet 9
Sheet 10
Sheet 11
Embankment
11
12
13
14
15
20
25
26
1
2
3
4
5
10
12
14
17
300'

See sheet No. 5 for Navigation Clearances. (300' is approved Corps of Engineers channel).

See sheet No. 11 for Small Boat Channel Clearances.

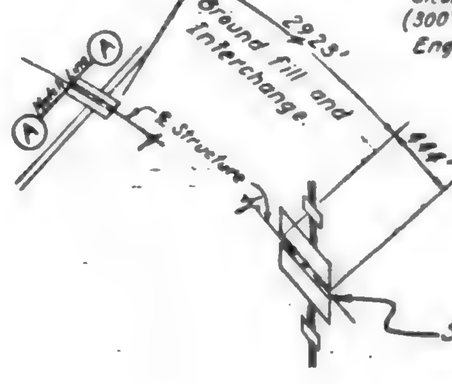
ELEVATION

0 400 800 1200

Scale in Feet

Note:

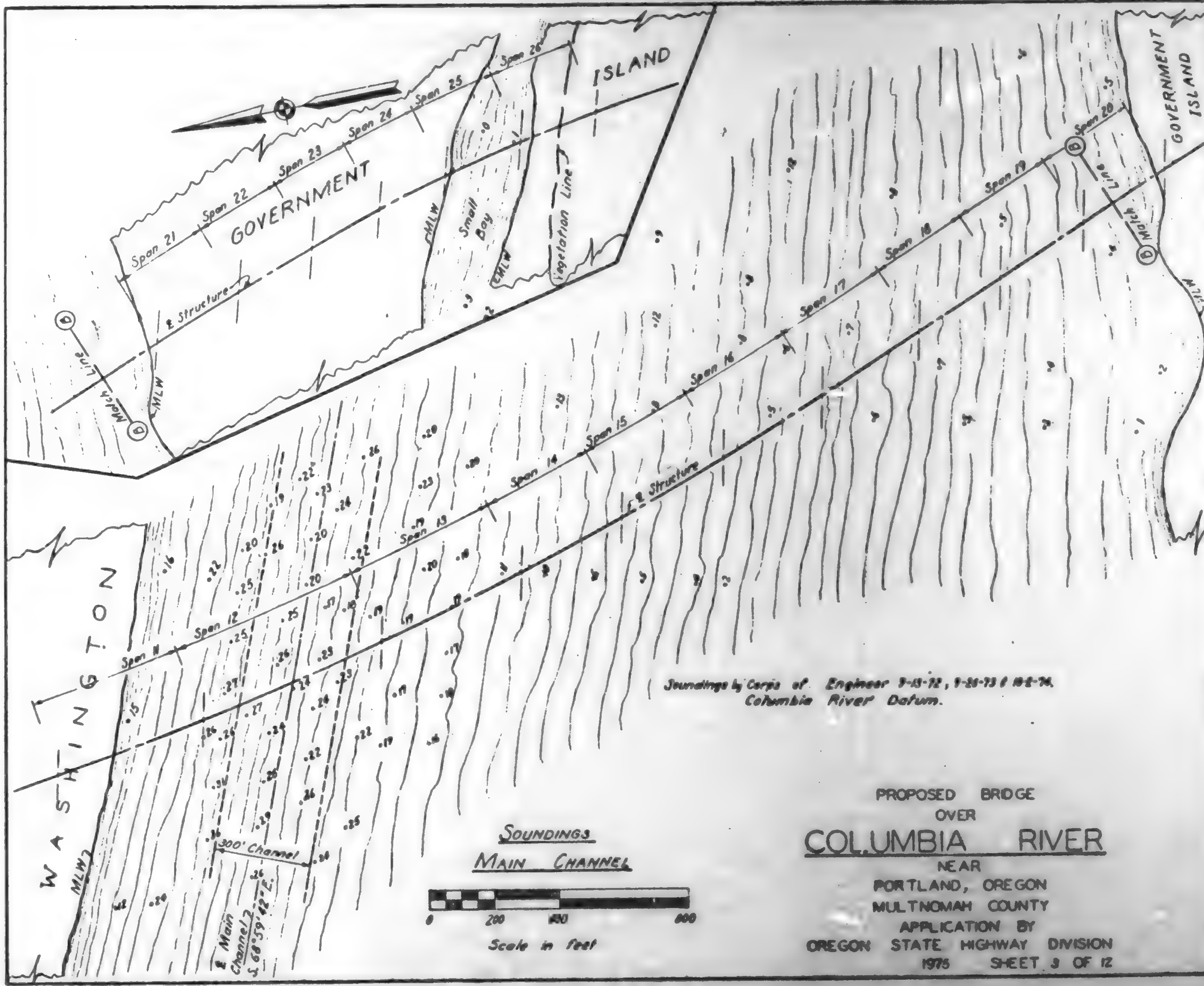
See sheets 5 thru 8, and 11 for all horizontal and vertical clearances in water spans.


2923'
Ground fill and Interchange.
A
A
℄ Structure
See Sheet 12

PLAN

Columbia Slough Structures

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1975 SHEET 2 OF 12

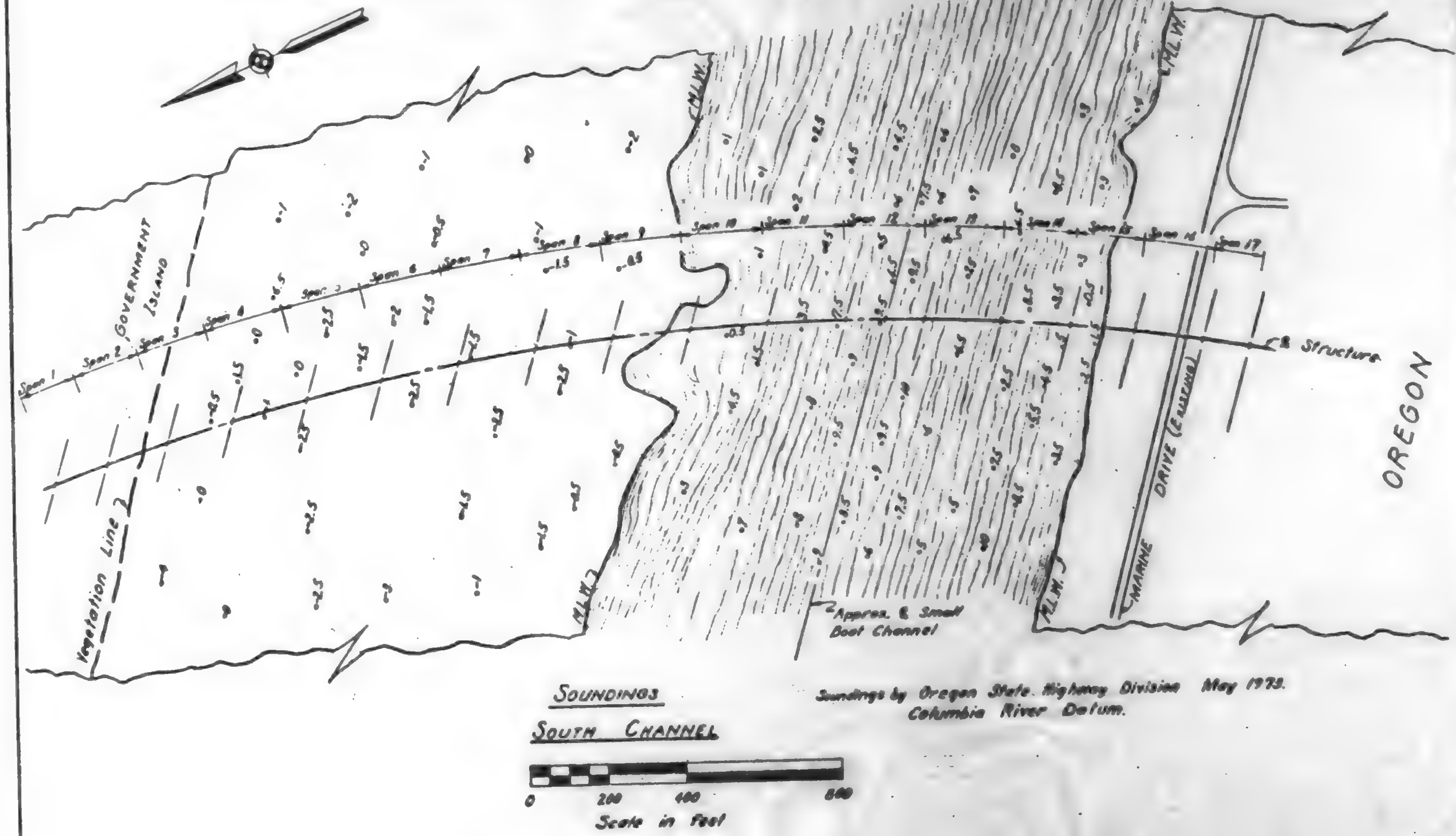


WASHINGTON
MLW
GOVERNMENT ISLAND
GOVERNMENT
ISLAND
Small Bay
Vegetation Line
MLW
Match Line
B
℄ Structure
Span 11
Span 12
Span 13
Span 14
Span 15
Span 16
Span 17
Span 18
Span 19
Span 20
Span 21
Span 22
Span 23
Span 24
Span 25
Span 26
300' Channel
℄ Main Channel
S. 68°59'42" E.
0
200
400
800
Scale in feet

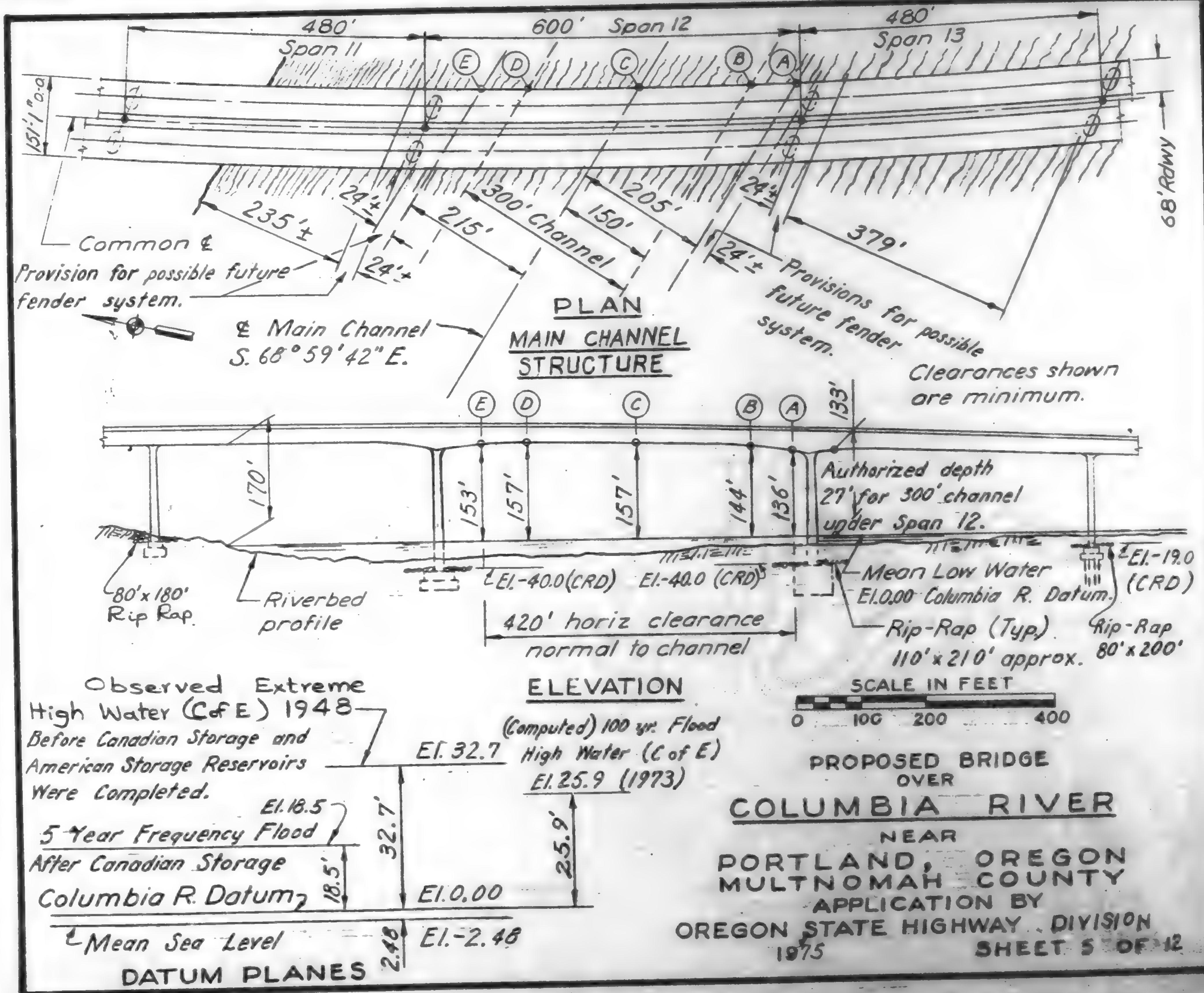
Soundings by Corps of Engineer 9-13-72, 9-26-73 & 10-8-74.
Columbia River Datum.

SOUNDINGS
MAIN CHANNEL

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1975 SHEET 3 OF 12


Vegetation Line
GOVERNMENT ISLAND
Span 1
Span 2
Span 3
Span 4
Span 5
Span 6
Span 7
Span 8
Span 9
Span 10
Span 11
Span 12
Span 13
Span 14
Span 15
Span 16
Span 17
℄ Structure
M.L.W.
Approx. ℄ Small Boat Channel
MARINE DRIVE (Existing)
OREGON
SOUNDINGS
SOUTH CHANNEL
Soundings by Oregon State Highway Division May 1975.
Columbia River Datum.
0
200
400
800
Scale in Feet

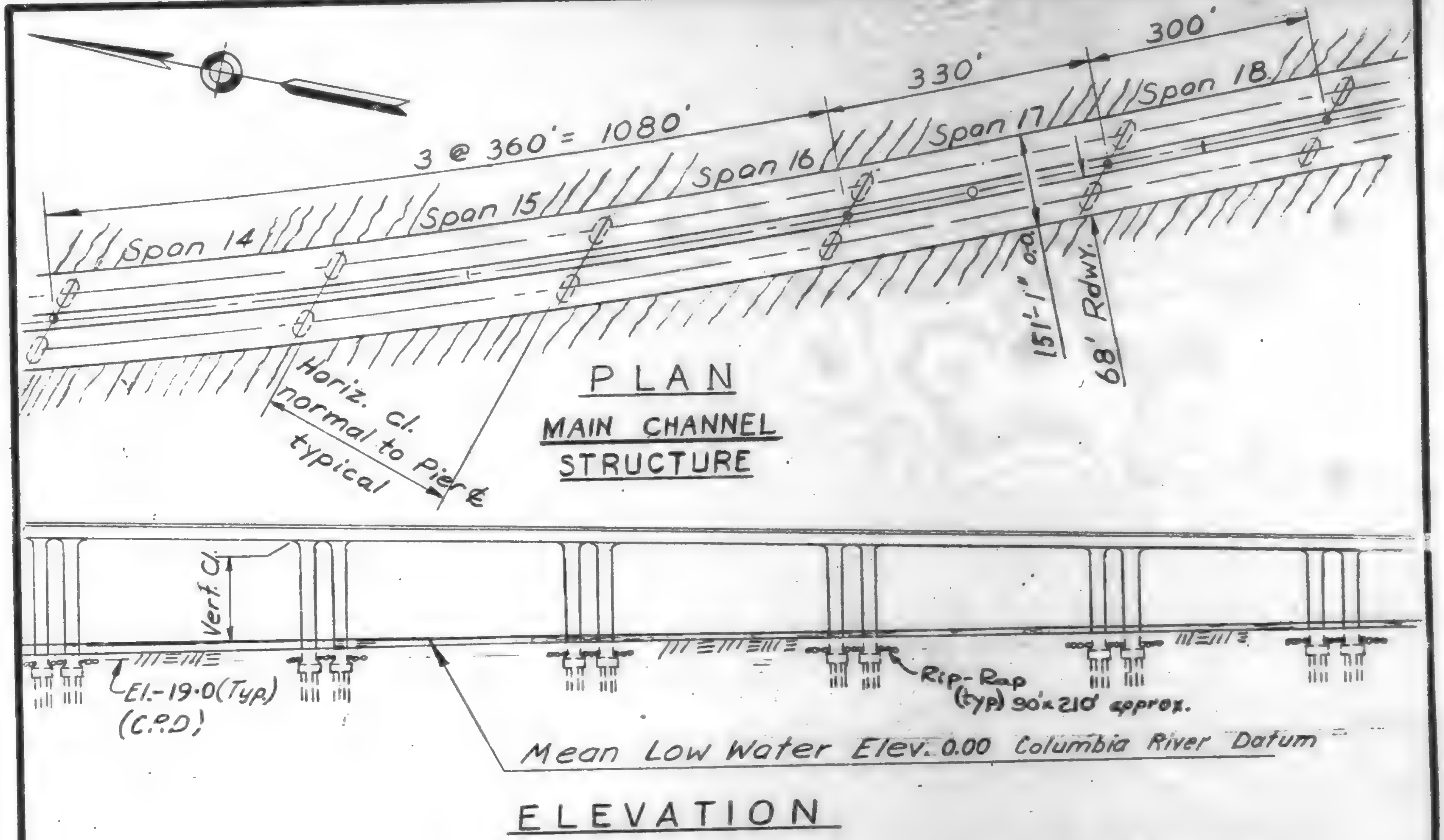
PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1975 SHEET 4 OF 12


480'
Span 11
600' Span 12
480'
Span 13
E
D
C
B
A
151'-1" o.o.
68' Rdwy
235'±
24'±
215'
300' Channel
150'
205'
24'±
379'
24'±
24'±
Common ℄
Provision for possible future fender system.
℄ Main Channel S. 68° 59' 42" E.
Provisions for possible future fender system.
Clearances shown are minimum.
133'
170'
153'
157'
157'
144'
136'
Authorized depth 27' for 300' channel under Span 12.
80' x 180' Rip Rap
Riverbed profile
El. -40.0 (CRD)
El. -40.0 (CRD)
Mean Low Water El. 0.00 Columbia R. Datum.
El. -19.0 (CRD)
420' horiz clearance normal to channel
Rip-Rap (Typ) 110' x 210' approx.
Rip-Rap 80' x 200'
Observed Extreme High Water (C of E) 1948 Before Canadian Storage and American Storage Reservoirs Were Completed.
El. 32.7
(Computed) 100 yr. Flood High Water (C of E) El. 25.9 (1973)
El. 18.5
5 Year Frequency Flood After Canadian Storage
Columbia R. Datum
18.5'
32.7'
25.9'
El. 0.00
℄ Mean Sea Level
2.48
El. -2.48
DATUM PLANES
SCALE IN FEET
0
100
200
400

PLAN
MAIN CHANNEL STRUCTURE

ELEVATION

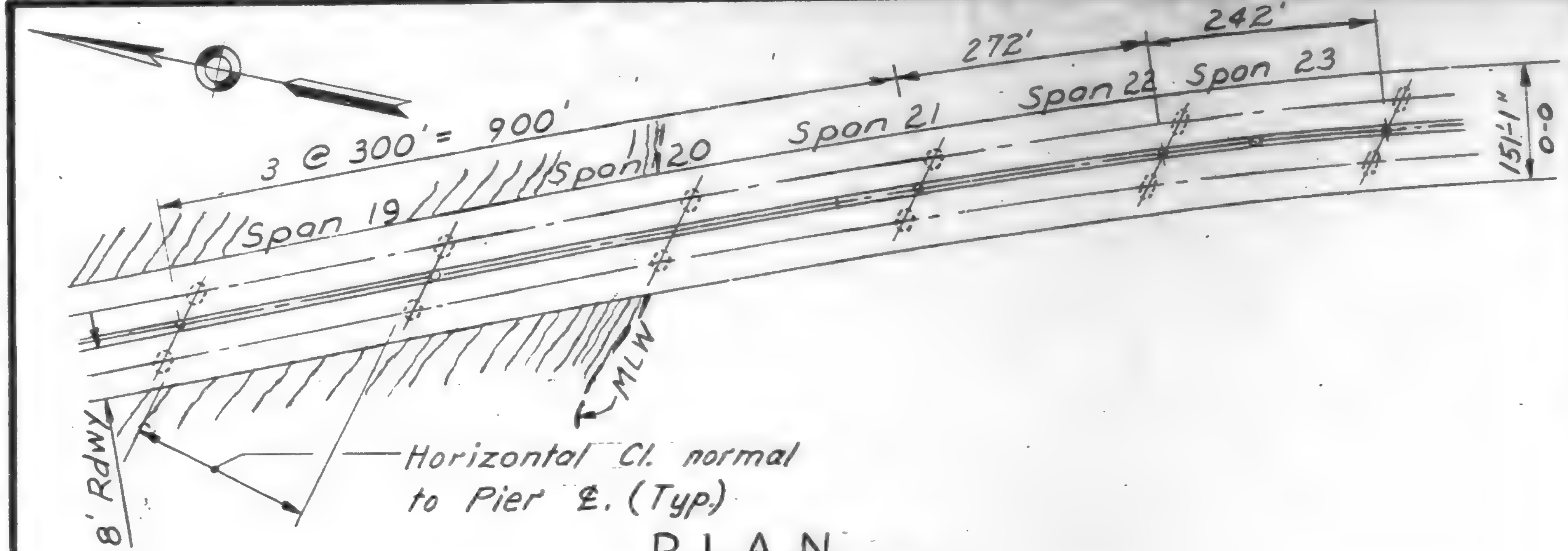
PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1975
SHEET 5 OF 12


300'
330'
3 @ 360' = 1080'
Span 14
Span 15
Span 16
Span 17
Span 18
151'-1" o.o.
68' Rdwy.
Horiz. cl. normal to Pier ℄ typical
PLAN
MAIN CHANNEL STRUCTURE
Vert. Cl.
El.-19.0 (Typ.) (C.R.D.)
Rip-Rap (typ) 90'x210' approx.
Mean Low Water Elev. 0.00 Columbia River Datum
ELEVATION

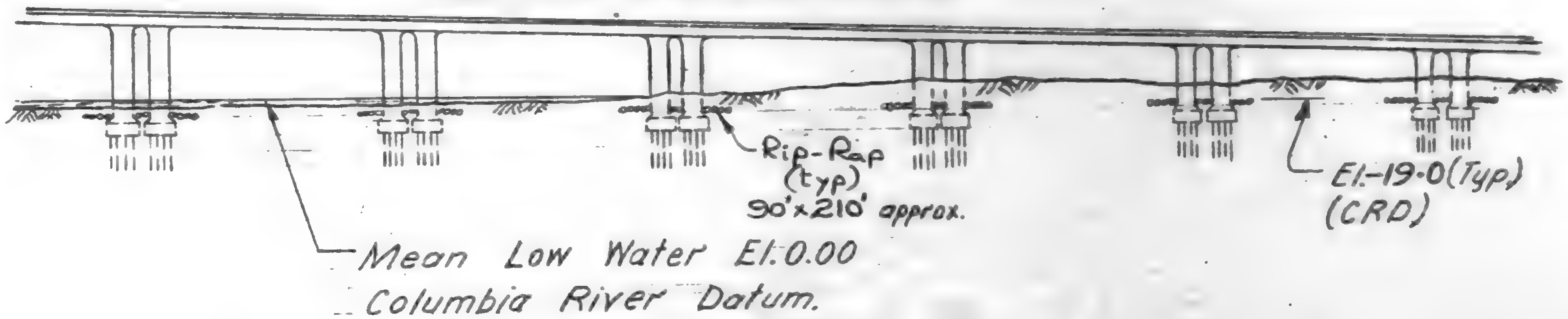
0 100 200 300
Scale in feet

SPAN	HORIZ. CL	VERT. CL.
14	279'	125'
15	274'	116'
16	267'	106'
17	238'	96'
18	214'	90'

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1975 SHEET 6 OF 12


3 @ 300' = 900'
272'
242'
Span 19
Span 20
Span 21
Span 22
Span 23
151'-1" 0-0
MLW
68' Rdwy
Horizontal Cl. normal to Pier ℄. (Typ.)

PLAN
MAIN CHANNEL STRUCTURE

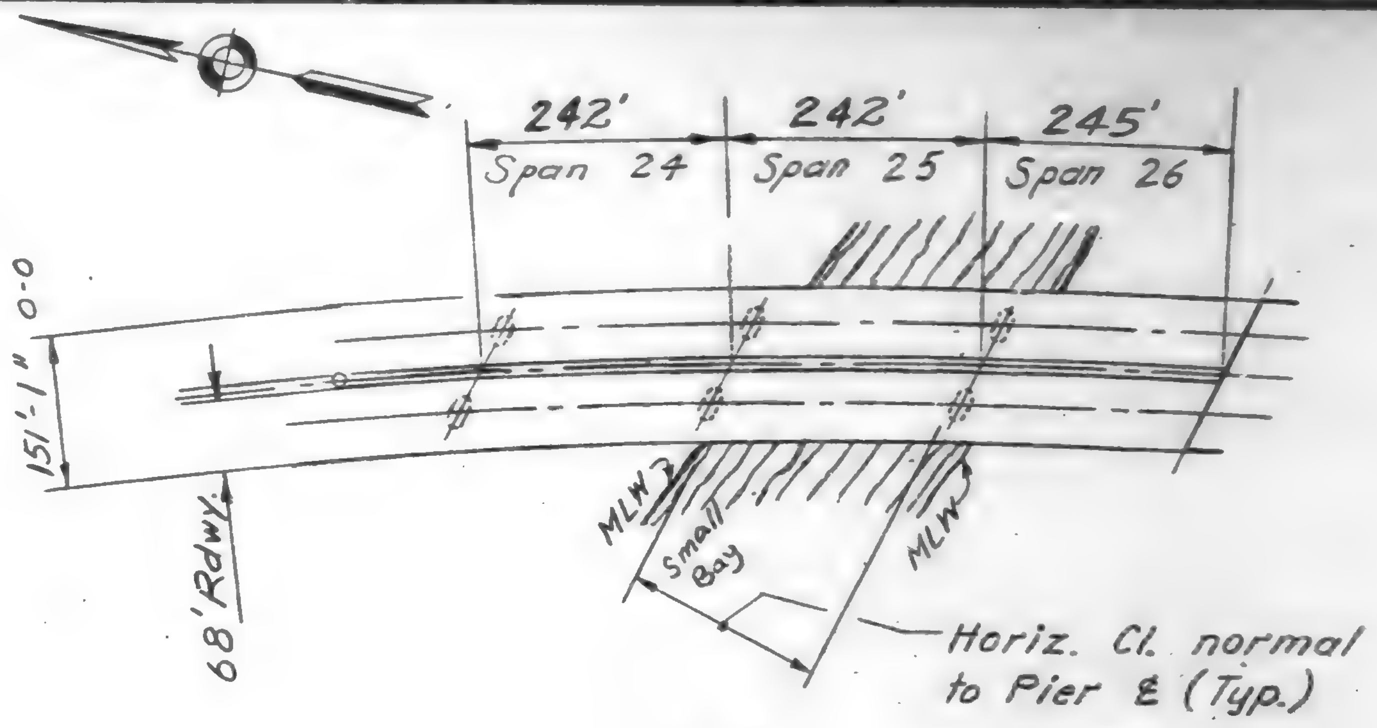

Rip-Rap (typ) 90'x210' approx.
El.-19.0 (Typ) (CRD)
Mean Low Water El. 0.00 Columbia River Datum.

ELEVATION

SPAN	HORIZ. CL.	VERT. CL.
19	214'	80'

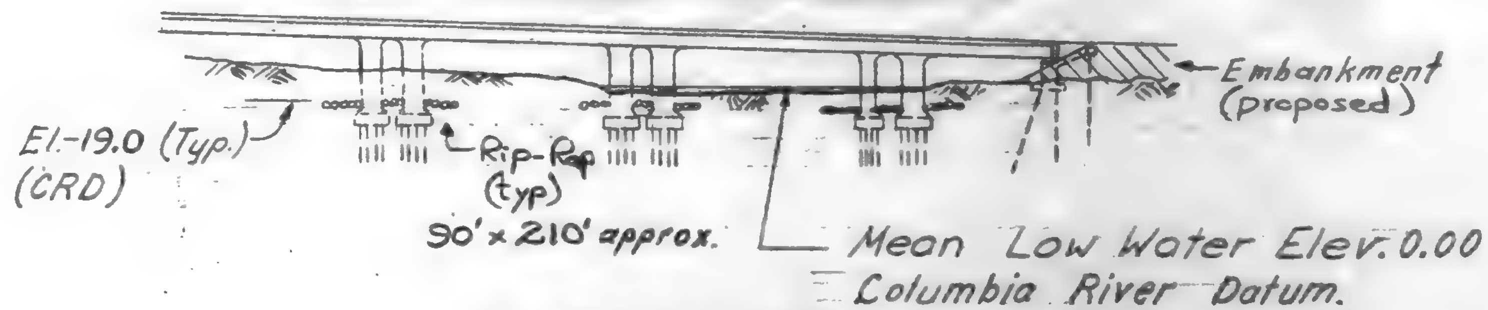
0 100 200 300
Scale in Feet

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1975 SHEET 7 OF 12


242'
Span 24
242'
Span 25
245'
Span 26
151'-1" 0-0
68' Rdwy.
MLW
Small Bay
MLW
Horiz. Cl. normal to Pier ℄ (Typ.)

PLAN

MAIN CHANNEL STRUCTURE

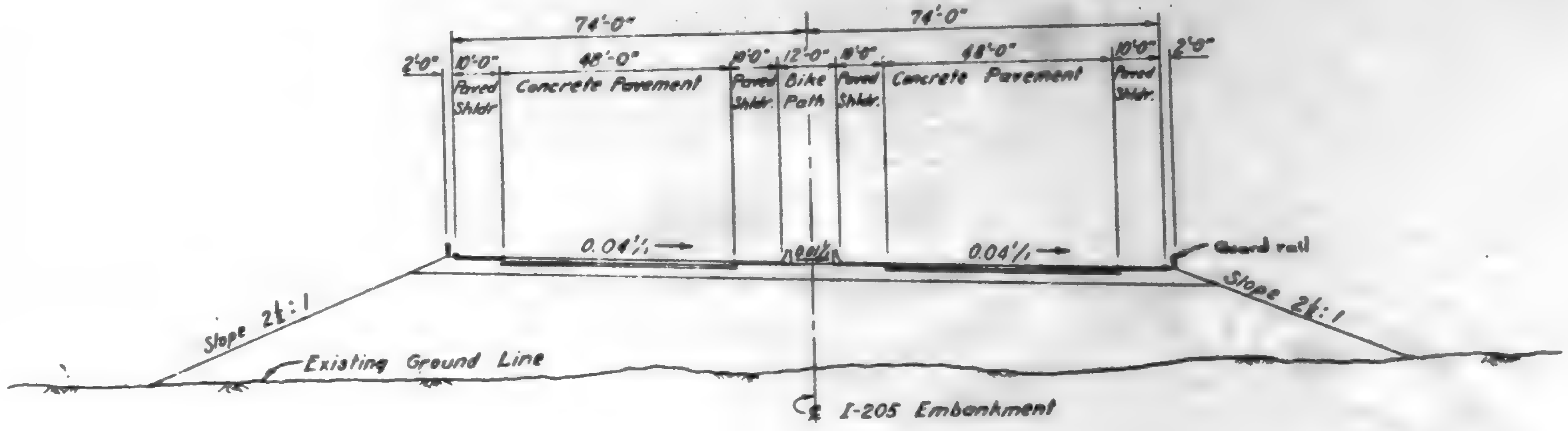

Embankment (proposed)
El.-19.0 (Typ.) (CRD)
Rip-Rap (typ)
90' x 210' approx.
Mean Low Water Elev. 0.00
Columbia River Datum.

ELEVATION

0 100 200 300
Scale in feet

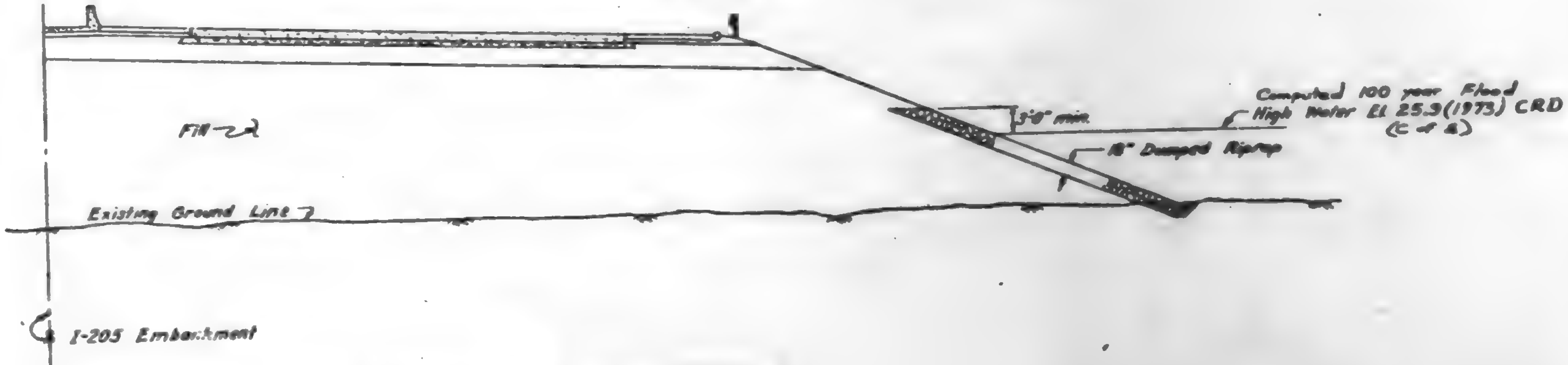
PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1975 SHEET 8 OF 12

SPAN	HORIZ. CL.	VERT. CL.
25	196'	35'


74'-0"
74'-0"
2'-0"
10'-0"
Paved Shldr
48'-0"
Concrete Pavement
10'-0"
Paved Shldr.
12'-0"
Bike Path
10'-0"
Paved Shldr.
48'-0"
Concrete Pavement
10'-0"
Paved Shldr.
2'-0"
0.04'/, →
0.04'/, →
0.04'/, →
Guard rail
Slope 2½:1
Slope 2½:1
Existing Ground Line
℄ I-205 Embankment

TYPICAL EMBANKMENT SECTION

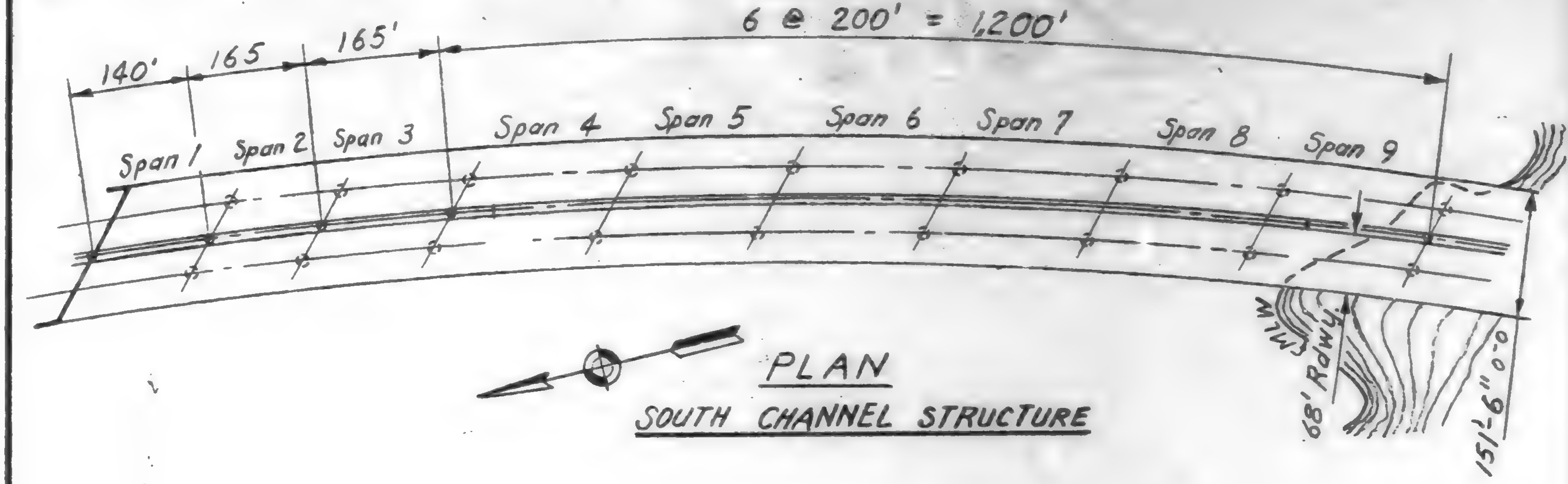
0 20 40 80
Scale in Feet


Fill
Existing Ground Line
3'-0" min.
Computed 100 year Flood High Water El 25.3 (1973) CRD (C of E)
18" Dumped Riprap
℄ I-205 Embankment

HALF EMBANKMENT SECTION DETAILS

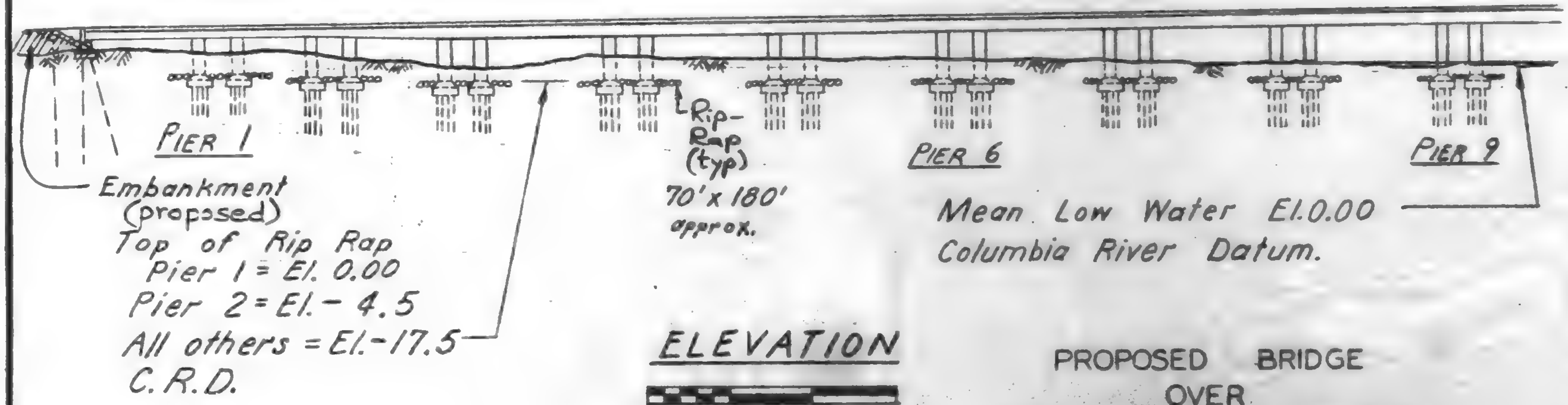
0 10 20 40
Scale in Feet

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1975 SHEET 9 OF 12


6 @ 200' = 1,200'
140'
165
165'
Span 1
Span 2
Span 3
Span 4
Span 5
Span 6
Span 7
Span 8
Span 9
MLW
68' Rdwy.
151'-6" o-o

PLAN

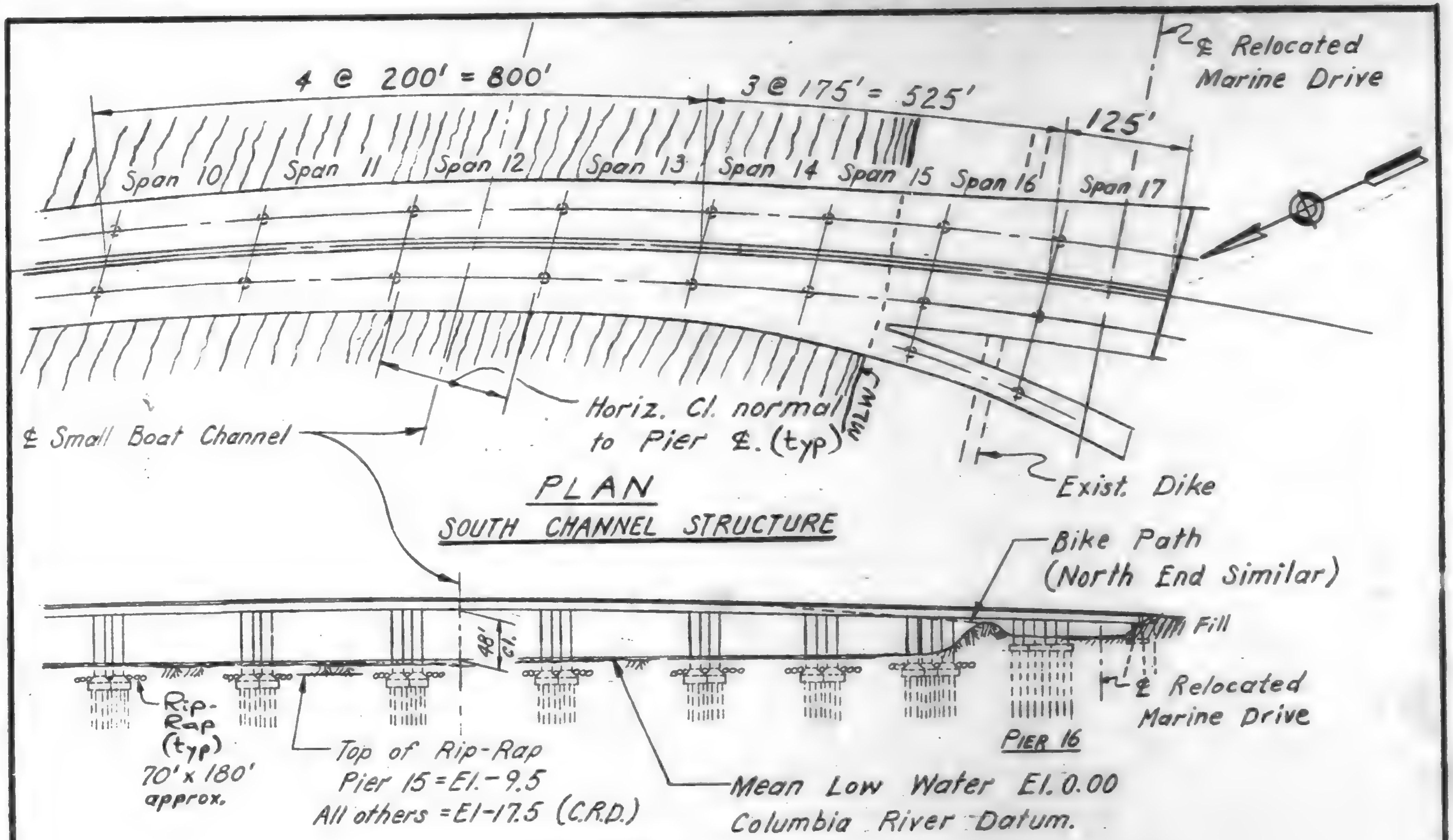
SOUTH CHANNEL STRUCTURE


PIER 1
Rip-Rap (typ)
70' x 180' approx.
PIER 6
PIER 9
Embankment (proposed)
Top of Rip Rap
Pier 1 = El. 0.00
Pier 2 = El. - 4.5
All others = El. -17.5
C.R.D.
Mean Low Water El. 0.00
Columbia River Datum.

ELEVATION

0 100 200 300
Scale in feet

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1975 SHEET 10 OF 12


4 @ 200' = 800'
3 @ 175' = 525'
125'
℄ Relocated Marine Drive
Span 10
Span 11
Span 12
Span 13
Span 14
Span 15
Span 16
Span 17
Horiz. Cl. normal to Pier ℄. (typ)
MLW
℄ Small Boat Channel
Exist. Dike
Bike Path (North End Similar)
48' Cl.
Fill
Rip-Rap (typ) 70' x 180' approx.
Top of Rip-Rap Pier 15 = El. -9.5 All others = El -17.5 (C.R.D.)
Mean Low Water El. 0.00 Columbia River Datum.
Pier 16
℄ Relocated Marine Drive

PLAN

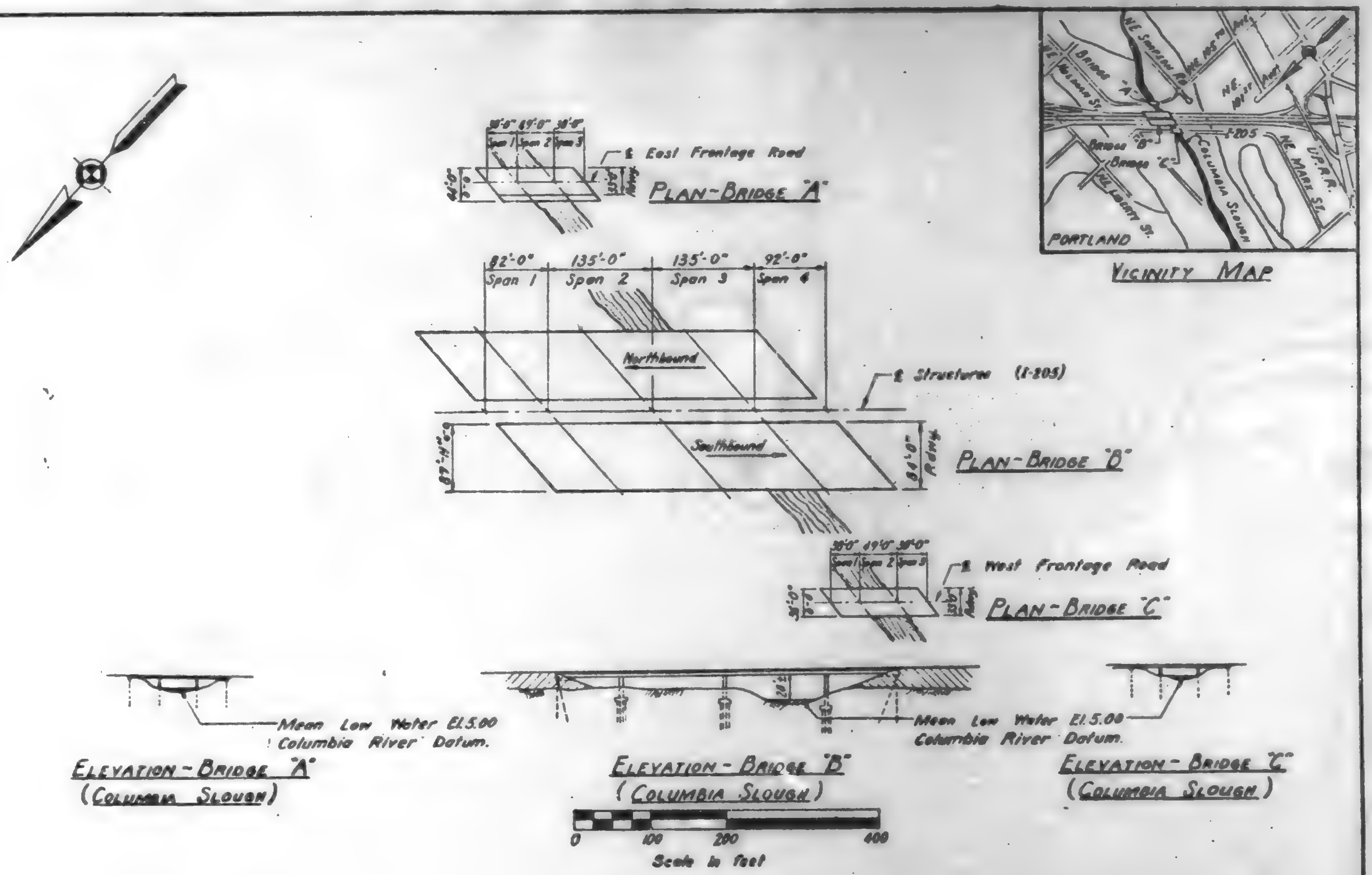
SOUTH CHANNEL STRUCTURE

ELEVATION

SPAN	HORIZ. CL.	VERT. CL.
10	170'	46'
11	172'	47'
12	174'	48'
13	176'	45'
14	153'	44'

0 100 200 300
Scale in feet

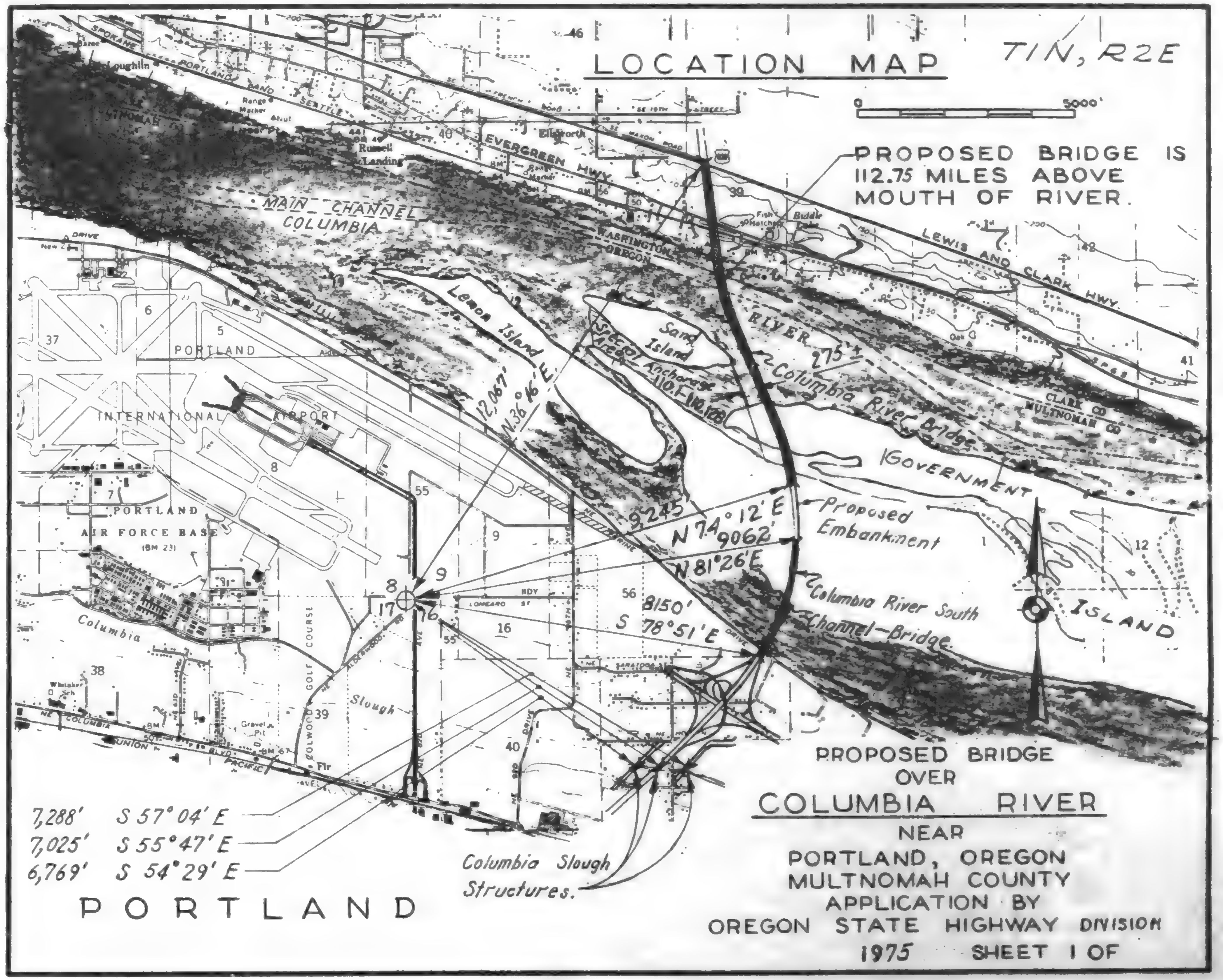
PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1975 SHEET 11 OF 12



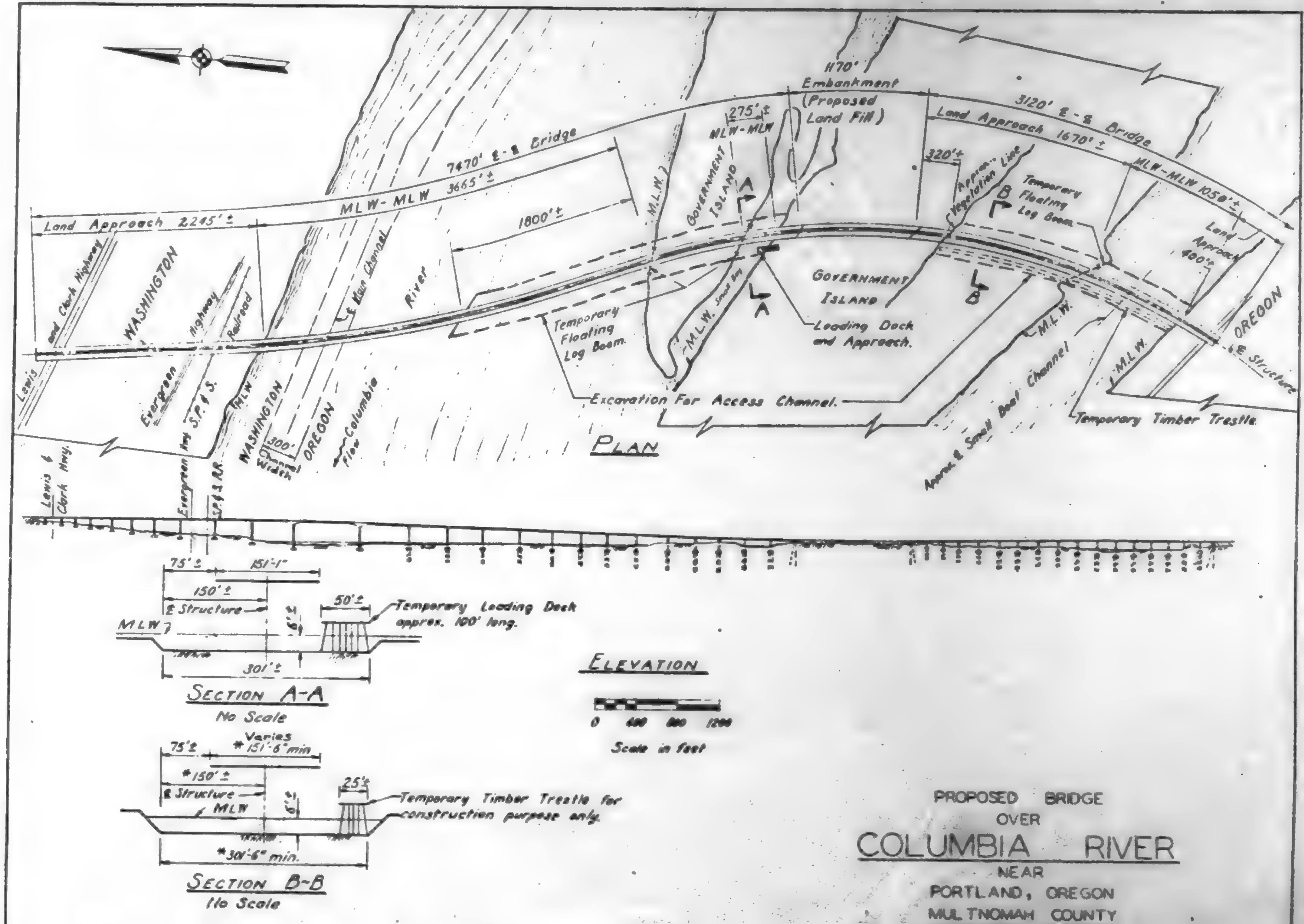
NE Simpson Rd.
NE 105th Ave.
NE Holman St.
Bridge "A"
NE 101st Ave.
I-205
Bridge "B"
Bridge "C"
Columbia Slough
NE Marx St.
U.P.R.R.
NE Liberty St.
PORTLAND
VICINITY MAP
30'-0" 49'-0" 30'-0"
Span 1 Span 2 Span 3
℄ East Frontage Road
PLAN-BRIDGE "A"
92'-0" 135'-0" 135'-0" 92'-0"
Span 1 Span 2 Span 3 Span 4
Northbound
℄ Structures (I-205)
Southbound
84'-0" Rdwy.
PLAN-BRIDGE "B"
30'-0" 49'-0" 30'-0"
Span 1 Span 2 Span 3
℄ West Frontage Road
PLAN-BRIDGE "C"
Mean Low Water El.5.00 Columbia River Datum.
Mean Low Water El.5.00 Columbia River Datum.
ELEVATION-BRIDGE "A" (COLUMBIA SLOUGH)
ELEVATION-BRIDGE "B" (COLUMBIA SLOUGH)
ELEVATION-BRIDGE "C" (COLUMBIA SLOUGH)
0
100
200
400
Scale in feet

PROPOSED BRIDGES
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1975 SHEET 12 OF 12

BRIDGE	SPAN	HORIZ. CL.	VERT. CL.
A	2	35'	13'
B	3	37'	28'
C	2	30'	11'

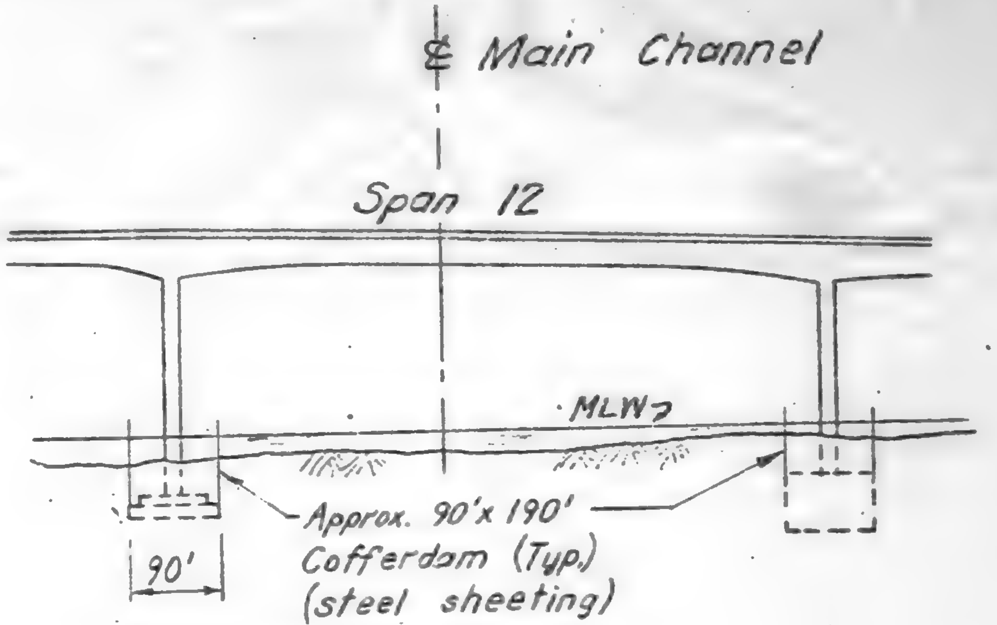

LOCATION MAP
T1N, R2E
0
5000'
PROPOSED BRIDGE IS 112.75 MILES ABOVE MOUTH OF RIVER.
MAIN CHANNEL
COLUMBIA
RIVER
EVERGREEN HWY.
LEWIS AND CLARK HWY.
WASHINGTON
OREGON
Lemon Island
Sand Island
Special Anchorage Area
110.1-110.128
275'±
Columbia River Bridge
GOVERNMENT
ISLAND
Proposed Embankment
Columbia River South Channel Bridge
12,067'
N 36°16' E
9245'
N 74°12' E
9062'
N 81°26' E
8150'
S 78°51' E
PORTLAND
INTERNATIONAL
AIRPORT
PORTLAND
AIR FORCE BASE
Columbia
Slough
COLWOOD GOLF COURSE
7,288' S 57°04' E
7,025' S 55°47' E
6,769' S 54°29' E
Columbia Slough Structures.
CLARK CO
MULTNOMAH CO
PORTLAND
Ellsworth
Russell Landing
Loughlin
SPOKANE PORTLAND AND SEATTLE
CLARK CO
MULTNOMAH CO

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1975 SHEET 1 OF


Land Approach 2245'±
MLW-MLW 3665'±
7470' ℄-℄ Bridge
1800'±
1170' Embankment (Proposed Land Fill)
275'± MLW-MLW
3120' ℄-℄ Bridge
Land Approach 1670'±
MLW-MLW 1050'±
320'±
Approx. Vegetation Line
Temporary Floating Log Boom.
Land Approach 480'±
Lewis and Clark Highway
WASHINGTON
Evergreen Highway
S.P. & S. Railroad
MLW
WASHINGTON
300' Channel Width
OREGON
Columbia Flow
℄ Main Channel
River
M.L.W.
GOVERNMENT ISLAND
A
Temporary Floating Log Boom.
M.L.W. Small bay
GOVERNMENT ISLAND
Loading Dock and Approach.
B
M.L.W.
Excavation For Access Channel.
Approx. ℄ Small Boat Channel
M.L.W.
Temporary Timber Trestle
OREGON
℄ Structure
PLAN
Lewis & Clark Hwy.
Evergreen Hwy
S.P.&S.RR.
75'±
151'-1"
150'±
℄ Structure
50'±
Temporary Loading Dock approx. 100' long.
MLW
6'±
301'±
SECTION A-A
No Scale
ELEVATION
0 400 800 1200
Scale in feet
75'±
* Varies
* 151'-6" min
* 150'±
℄ Structure
MLW
6'±
25'±
Temporary Timber Trestle for construction purpose only.
* 301'-6" min.
SECTION B-B
No Scale

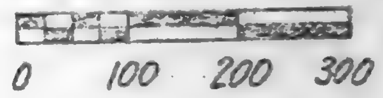
Note:
* Structure width varies spans 11 thru 15 of south channel. Maintain 75'± channel each side of structure.

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
FALSEWORK, DREDGING,
COFFERDAM AND
WORK TRESTLES
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1975 SUPPLEMENTAL SHEET 1 OF 6


℄ Main Channel
Span 12
MLW
Approx. 90'x 190'
Cofferdam (Typ.)
(steel sheeting)
90'

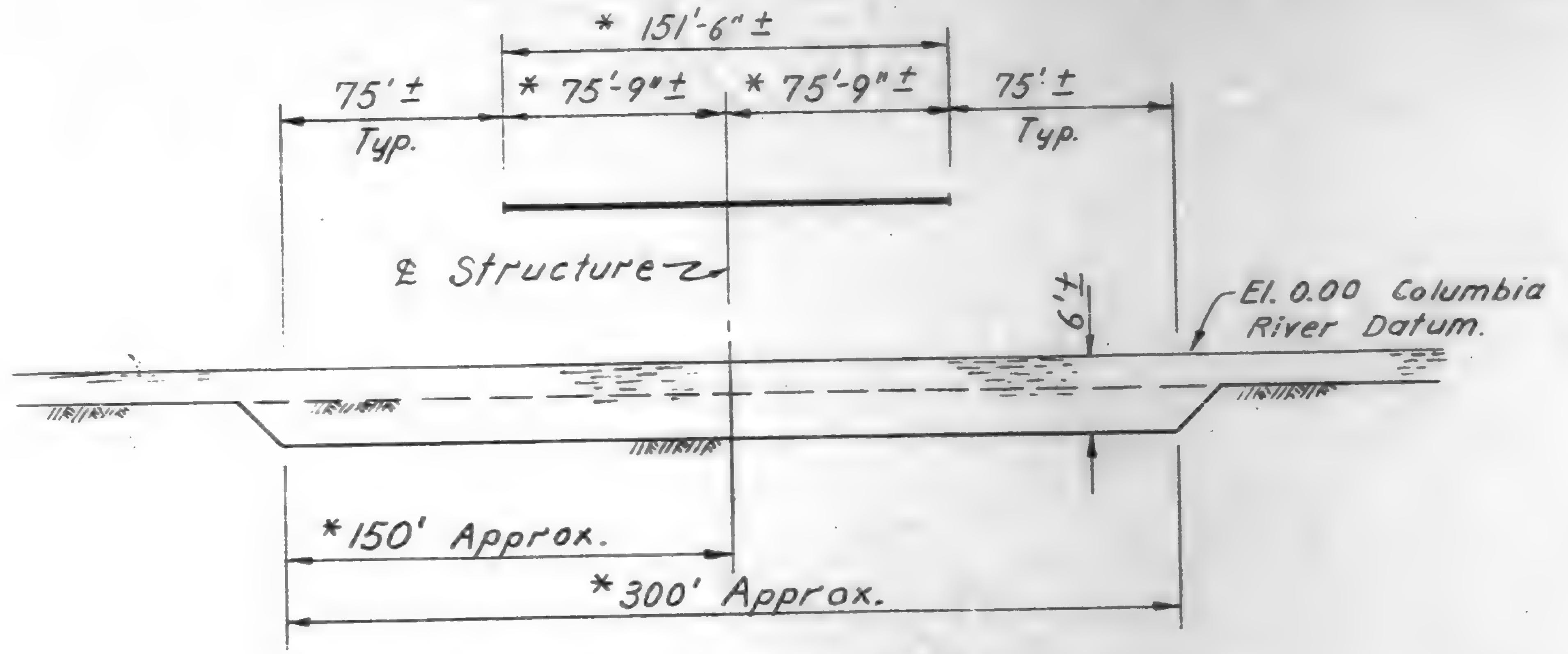
MAIN CHANNEL

COFFERDAM DETAILS


0
100
200
300

Scale in feet

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
FALSEWORK, DREDGING, COFFERDAM
WORK TRESTLES AND OTHER
TEMPORARY CONSTRUCTION
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1975 SUPPLEMENTAL SHEET 2 OF 6


* 151'-6" ±
75' ± Typ.
* 75'-9" ±
* 75'-9" ±
75' ± Typ.
℄ Structure
6' ±
El. 0.00 Columbia River Datum.
* 150' Approx.
* 300' Approx.

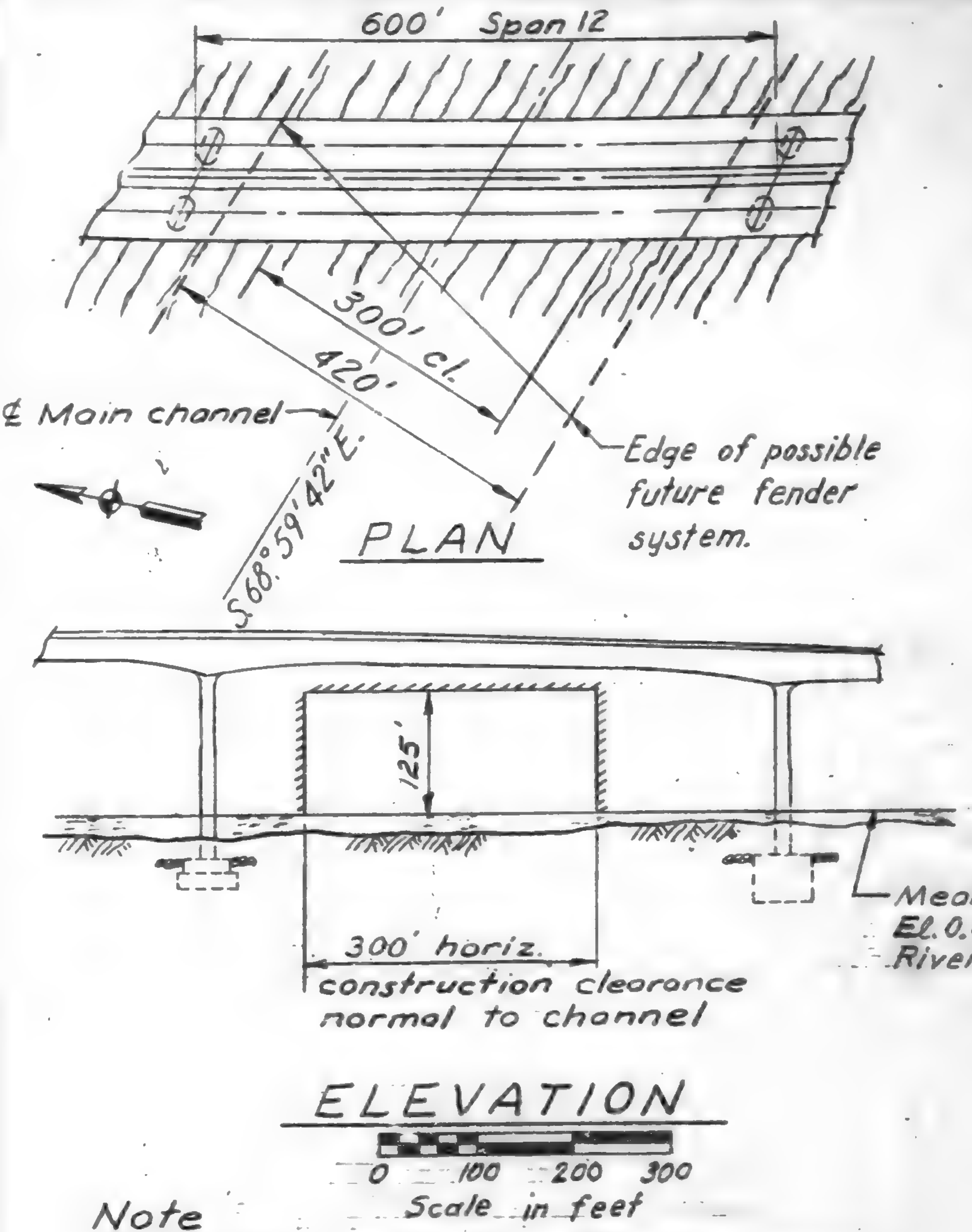
TYPICAL ACCESS CHANNEL FOR CONSTRUCTION

No Scale

Note:

* Structure width varies spans 11 thru 16 of south channel. Maintain 75' ± channel each side of structure.

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
FALSEWORK, DREDGING, COFFERDAM
WORK TRESTLES AND OTHER
TEMPORARY CONSTRUCTION
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1975 SHEET 3 OF 6


600' Span 12
300' cl.
420'
℄ Main channel
S 68°59'42" E.
Edge of possible future fender system.
PLAN
125'
300' horiz. construction clearance normal to channel
Mean Low Water El. 0.00 Columbia River Datum.
ELEVATION
0 100 200 300
Scale in feet

MAIN CHANNEL CONSTRUCTION CLEARANCE

A clear minimum navigation channel of 300' horizontal (measured normal to main channel) and of 125' vertical shall be provided within Span 12 at all times.

Floating Construction Equipment may be moored within 300 ft. opening and will be removed for passage of a vessel when requested.

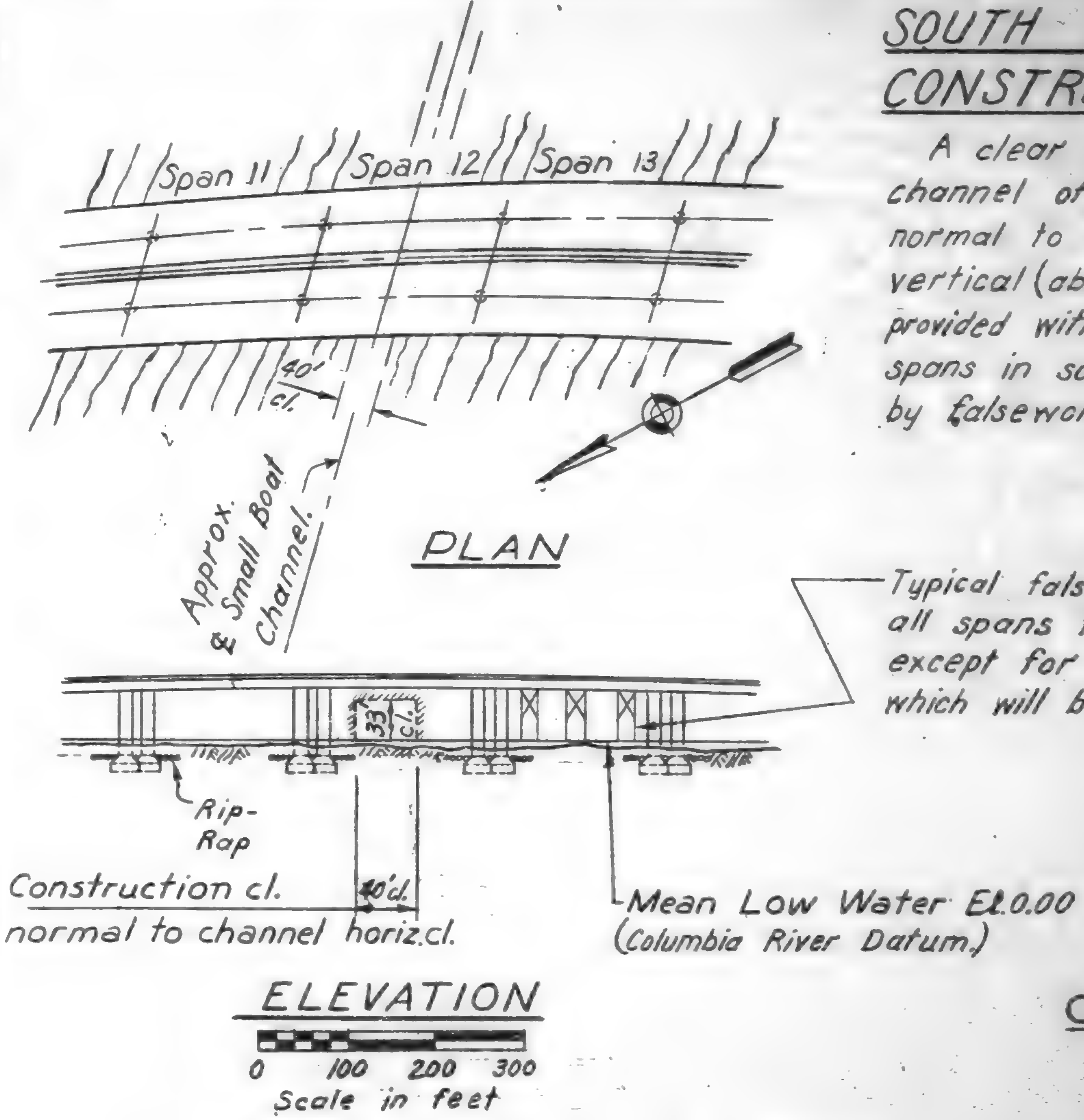
Note

Location of navigation channel within span 12 may be shifted during construction period.

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
FALSEWORK, DREDGING, COFFERDAM
WORK TRESTLES AND OTHER
TEMPORARY CONSTRUCTION
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1975 SHEET 4 OF 6

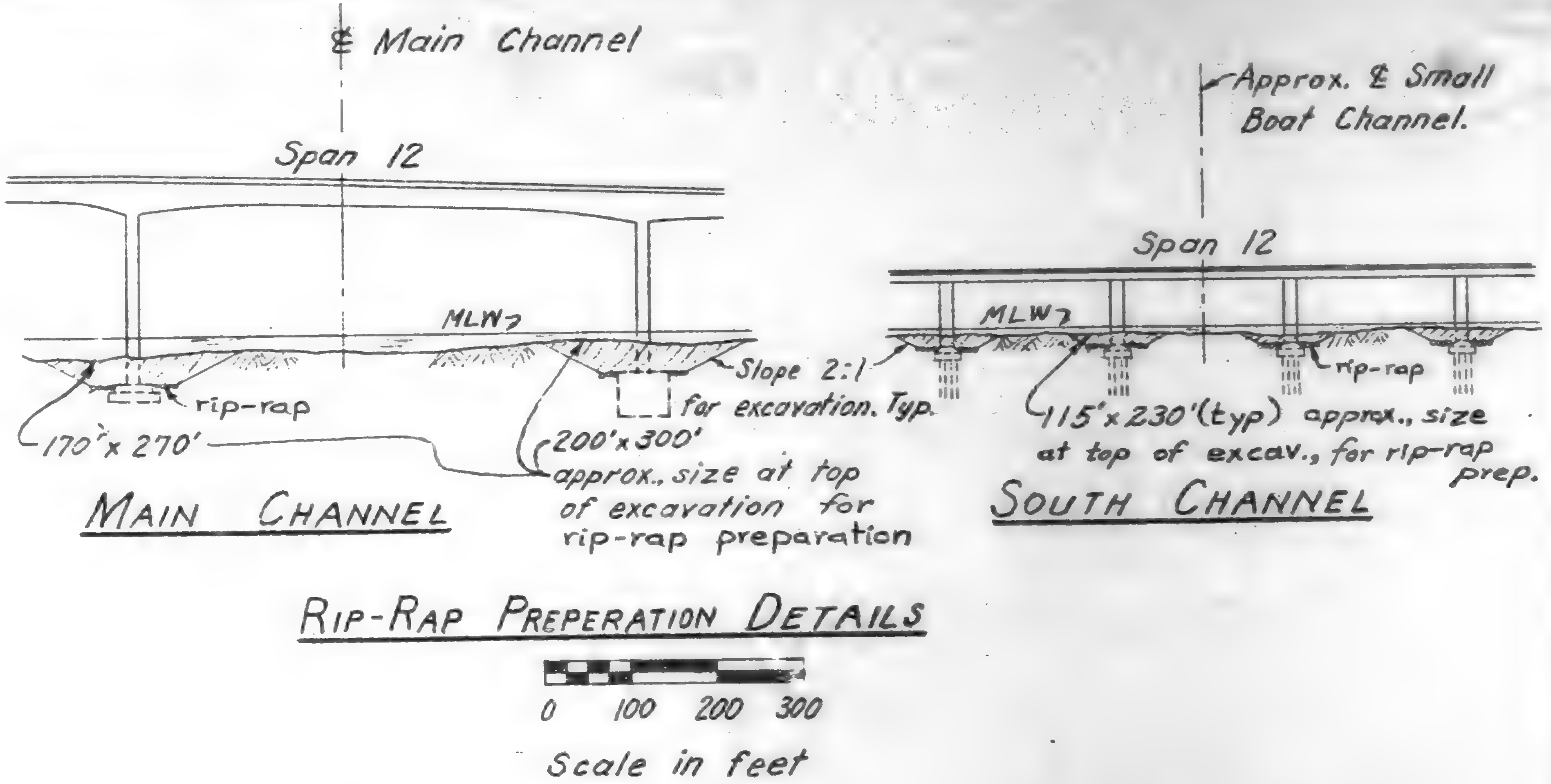
SOUTH CHANNEL CONSTRUCTION CLEARANCE

A clear minimum navigational channel of 40' horizontal (measured normal to small boat channel) and 33' vertical (above Low Water Datum) shall be provided within span 12 at all times. Other spans in south channel may be blocked by falsework during construction.


Span 11
Span 12
Span 13
40' cl.
Approx. ℄ Small Boat Channel.
PLAN
33' cl.
Rip-Rap
Construction cl.
40' cl.
normal to channel horiz. cl.
Mean Low Water El. 0.00
(Columbia River Datum.)
ELEVATION
0
100
200
300
Scale in feet

Typical falsework support will totally block all spans for navigation at some time except for span 12 (small boat channel) which will be open at all times per above.

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
FALSEWORK, DREDGING, COFFERDAM
WORK TRESTLES AND OTHER
TEMPORARY CONSTRUCTION
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1975 SHEET 5 OF 6


℄ Main Channel
Span 12
MLW
rip-rap
170' x 270'
200' x 300' approx., size at top of excavation for rip-rap preparation
Slope 2:1 for excavation. Typ.
MAIN CHANNEL
Approx. ℄ Small Boat Channel.
Span 12
MLW
rip-rap
115' x 230' (typ) approx., size at top of excav., for rip-rap prep.
SOUTH CHANNEL
0 100 200 300
Scale in feet

RIP-RAP PREPERATION DETAILS

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
FALSEWORK, DREDGING, COFFERDAM
WORK TRESTLES AND OTHER
TEMPORARY CONSTRUCTION
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1975 SUPPLEMENTAL SHEET 6 OF 6

TRANSMITTAL SLIP

DATE

BALDWIN
KLABOE
[✓ JOHNSON]
HUNTER
SCHROEDER
COULTER
ADM. ASSISTANT
BRIDGE DESIGN
CHIEF COUNSEL

CITY-COUNTY
CONSTRUCTION
EQUIPMENT-SHOPS
ENVIRONMENTAL
FINANCE
FHWA
LOCATION
MAINTENANCE
MANAGEMENT SERVICES

MATERIALS
PARKS
PERMITS & WEIGH
PERSONNEL
PLANNING
PROJECT MANAGEMENT
PUBLIC AFFAIRS
RADIO
RESEARCH
RIGHT OF WAY
ROAD DESIGN

SECRETARY
SIGN SHOP
TRAFFIC
FILES
MAIL
ESHB
REGION ☐

ATTENTION: Jean

FROM: De BRIDGE

ACTION

☐ NOTE AND FILE
☐ NOTE AND RETURN TO ME
☐ RETURN WITH MORE DETAILS
☐ NOTE AND SEE ME
☐ PLEASE ANSWER
☐ FOR YOUR APPROVAL

☐ PREPARE REPLY FOR MY SIGNATURE
☐ TAKE APPROPRIATE ACTION
☐ PER YOUR REQUEST
☐ SIGNATURE
☐ FOR YOUR INFORMATION
☐ INVESTIGATE

COMMENTS

This is the letter I told you about. Will send copies of the rewrite when it is done

FORM 61-794-3100

SP*10883-794

OREGON STATE HIGHWAY DIVISION

HIGHWAY BUILDING • SALEM, OREGON • 97310

TOM McCALL
GOVERNOR

F. B. KLABOE
Administrator of Highways

October 3, 1974 - Not sent - Superseded by June 24, 1975 ltr.

RECEIVED
STATE HWY ENGR
JUN 5'75
REFER TO
FOR

Info	Inves	R/D	D/R	Sign	Act	File

Commander (oan)
13th Coast Guard District
618 Second Ave.
Seattle, WA 98104

Dear Sir:

Columbia River Bridge at Portland, Oregon
I-205 Highway
Permit No. 41-70
Revision

On May 20, 1970 the Coast Guard issued a permit (No. 41-70) for construction of the Columbia River Bridge on Highway I-205 at Portland, Oregon

On March 16, 1973, an extension of time for that permit was requested.

On April 24, 1973 you responded to the effect that the permit will not expire while you are considering the request for extension and that a final Environmental Impact Statement will be required prior to action on the time extension.

It now appears that the final EIS will be available in the very near future.

Progress on this project was delayed by the environmental litigation concerning major expansion of the Portland International Airport. The abandonment of airport expansion plans because of the litigation eliminated the fill in the south channel which was to carry the south roadway approach to the structure. The project must now be extended approximately 4,000 feet across the south channel to the south shore by an alternate method.

A feasibility study for this extension has been completed. It indicates that the extension should be a combination of fill across Government Island and a structure across the south channel.

In addition to the extension, other changes to the structure have been made. The width has been increased from 6 lanes to 8 lanes in order to accommodate vehicular traffic. For both design and economic reasons, all spans (of the original proposed structure) south of the main channel span (Span 12) have been increased in length resulting in fewer spans between the main channel and Government Island. For economic, environmental and esthetic reasons the grade for the south end of the original length structure and across Government Island has been lowered. The navigation clearances in the main channel remain unchanged. The clearances in the first channel south are increased slightly, both vertically and horizontally. The clearances for navigation in the south channel are 48 feet vertical and 120 feet horizontal. The vertical clearance is limited by the aircraft glide path for the proposed extension of the existing runway (this is not the expansion which was involved in litigation). Because of these revisions, including the extension, a revised permit is requested.

Reproducibles of Sheets 1 through 8, together with 6 prints each of the revised permit drawings dated October, 1974, are enclosed.

This project involves land on Government Island which is covered by Section 4 (f) of the Department of Transportation Act. This involvement is addressed in the Environmental Impact Statement.

This project is considered to be a major action and its effect on the quality of the human environment is also discussed in the Environmental Impact Statement.

We have your previous determination of requirements for navigation lights on the original length structure. Please advise as to the requirements for lights on the south channel crossing.

Our present tentative schedule for completion of design and start of construction indicates that the contract for the first section to be constructed (the Washington shore section - Spans 1 through 10) cannot be awarded prior to April 1975. Individual contracts for the main channel section, Government Island fill and south channel section will be awarded subsequently. Completion of all construction is estimated for mid 1980.

In order to cover this schedule and possible unforeseen contingencies, our previous request for an extension of the existing permit time is hereby revised. It is requested that the date by which construction is commenced be changed to December 31, 1975, and the date by which construction is completed changed to July 31, 1981.

Your timely action on this request for a revision of the existing Bridge Permit will be appreciated.

Very truly yours,

AE Johnson

A. E. Johnson
Deputy State Highway Engineer

Enclosure

8905

J

October 3, 1974

Commander (oan)
13th Coast Guard District
618 Second Ave.
Seattle, WA 98104

Dear Sir:

Columbia River Bridge at Portland, Oregon
I-205 Highway
Permit No. 41-70
Revision

On May 20, 1970 the Coast Guard issued a permit (No. 41-70) for construction of the Columbia River Bridge on Highway I-205 at Portland, Oregon

On March 16, 1973, an extension of time for that permit was requested.

On April 24, 1973 you responded to the effect that the permit will not expire while you are considering the request for extension and that a final Environmental Impact Statement will be required prior to action on the time extension.

It now appears that the final EIS will be available in the very near future.

Progress on this project was delayed by the environmental litigation concerning major expansion of the Portland International Airport. The abandonment of airport expansion plans because of the litigation eliminated the fill in the south channel which was to carry the south roadway approach to the structure. The project must now be extended approximately 4,000 feet across the south channel to the south shore by an alternate method.

A feasibility study for this extension has been completed. It indicates that the extension should be a combination of fill across Government Island and a structure across the south channel.

In addition to the extension, other changes to the structure have been made. The width has been increased from 6 lanes to 8 lanes in order to accommodate vehicular traffic. For both design and economic reasons, all spans (of the original proposed structure) south of the main channel span (Span 12) have been increased in length resulting in fewer spans between the main channel and Government Island. For economic, environmental and esthetic reasons the grade for the south end of the original length structure and across Government Island has been lowered. The navigation clearances in the main channel remain unchanged. The clearances in the first channel south are increased slightly, both vertically and horizontally. The clearances for navigation in the south channel are 48 feet vertical and 120 feet horizontal. The vertical clearance is limited by the aircraft glide path for the proposed extension of the existing runway (this is not the expansion which was involved in litigation). Because of these revisions, including the extension, a revised permit is requested.

Reproducibles of Sheets 1 through 8, together with 6 prints each of the revised permit drawings dated October, 1974, are enclosed.

This project involves land on Government Island which is covered by Section 4 (f) of the Department of Transportation Act. This involvement is addressed in the Environmental Impact Statement.

This project is considered to be a major action and its effect on the quality of the human environment is also discussed in the Environmental Impact Statement.

We have your previous determination of requirements for navigation lights on the original length structure. Please advise as to the requirements for lights on the south channel crossing.

Our present tentative schedule for completion of design and start of construction indicates that the contract for the first section to be constructed (the Washington shore section - Spans 1 through 10) cannot be awarded prior to April 1975. Individual contracts for the main channel section, Government Island fill and south channel section will be awarded subsequently. Completion of all construction is estimated for mid 1980.

In order to cover this schedule and possible unforeseen contingencies, our previous request for an extension of the existing permit time is hereby revised. It is requested that the date by which construction is commenced be changed to December 31, 1975, and the date by which construction is completed changed to July 31, 1981.

Your timely action on this request for a revision of the existing Bridge Permit will be appreciated.

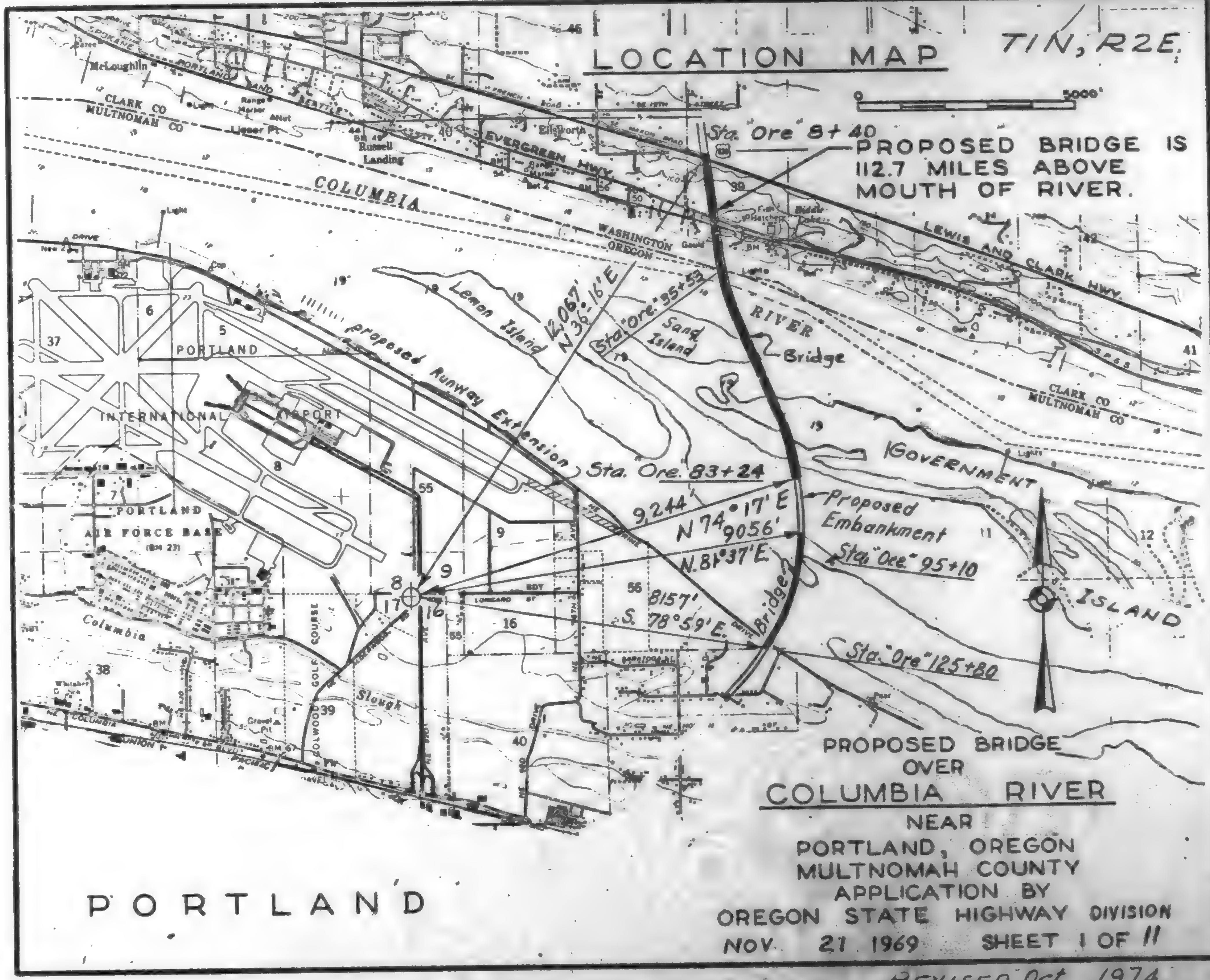
Very truly yours,

A. E. Johnson
Deputy State Highway Engineer

Enclosure

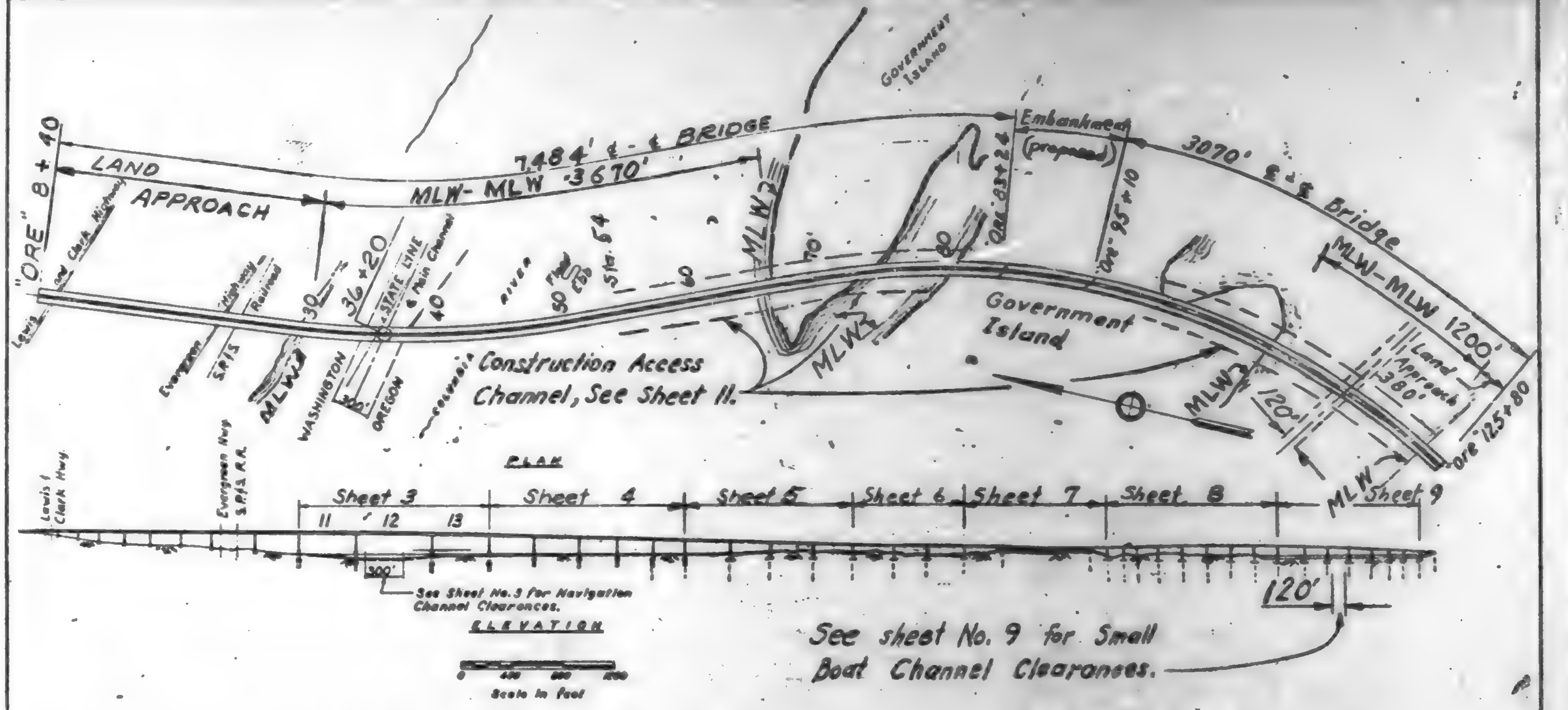
RWE:ag:dh

cc F. B. Klaboe
E. S. Hunter
W. J. Hart
R. N. Bothman /w/ attachment
G. Potter /w/ attachment
L. W. Rulien
C. S. Gloyd /w/ attachment


LOCATION MAP
T1N, R2E
5000'
Sta. "Ore" 8+40
PROPOSED BRIDGE IS 112.7 MILES ABOVE MOUTH OF RIVER.
McLoughlin
SPOKANE PORTLAND AND SEATTLE
CLARK CO
MULTNOMAH CO
Russell Landing
Ellsworth
EVERGREEN HWY
COLUMBIA
WASHINGTON
OREGON
LEWIS AND CLARK HWY
Lemon Island
12,067'
N 36°16'E
Sta. "Ore" 35+53
Sand Island
RIVER
Bridge
PORTLAND
INTERNATIONAL AIRPORT
proposed Runway Extension
Sta. Ore. 83+24
9,244'
N 74°17'E
9056'
N. 81°37'E.
8157'
S. 78°59'E.
Bridge
Proposed Embankment
Sta. "Ore" 95+10
Sta. "Ore" 125+80
GOVERNMENT
ISLAND
PORTLAND AIR FORCE BASE
Columbia
Slough
GOLF COURSE
COLWOOD
UNION PACIFIC
PORTLAND

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
NOV. 21 1969 SHEET 1 OF 11

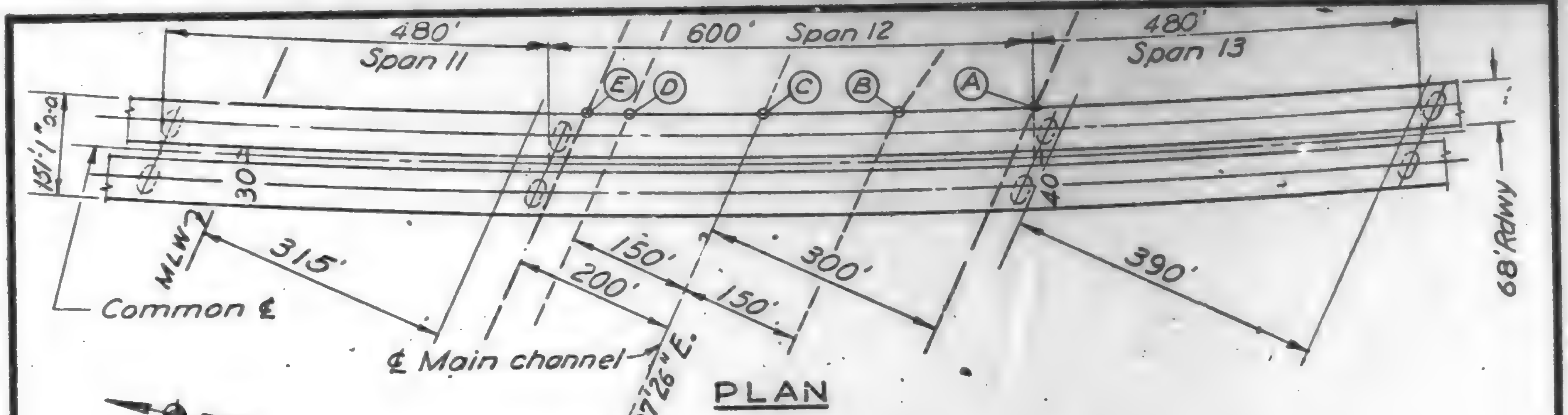
REVISED Oct. 1974


"ORE" 8 + 40
LAND
APPROACH
7484' ℄-℄ BRIDGE
MLW- MLW 3670'
Lewis and Clark Highway
Evergreen Highway
S.P.&S. Railroad
MLW
WASHINGTON
OREGON
30
36+20
STATE LINE
℄ Main Channel
300'
40
RIVER
50
Sta. 54
60
70
MLW
80
Construction Access
Channel, See Sheet 11.
GOVERNMENT ISLAND
"ORE" 83+24
Embankment
(proposed)
"ORE" 95+10
3070' ℄-℄ Bridge
Government
Island
MLW-MLW 1200'
Land
Approach
380'
120'
"ORE" 125+80
PLAN
Lewis & Clark Hwy.
Evergreen Hwy.
S.P.&S. R.R.
Sheet 3
11
12
13
Sheet 4
Sheet 5
Sheet 6
Sheet 7
Sheet 8
MLW
Sheet 9
300'
See Sheet No. 3 for Navigation Channel Clearances.
120'
ELEVATION
0
400
800
1200
Scale in Feet
See sheet No. 9 for Small
Boat Channel Clearances.

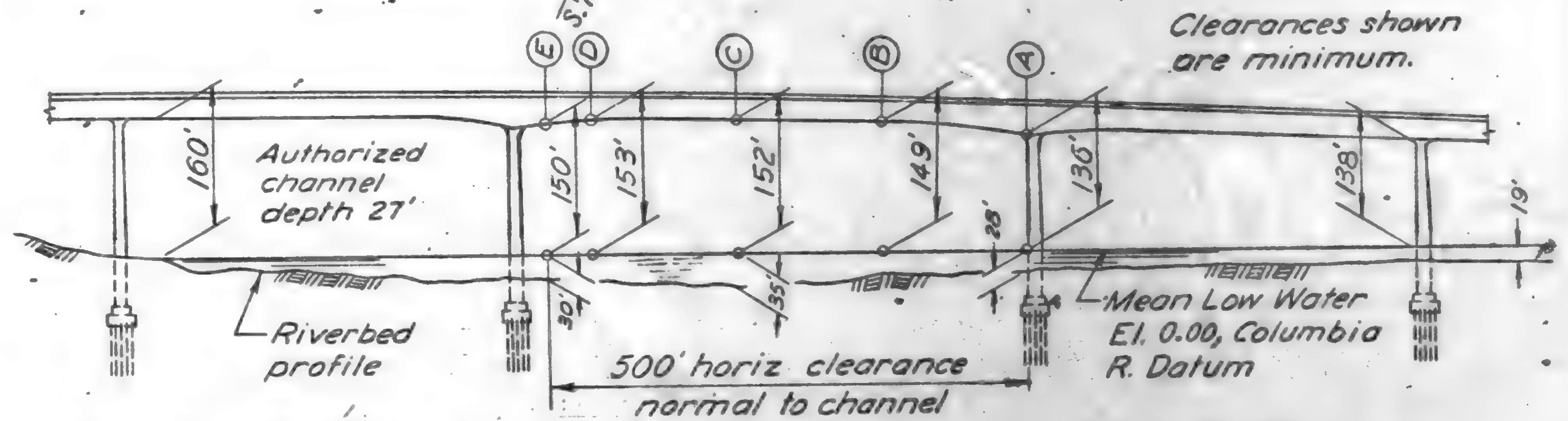
Note:
See sheets 3, 4, 5, 6, 7, 8, and 9 for all horizontal and vertical clearances in water spans.

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
NOVEMBER 21, 1969 SHEET 2 OF 11

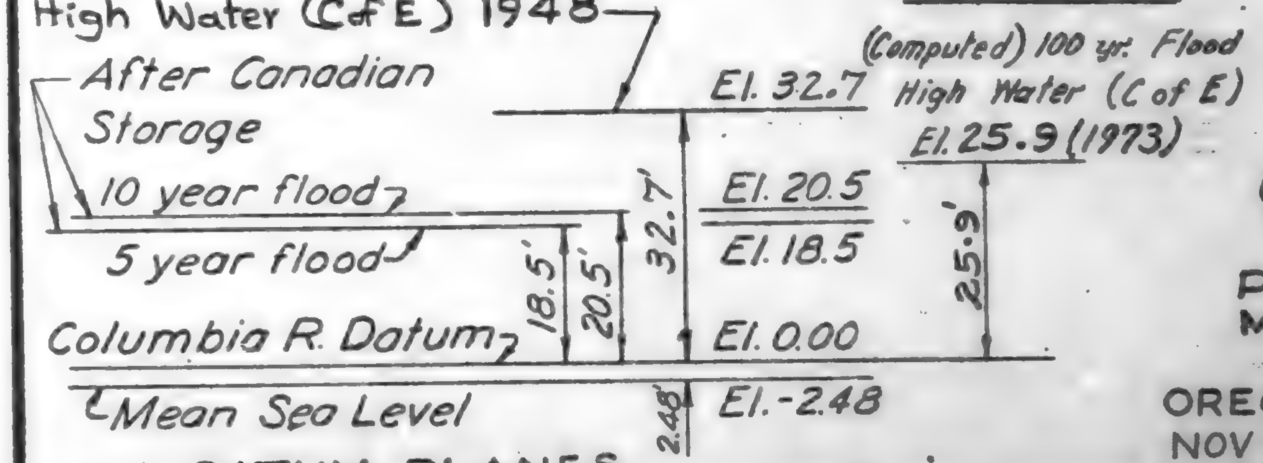
REVISED Oct. 1974


480'
Span 11
600' Span 12
480'
Span 13
E
D
C
B
A
151'1" 2.0
30
40
MLW
315'
Common ℄
200'
150'
150'
300'
390'
℄ Main channel
S.77°07'26" E.
68' Rdwy

PLAN


Clearances shown are minimum.
E
D
C
B
A
160'
150'
153'
152'
149'
136'
138'
19'
28'
30'
35'
Authorized channel depth 27'
Riverbed profile
Mean Low Water El. 0.00, Columbia R. Datum
500' horiz clearance normal to channel

ELEVATION

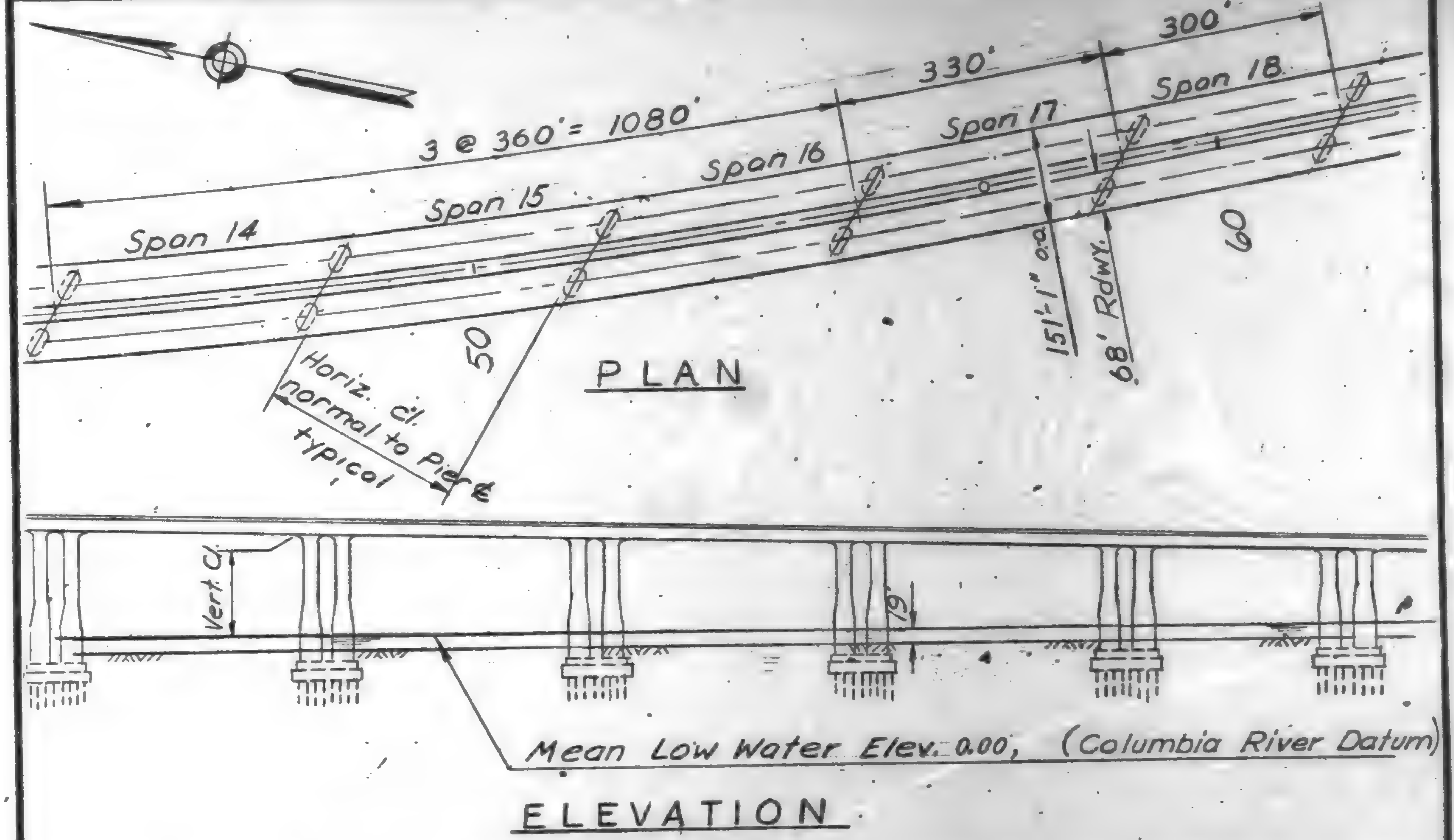

Observed Extreme High Water (C of E) 1948
El. 32.7
(Computed) 100 yr. Flood High Water (C of E) El. 25.9 (1973)
After Canadian Storage
10 year flood
5 year flood
El. 20.5
El. 18.5
32.7'
25.9'
18.5'
20.5'
Columbia R. Datum
El. 0.00
Mean Sea Level
El. -2.48
2.48'

DATUM PLANES

SCALE IN FEET
0 100 200 400

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
NOV 21, 1969.
SHEET 3 OF 11

REVISED Oct. 1974

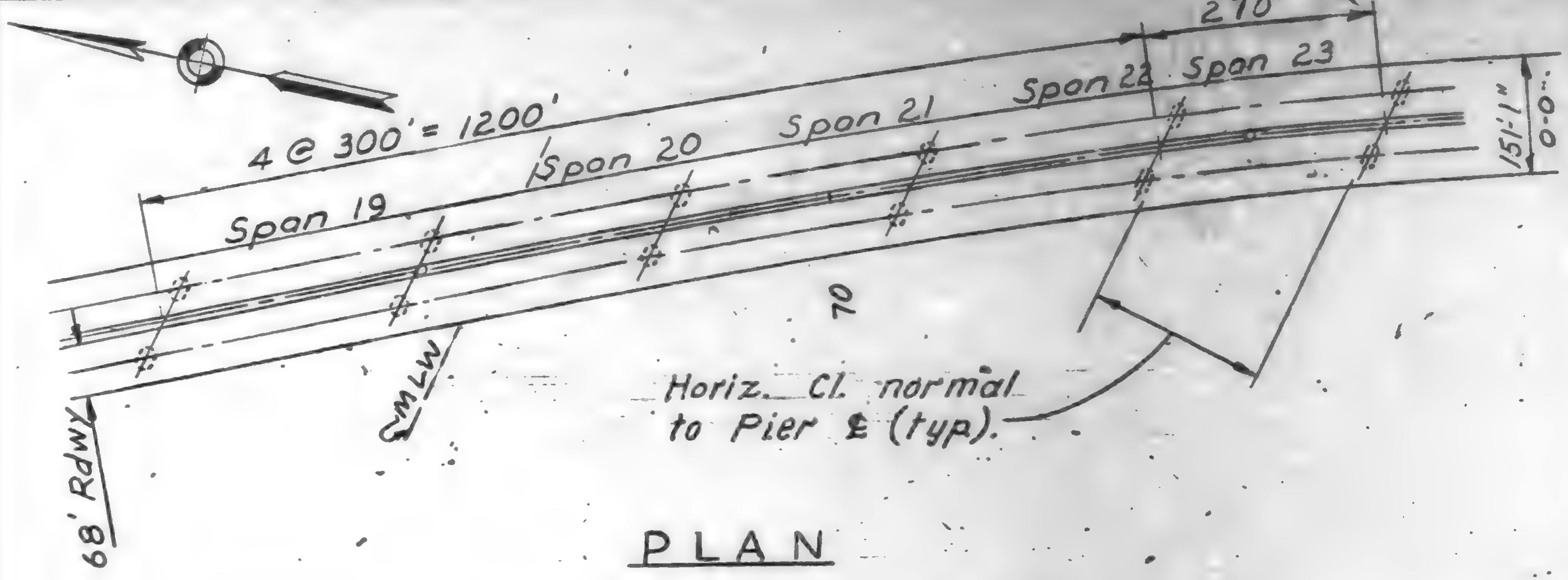

3 @ 360' = 1080'
330'
300'
Span 14
Span 15
Span 16
Span 17
Span 18
50
60
Horiz. cl. normal to Pier ℄ typical
151'-1" o.o.
68' Rdwy.
PLAN
Vert. Cl.
19'
Mean Low Water Elev. 0.00, (Columbia River Datum)
ELEVATION

0 100 200 300
Scale in feet

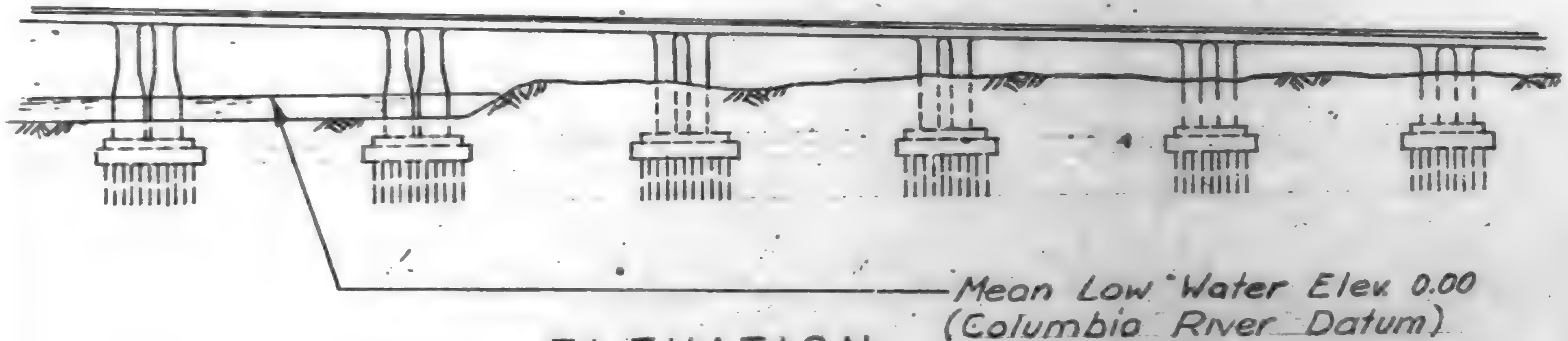
SPAN	HORIZ. CL	VERT. CL.
14	285'	128'
15	275'	117'
16	265'	106'
17	235'	96'
18	215'	87'

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
NOV. 21, 1969 SHEET 4 OF 11

REVISED Oct. 1974


4 @ 300' = 1200'
270'
Span 19
Span 20
Span 21
Span 22
Span 23
151'-1"
0-0"
70
℄ MLW
68' Rdwy
Horiz. Cl. normal to Pier ℄ (typ).

PLAN


Mean Low Water Elev. 0.00
(Columbia River Datum)

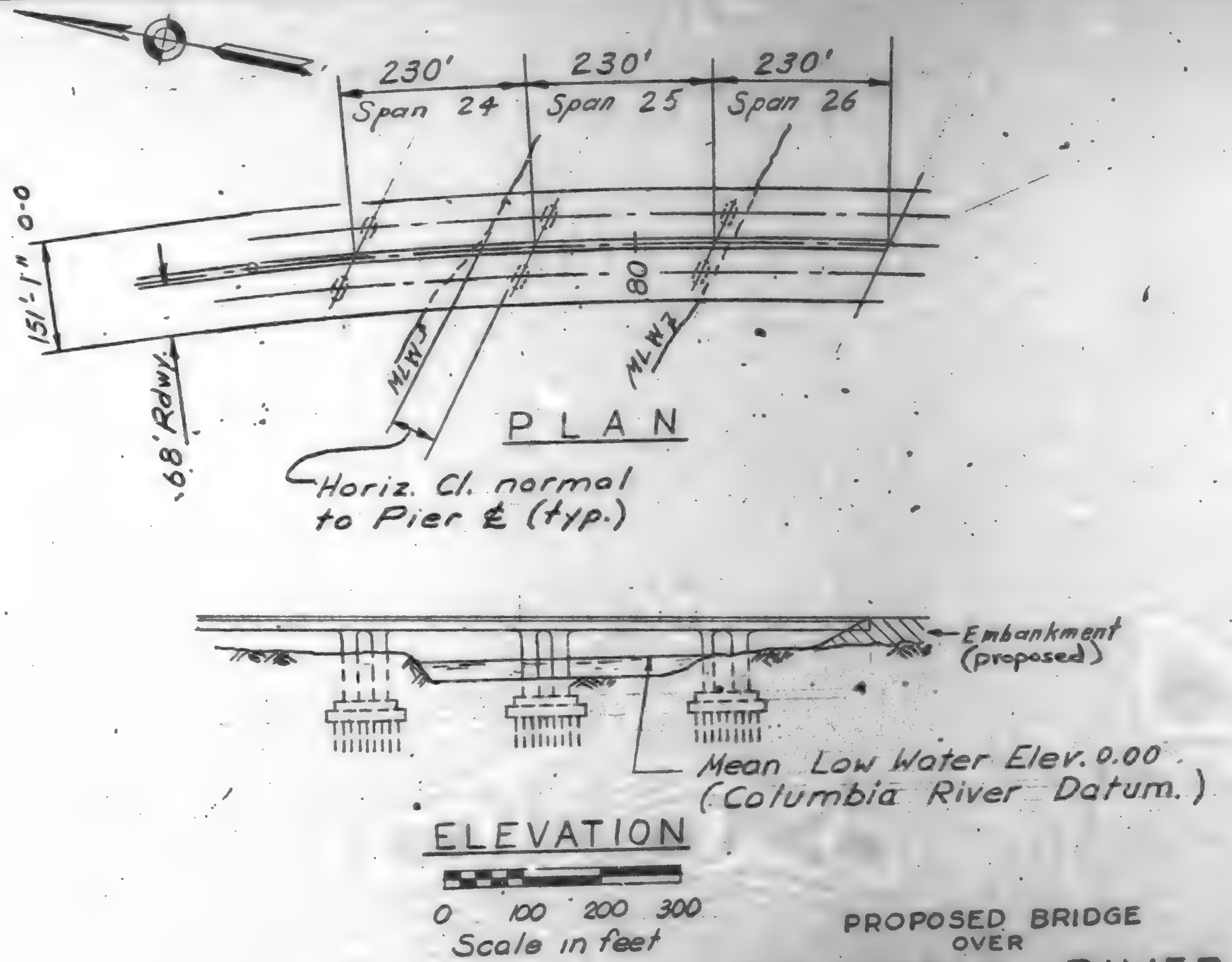
ELEVATION

0 100 200 300
Scale in Feet

SPAN	HORIZ. CL.	VERT. CL.
19	210'	80'

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
NOV 21, 1969 SHEET 5 OF 11

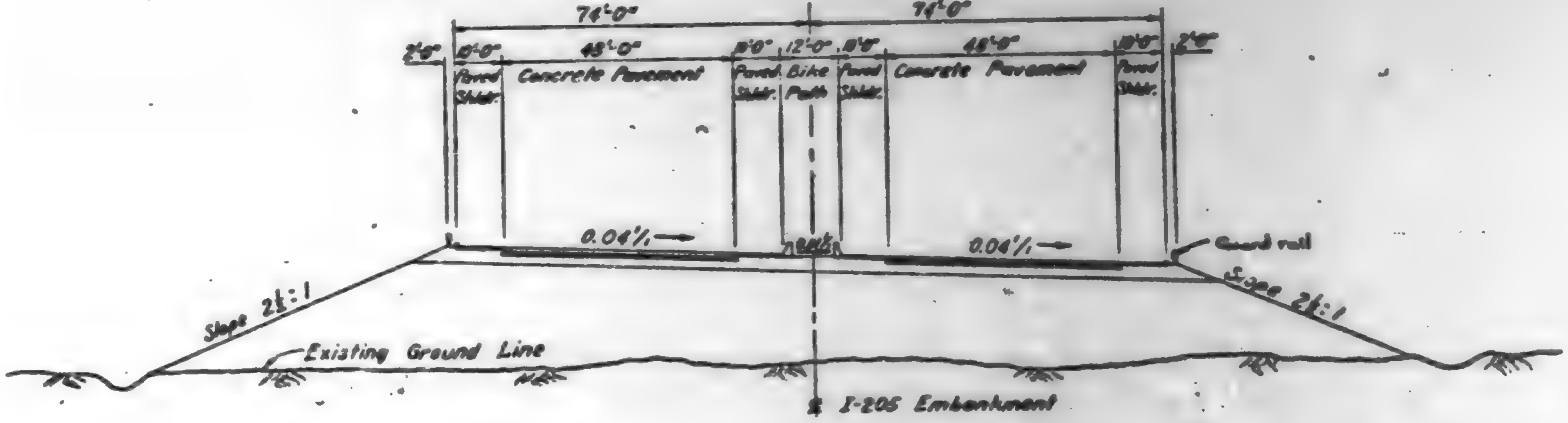
Revised Oct. 1974


230'
230'
230'
Span 24
Span 25
Span 26
151'-1" 0-0
80
MLWJ
MLWJ
68' Rdwy.
PLAN
Horiz. Cl. normal to Pier ℄ (typ.)
Embankment (proposed)
Mean Low Water Elev. 0.00 (Columbia River Datum.)
ELEVATION
0 100 200 300
Scale in feet

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
NOV. 21, 1969 SHEET 6 OF 11

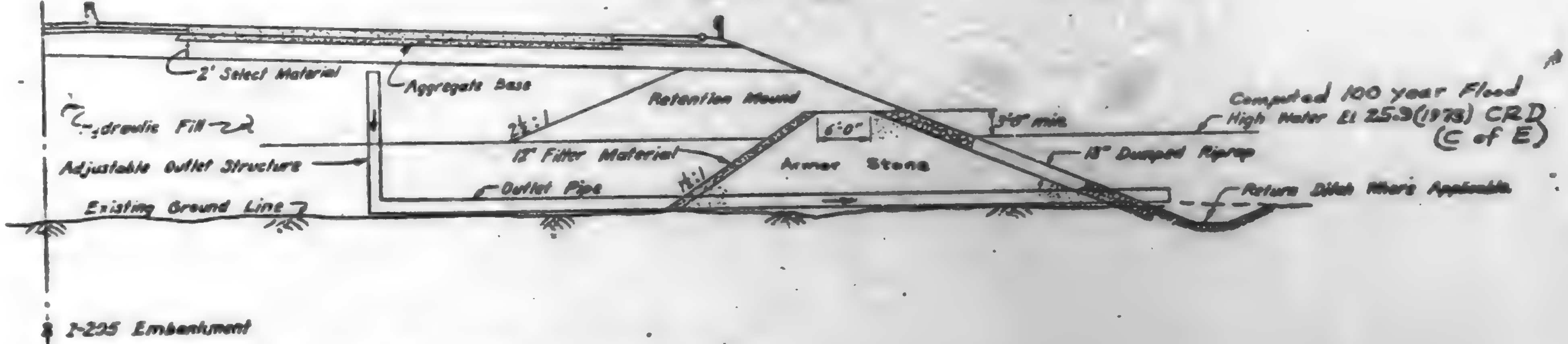
SPAN.	HORIZ. CL.	VERT. CL.
24	.50'	43'
25	185'	37'

Revised Oct. 1974


74'-0"
74'-0"
2'-0"
10'-0"
48'-0"
10'-0"
12'-0"
10'-0"
48'-0"
10'-0"
2'-0"
Paved Shldr.
Concrete Pavement
Paved Shldr.
Bike Path
Paved Shldr.
Concrete Pavement
Paved Shldr.
0.04'/, →
0.04'/, →
Guard rail
Slope 2½:1
Slope 2½:1
Existing Ground Line
℄ I-205 Embankment

TYPICAL EMBANKMENT SECTION

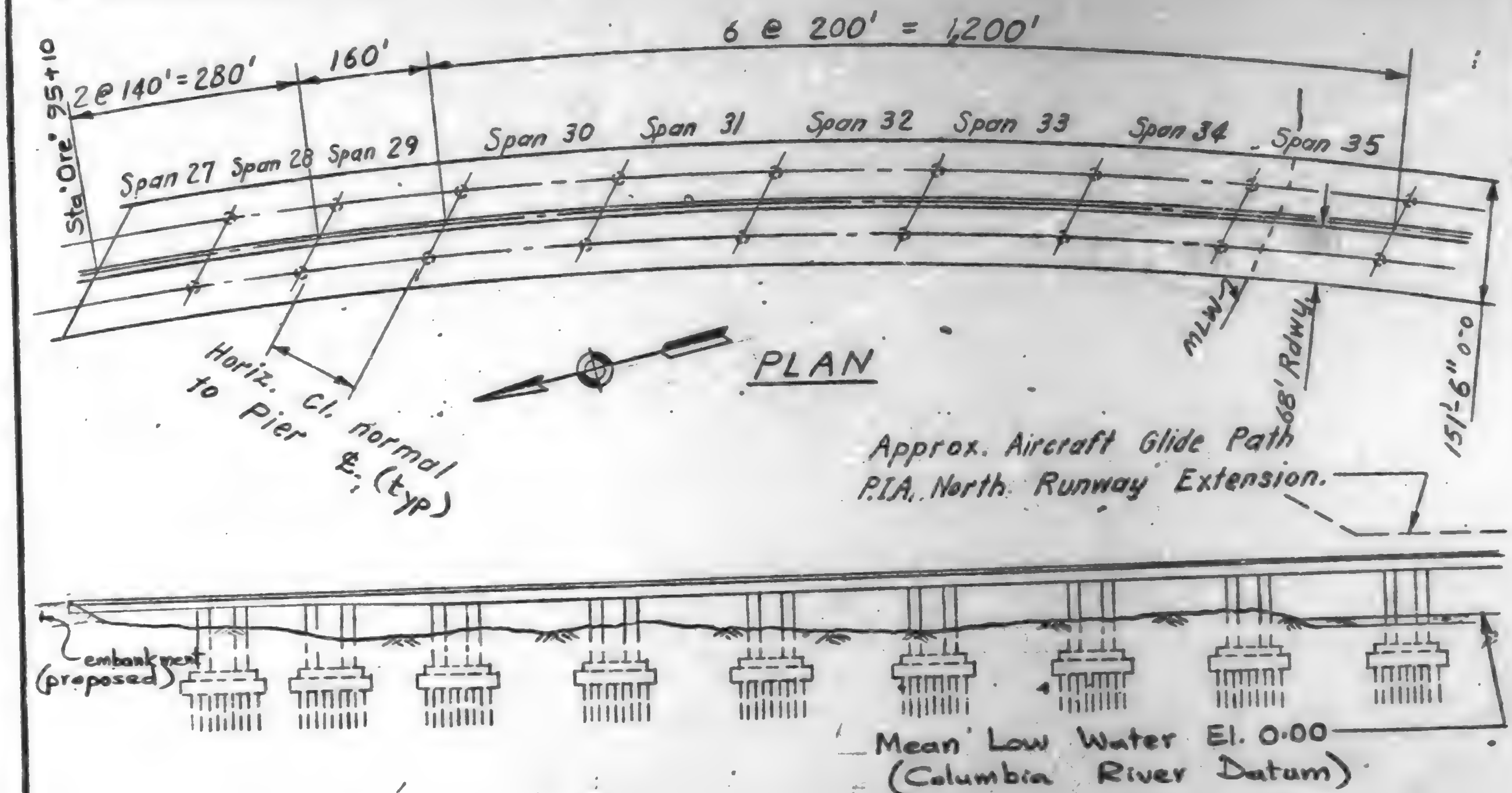
0 20 40 60
Scale in feet


2' Select Material
Aggregate Base
Hydraulic Fill
Adjustable Outlet Structure
Existing Ground Line
2½:1
Retention Mound
12" Filter Material
Outlet Pipe
6'-0"
Armor Stone
3'-0" min
Computed 100 year Flood
High Water El 25.3(1973) CRD
(C of E)
18" Dumped Riprap
Return Ditch Where Applicable
℄ I-205 Embankment

HALF EMBANKMENT SECTION DETAILS

0 10 20 30
Scale in feet

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
OCTOBER 2, 1974 SHEET 7 OF 11

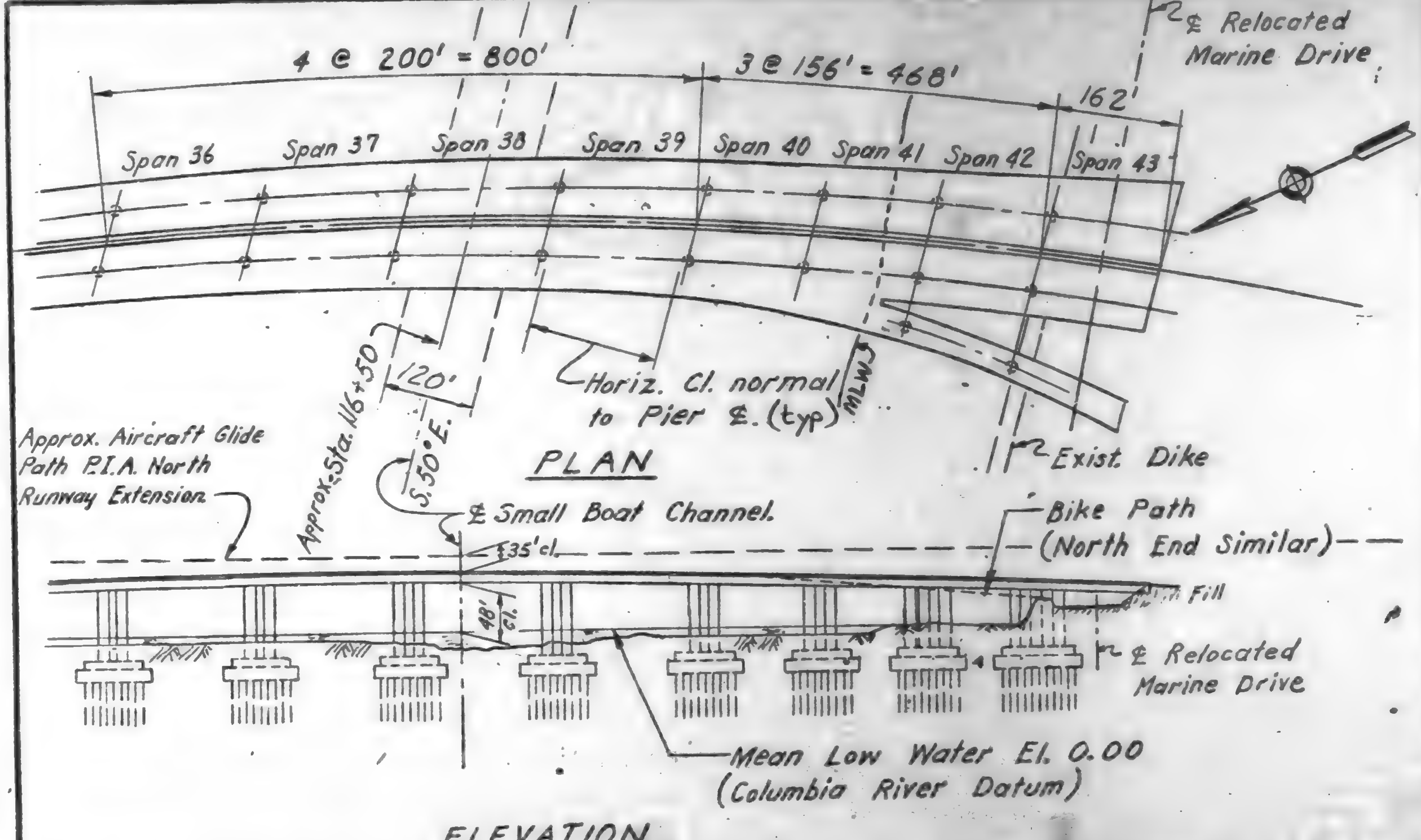

6 @ 200' = 1,200'
160'
2 @ 140' = 280'
Sta 'Ore' 95+10
Span 27 Span 28 Span 29
Span 30
Span 31
Span 32
Span 33
Span 34
Span 35
MLW
68' Rdwy
151'-6" o-o
Horiz. Cl. normal to Pier ℄, (typ)
PLAN
Approx. Aircraft Glide Path P.I.A. North Runway Extension.
embankment (proposed)
Mean Low Water El. 0.00 (Columbia River Datum)

ELEVATION

0 100 200 300
Scale in feet.

SPAN	HORIZ. CL.	VERT. CL.
35	120'	44'

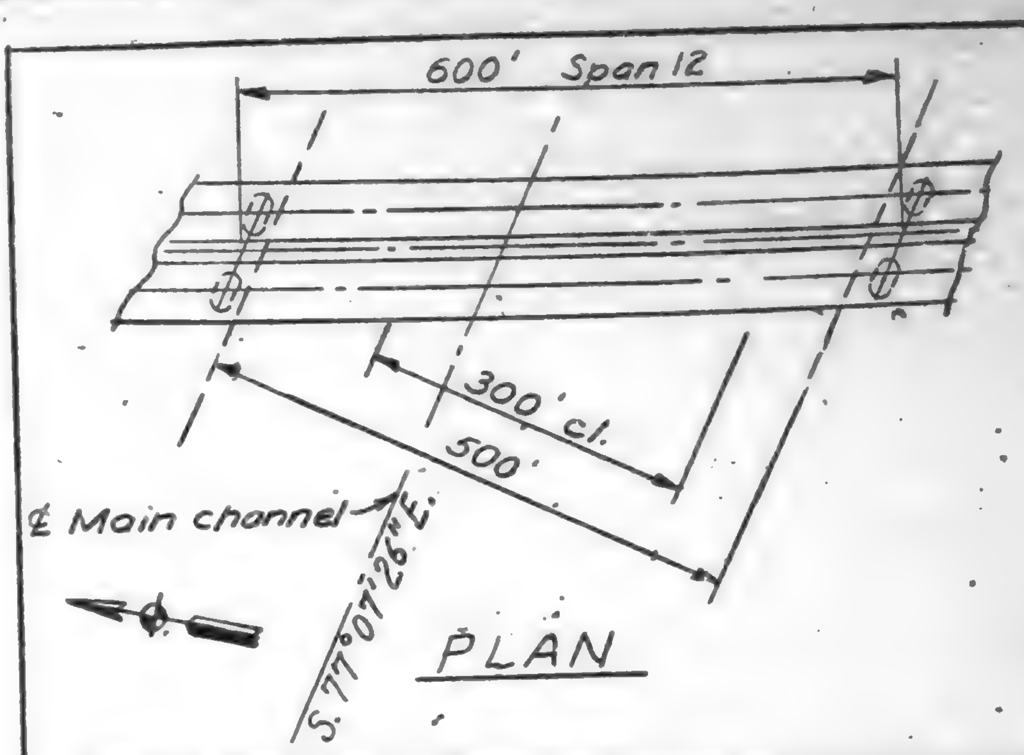
PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
OCT 2, 1974 SHEET 8 OF 11


4 @ 200' = 800'
3 @ 156' = 468'
162'
℄ Relocated Marine Drive
Span 36
Span 37
Span 38
Span 39
Span 40
Span 41
Span 42
Span 43
120'
Approx. Sta. 116+50
S.50°E.
Horiz. Cl. normal to Pier ℄. (typ)
MLW
Approx. Aircraft Glide Path P.I.A. North Runway Extension
PLAN
℄ Exist. Dike
℄ Small Boat Channel.
Bike Path (North End Similar)
35' cl.
48' cl.
Fill
℄ Relocated Marine Drive
Mean Low Water El. 0.00 (Columbia River Datum)
ELEVATION

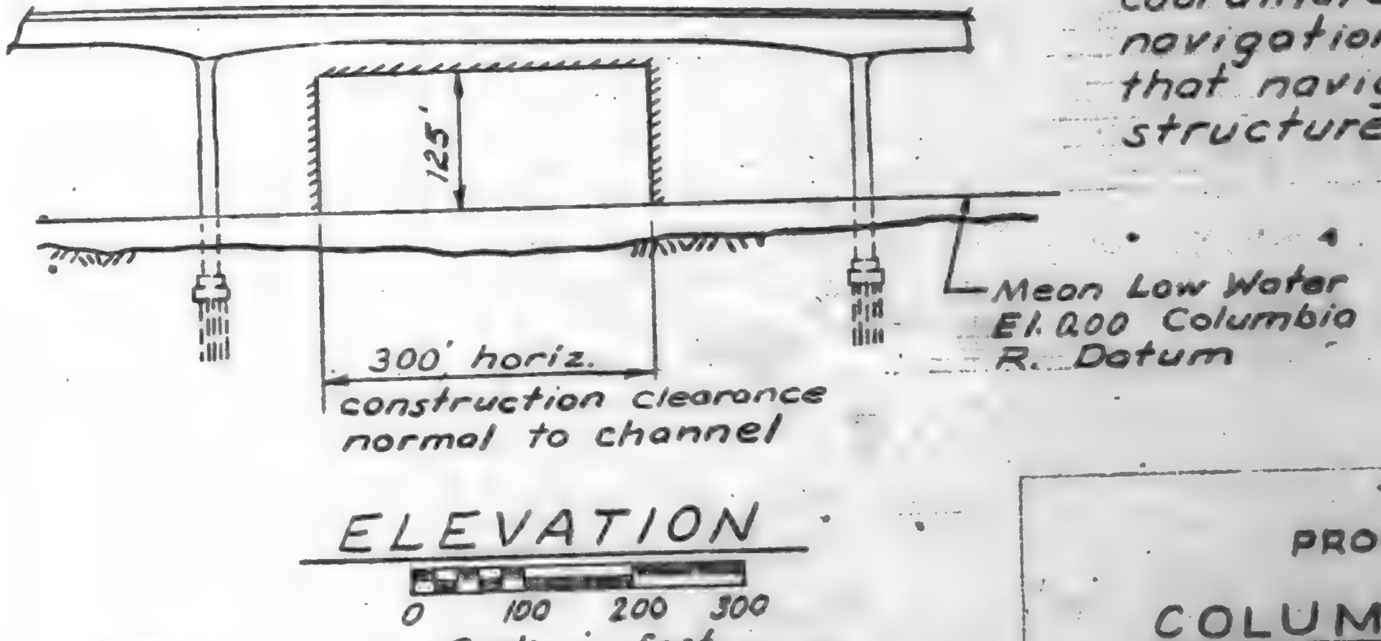
0 100 200 300
Scale in feet

SPAN	HORIZ. CL.	VERT. CL.
36	175'	46'
37	180'	47'
38	185'	48'
39	185'	47'
40	145'	46'
41	85'	45'

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
OCT 2, 1974 SHEET 9 OF 11


600' Span 12
300' cl.
500'
℄ Main channel
S. 77°07'26" E.

PLAN


125'
Mean Low Water
El. 0.00 Columbia
R. Datum
300' horiz.
construction clearance
normal to channel
0 100 200 300
Scale in feet

ELEVATION

CONSTRUCTION CLEARANCE

A clear minimum navigation channel of 300' horizontal (measured normal to main channel) and of 125' vertical shall be provided within Span 12 at all times.

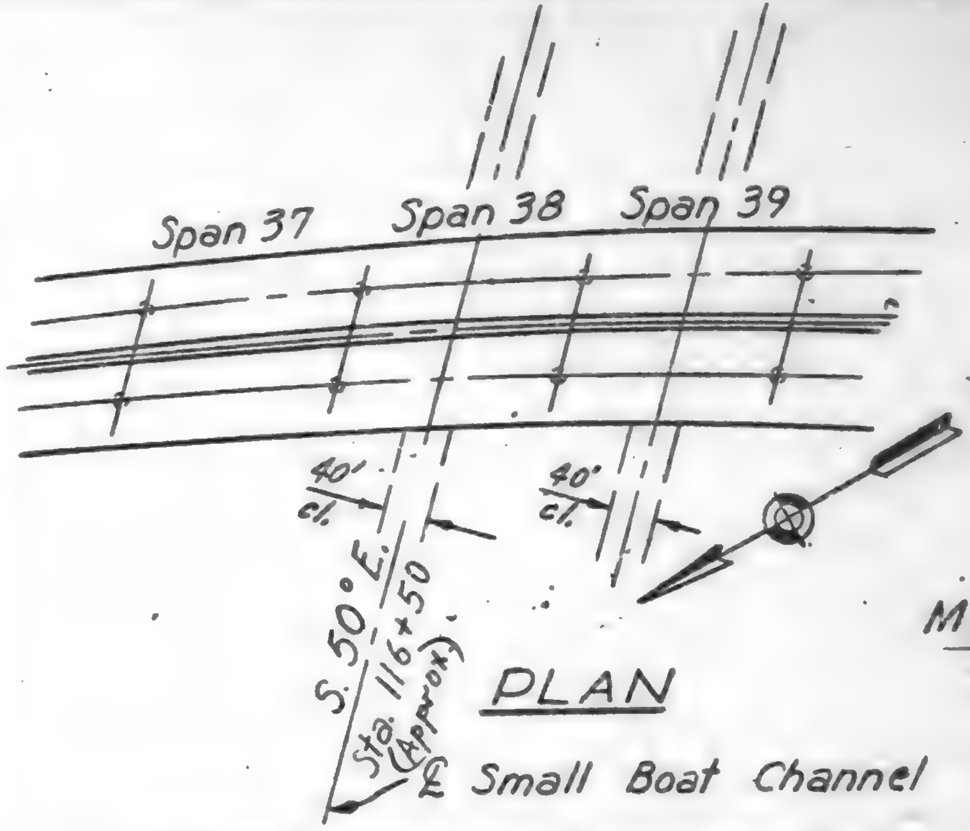
The contractor will be permitted to encroach on the minimum 300' channel with floating construction equipment for a maximum of 4 consecutive hours.

This encroachment shall be coordinated with appropriate navigation interests to insure that navigation thru the bridge structure will not be stopped.

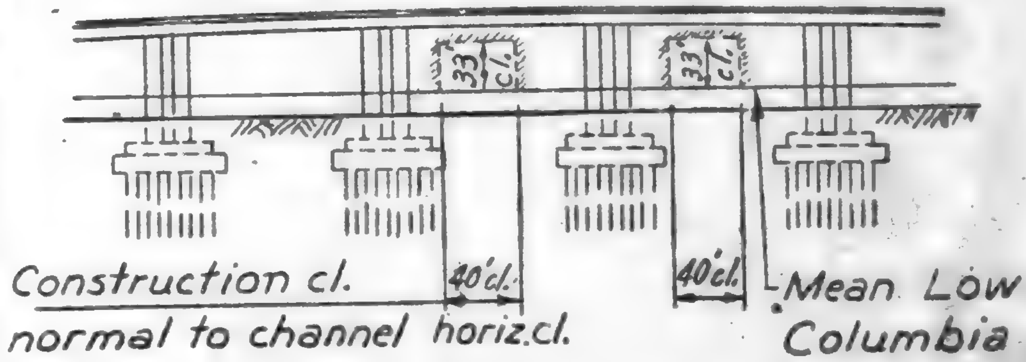
Note
Location of navigation channel within span 12 may be shifted during construction period.

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
DEC, 1971 SHEET 10 OF 11

Revised Oct. 1974


Span 37
Span 38
Span 39
40' cl.
40' cl.
S. 50° E.
Sta. 116+50 (Approx)
℄ Small Boat Channel

PLAN


33' cl.
33' cl.
Construction cl. normal to channel
40' cl.
40' cl.
horiz. cl.
Mean Low Water El. 0.00
Columbia R. Datum

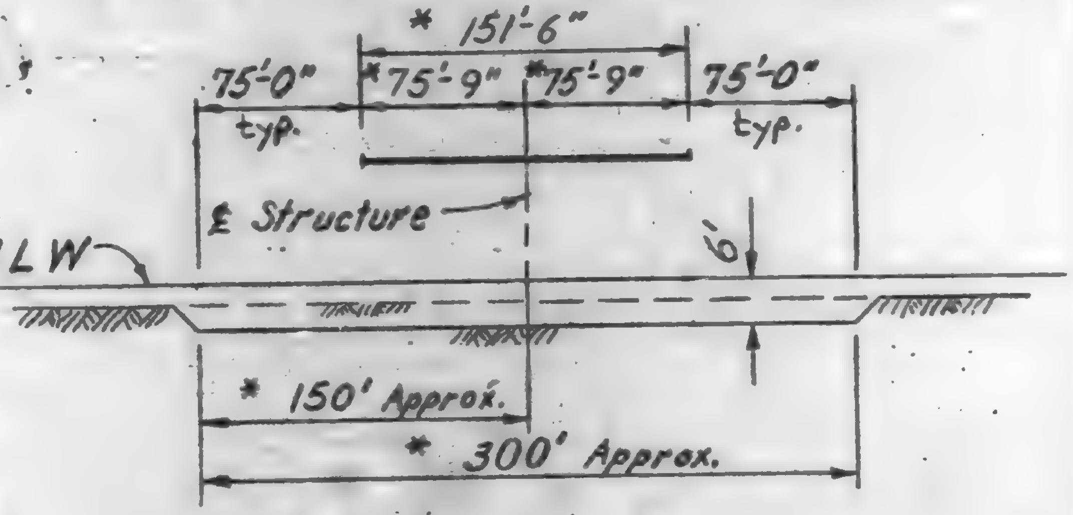
ELEVATION

0 100 200 300
Scale in feet

Note:
*Structure width varies spans 37 thru 42. Maintain 75'-0" each side of structure.

CONSTRUCTION CLEARANCE

A clear minimum navigational channel of 40' horizontal (measured normal to small boat channel) and 33' vertical shall be provided within both spans 38 & 39 at all times. Other spans in south channel may be blocked by falsework during construction.


* 151'-6"
75'-0" typ.
*75'-9"
*75'-9"
75'-0" typ.
℄ Structure
MLW
6'
* 150' Approx.
* 300' Approx.

TYPICAL CONSTRUCTION ACCESS CHANNEL
No Scale

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY DIVISON
OCT. 1974 SHEET 11 OF 11

1979 Columbia R. Br. (N. Channel 890
Superstruc.) I-205
Coast Guard #1

8905

DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

MAILING ADDRESS:
COMMANDER (oan)
THIRTEENTH COAST GUARD DISTRICT
618 SECOND AVE.
SEATTLE, WASH. 98104
PHONE: (206) 624-2902

3271
Ser 498
11 July 1973

Oregon State Highway Division
Attn: Mr. E. S. Hunter
Ass't State Highway Engineer
Highway Building
Salem, OR 97310

Re: Col. River I-205 Bridge Permit

Dear Sir:

This office has consulted with the Corps of Engineers concerning your permit to construct the I-205 bridge. Your letter of 5 June 1973 requested information on the official location of the channel South of Government Island and the effect of the Port of Portland dredging and filling permit on your bridge and approach.

The Corps of Engineers state that the channel or waterway should be considered as existing in the present location. The issuance of a permit by the Corps of Engineers does not of itself move the navigable waters. The project may or may not actually be accomplished and unless the work is performed, the channel naturally remains in its original position.

Accordingly, the Coast Guard considers it appropriate to receive an application from Oregon State Highway Division for the additional bridge portion to extend from the Oregon shore out to the South end of the presently authorized bridge. Should a revised application be submitted, the drawings should recognize a navigation requirement for the present South channel. The specific minimum acceptable horizontal and vertical dimensions for navigation will have to be determined based on navigation needs as well as the location of the opening.

The Coast Guard will provide all possible assistance to assist toward your goal of obtaining a permit. It is suggested step No. 1 could be an inventory of boats that operate in those waters now and what horizontal and vertical height each will require. Suggested step No. 2 is an evaluation of the inconvenience to the mariners who could not pass through various size openings, followed by some sizes being selected for your application. Public procedure by the Coast Guard may indicate some revision or increase in opening size if an inappropriate selection were made.

Walt.
plus
Handle

7-13-73
cc W. Hart:
Take the
inventory
ESH

RECEIVED
JUL 12 1973
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

7-13-73
original to Walt Hart
to take inventory.

Subj: Col. River I-205 Bridge Permit

It is suggested that your Environmental Impact Statement for the bridge project recognize the affect of reduced bridge clearances if the South channel remains in the present location. Should additional assistance be needed, please feel free to contact members of the staff at any time.

Sincerely,

Robert A. Duin

ROBERT A. DUIN
Captain, U. S. Coast Guard
Chief, Operations Division
By direction of the District Commander

June 5, 1973

Commander (OAN)
U. S. Coast Guard
13th Coast Guard District
618 Second Avenue
Seattle, Washington 98104

Dear Sir:

Columbia River Bridge
Interstate Highway 205
Coast Guard Permit No. 41-70
Possible Extension of Structure

As you are aware the actual construction at the site of the I-205 Bridge across the Columbia River near Portland, Oregon, has been drawn into litigation regarding the filling of the south channel for Portland International Airport expansion purposes.

This litigation is continuing to drag on and the time necessary to reach a final decision is uncertain. It is possible that in order for I-205 construction to continue and provide the public with a usable facility within a reasonable time, the State may be required to extend the proposed structure approximately 4,000 feet southward to provide a crossing of the south channel.

In order that the design of such a crossing may be properly studied, it is requested that you provide us with information as to the location and width of any opening for navigational interests which may be required in the crossing of the south channel.

Very truly yours,

E. S. Hunter
Assistant State Highway Engineer

RWE:ag jf

bc: F. B. Klaboe
A. E. Johnson
Walt Hart

8905

May 10, 1973

Commander (oan)
Thirteenth Coast Guard District
618 Second Avenue
Seattle, Washington 98104

Dear Sir:

Proposed Columbia River Bridge
I-205, Portland, Oregon
Coast Guard Permit Time Extension

Your April 24 letter about our request for a time extension for the I-205 Bridge over the Columbia River states that our present permit will not expire while you are considering our request.

We understand that a final environmental impact statement is required prior to your action on the request, and that such action will be held in abeyance until you receive a copy of it. This statement is being assembled by our consultant and will probably not be available for approximately six months.

Unless we hear otherwise, we will assume that this time schedule will be satisfactory to you and that additional action on our part will not be necessary to prevent expiration of our existing permit.

Very truly yours,

A. E. Johnson
Deputy State Highway Engineer

bc F. B. Klaboe
E. S. Hunter
R. L. Schroeder
W. J. Hart

RWE:dh ja

DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

MAILING ADDRESS:
COMMANDER (oan)
THIRTEENTH COAST GUARD DISTRICT
618 SECOND AVE.
SEATTLE, WASH. 98104
PHONE: (206) 624-2902

3271
Ser 275
24 April 1973

Oregon State Highway Department
Attn: Mr. A. E. Johnson
Highway Building
Salem, Oregon 97310

Gentlemen:

Your request for a time extension and/or acceptance of start of work on the I-205 bridge over the Columbia River, has been reviewed by Coast Guard Headquarters in Washington, D. C. The following answers were obtained:

1. The award of the bridge design contract is not recognized as start of work under Clause 5 of Permit No. 41-70.

2. Your letter of 16 March 1973 is a timely request for an extension of time.

Under provisions of the Administrative Procedures Act, your permit will not expire for a reasonable time while the Coast Guard is considering the requested action. As a Final Environmental Impact Statement is required prior to action on the time extension, your request will be held in abeyance while you complete the Environmental Impact Statement.

Upon receipt of your Final Environmental Impact Statement, this office will issue a Public Notice concerning the time extension request. Should you have any design changes for the proposed bridge, it would be convenient to have them included in our Public Notice for time extension and thus process both at one time.

Should you have further questions, please feel free to call at any time.

Sincerely,

A C Pearce
A. C. PEARCE
Captain, U. S. Coast Guard
Chief, Operations Division
By direction of the District Commander

NOTED
A. E. JOHNSON

RECEIVED
STATE HWY ENGR

APR 26 '73

REFER TO
Hunter Cy Schroeder

FOR

Info	Inves	R/D	DIR	Sign	Act	File
					✓	

NOTED
E. S. HUNTER CC Hunt

March 16, 1973

Commander (OAN)
Thirteenth Coast Guard District
U. S. Coast Guard
618 Second Avenue
Seattle, Washington 98104

Dear Sir:

Columbia River Bridge at Portland, Oregon
I-205 Highway
Permit No. 41-70
Time Extension

I understand that my letter of January 19, 1973 relative to the subject project has been lost in transit. This letter is written to replace same.

On May 20, 1970 the Coast Guard issued a permit (No. 41-70) for construction of the Columbia River Bridge on Highway I-205 at Portland, Oregon. The permit requires that work begin prior to May 20, 1973.

Since issuance of the permit, the structure has been drawn into the environmental litigation concerning expansion of the Portland International Airport. It is intended to use part of the fill associated with the airport expansion for an approach to the structure. The expansion work has been delayed by litigation in federal court and has, in turn, delayed construction work on the structure. Design of the structure has started and is continuing but at a slowed pace. The draft environmental statement has been completed and commented upon by your office. The final decision in the current lawsuit is still pending.

Final design work on this structure was started by our consultant in September, 1971 and is continuing. Approximately $650,000 has been expended on this work to date. Does commencement of such work constitute the beginning of work as required by Condition 4 of the existing permit? If so work has started, is continuing, and will be completed when actual construction is finished. I believe that such a determination would eliminate the need for a request for extension of the permit time limit at the present time.

If start of the final design work is not considered to satisfy the commencement requirement of the permit, please consider this letter to be a request for extension of time for commencement of work. This is an on-going project, and we wish to avoid permit expiration. Because of the current litigation it is uncertain when construction work can begin, however, it is believed that a two-year extension on both the commencement and completion dates should provide for any contingencies.

Due to the time limit imposed by tha existing permit, your prompt attention to this matter will be appreciated.

Very truly yours,

A. E. Johnson
Deputy State Highway Engineer

RWE/ag
bc F. B. Klaboe
W. J. Hart
H. S. Coulter
R. O. Cunningham

RECEIVED
JAN 22 1973

FOR FILING

January 19, 1973

Commander (OAN)
Thirteenth Coast Guard District
U. S. Coast Guard
618 Second Avenue
Seattle, Washington 98104

Dear Sir:

Columbia River Bridge at Portland, Oregon
I-205 Highway
Permit No. 41-70
Time Extension

On May 20, 1970 the Coast Guard issued a permit (No. 41-70) for construction of the Columbia River Bridge on Highway I-205 at Portland, Oregon. The permit requires that construction begin prior to May 20, 1973.

Since issuance of the permit, the structure has been drawn into the environmental litigation concerning expansion of the Portland International Airport. It is intended to use part of the fill associated with the airport expansion for an approach to the structure. The expansion work has been delayed by litigation in federal court and has, in turn, delayed work on the structure. Design of the structure is continuing but at a slowed pace. The draft environmental statement has been completed and commented upon by your office. The final decision in the current lawsuit may require a design change which would complicate the delay.

These delays make it impossible for construction work to begin on the date specified in the current permit. Since this is an ongoing project, we wish to avoid permit expiration. It is therefore requested that a temporary extension of the existing permit be granted until our problems are resolved and the final design of the structure can be determined.

At that time, a final environmental statement will be available and a formal request for an extension of time will be made. Drawings reflecting any required design changes will be included.

Due to the time limit imposed by the existing permit, your prompt attention to this matter will be appreciated.

Very truly yours,

A. E. Johnson
Deputy State Highway Engineer

bc P. B. Klaboe
W. J. Hart
H. S. Coulter
R. O. Cunningham

RWE:dh ja

8905

RECEIVED
DEC 6 1971
FOR FILING

**OREGON STATE
HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

December 3, 1971

Commander (oan)
13th Coast Guard District
618 Second Avenue
Seattle, Washington 98104

NOTED
A. E. JOHNSON

Dear Sir:

As requested by you, I am enclosing material for your information prior to the submission of revised navigation permit drawings. Also enclosed is a copy of the preliminary design report for proposed Interstate Route I-205 dated April, 1971, and a copy of the supplemental studies to preliminary design report dated August 12, 1971. Under separate cover I am sending you three prints of a drawing which indicates the final geometric layout of the structure with span length, pier orientation, and vertical and horizontal clearances. This material will also show on our revised navigation permits.

The two reports enclosed indicate the evolution of the bridge preparatory to the preparation of final contract plans. The general cross section of the structure is indicated as Concept B on Plate 6 of the preliminary design report. However, the supplemental studies, Figure 1b, show a minor revision to the cross section indicated in Plate 6. Page 7 of the preliminary report has a descriptive narrative of the roadway cross section. The general type of pier shaft is shown on Plate 3 of the supplemental studies; however, the footing may or may not be constructed in one piece as indicated. Figure 8 opposite Page 50 of the preliminary design report indicates three different types of pier footing construction. At this time our belief is that the water piers will all be constructed within a cofferdam as indicated on Figure 8. The two main channel piers will be protected by a fender system. A concept of a floating fender is indicated on Plate 20. Your attention is called to the orientation of the piers on Plate 20 which will be revised to agree with the orientation shown on the prints sent you and on Plate 3 of the supplemental studies.

It is anticipated that the revised navigation permit drawings to correspond to the span and pier geometry that will be constructed will be in your hands by December 13.

The above material is sent to you so that a preliminary study may be made in your office and so that you will be familiar with the project when the revised navigation permit drawings are received.

Very truly yours,

R. L. Porter
State Highway Engineer
By

Ivan D. Merchant
Bridge Engineer

IDM:dh
Enclosures

cc A. E. Johnson

RECEIVED
DEC 6 1971
OFFICE OF
STATE HIGHWAY ENGINEER

RECEIVED
DEC 22 1971
FOR

Carl
KIK
EP7

DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

Address reply to:
COMMANDER (oan)
Thirteenth Coast Guard District
618 Second Ave.
Seattle, Wash. 98104

REFERRED TO
admin
BY SECRETARY

REFERRED TO E. Swindle
FOR R. L. PORTER

3271
Ser 964
24 NOV 1971

Ans 12-13-71

Oregon State Highway Division
Highway Building
Salem, Oregon 97310

Carl R Br

Gentlemen:

This will acknowledge receipt of your letter of October 19, 1971 which asks for Coast Guard approval to extend the dates for starting and completion of the I-205 bridge over the Columbia River, Bridge Permit 41-70, May 20, 1970.

While an environmental impact statement was not a requirement earlier, current rules make it necessary to have one before a change to the permit can be made. We have been advised that you are preparing such a statement for some portions of the I-205 project. It will serve the purpose if the bridge and its approaches are covered in accordance with PPM 90-1 in the impact statement you are otherwise preparing for the highway.

Please resubmit your request for extension of time when the environmental impact statement is completed. If there are to be any alteration in plans for the bridge it may be appropriate to consider these at the same time changes in starting and completion dates are considered.

Sincerely,

F. A. Goettel

F. A. GOETTEL
Captain, U.S. Coast Guard
Chief, Operations Division
By direction of the District Commander

RECEIVED
NOV 26 1971
OFFICE OF
STATE HIGHWAY ENGINEER

NOTED
TOM EDWARDS

RECEIVED
NOV 26 1971
OREGON
STATE HIGHWAY COMMISSION

RECEIVED
OCT 20 1971
FOR FILING

Cncl
A/R
EPF

Col R Bo

October 19, 1971

Commander (oan)
Thirteenth Coast Guard District
618 Second Avenue
Seattle, WN 98104

Dear Sir:

Re: I-205 Bridge over Columbia
River - Portland
Bridge Permit 41-70
May 20, 1970

We have reviewed our planning for design and construction of the subject structure as it relates to the limiting times set up in Article 5 of the permit.

Article 5 requires that actual construction start within three years of the date of the permit and be completed within six years of the date of the permit. This establishes dates of May 20, 1973, for start of construction and May 20, 1976, for completion of the work.

The agreement with our consultant, Sverdrup & Parcel, who is to design the structure and furnish us with complete construction plans requires that his work be completed and in our hands about April 30, 1973, which is less than a month before the permit date for start of construction.

It will take at least six months, and possibly more, for us to review and approve these plans and to obtain similar reviews from all the interested parties, principally the State of Washington and the Federal Highway Administration. When all necessary approvals of the plans are obtained, advertising for and consideration of bids can consume possibly three months.

This is a project of considerable magnitude. Preliminary estimates indicate the cost to be somewhere in the $65-$70 million range. When a contract is awarded, it will take a contractor from two to three months to organize the work and make an actual start on the construction.

It is apparent we will not be able to meet the limiting starting date of May 20, 1973, set out in the permit. To cover all possible contingent delays in our planning, we request the limiting time set up in Article 3 be changed to five years for starting and eight years for completion. This would establish the limiting starting date of on or before May 20, 1975, and a limiting completion date of on or before May 20, 1978.

Your early consideration of this request will be appreciated.

Very truly yours,

R. L. Porter
State Highway Engineer

By

A. E. Johnson
Assistant State Highway Engineer

cc R. L. Porter
Tom Edwards
I. D. Merchant
CAG:ag me

RECEIVED
MAY 29 1970
FOR [illegible]

1790

8905

DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

Address reply to:
COMMANDER (oan)
Thirteenth Coast Guard District
618 Second Ave.
Seattle, Wash. 98104

3271
Ser 361
26 May 1970

Mr. Ivan D. Merchant
Bridge Engineer
State of Oregon Highway Department
Highways Building
Salem, Oregon 97310

Dear Mr. Merchant:

Enclosed please find the approval of location and plans of your proposed I-205 bridge over the Columbia River at Portland. The usual clauses are contained in the permit requiring approval in advance of any changes in the bridge, and also approval of any falsework to be utilized during construction.

Paragraph 4 of special conditions requires the installation of clearance gauges on the bridge. Clearance gauges are to be installed on the outer face of each bridge pier so as to be visible to the mariner on approaching. They shall consist of a series of vertical numerals, the reading of the lowest numeral showing above water,to indicate the available vertical clearance between the water surface and the lowest portion of the two adjacent spans (right or left). It is suggested that the numbers could be cast into the face of the bridge pier. It is requested that you submit for approval a method of effecting compliance with this requirement that will be in proper keeping with the architectural beauty of the proposed structure.

A plan of the navigational lights required to be displayed on the bridge will be furnished in the near future.

Sincerely,

N G Nelson
N. G. NELSON
Commander, U. S. Coast Guard
Chief, Aids to Navigation Branch
By direction of the District Commander

Encl. (1) Permit

NOTED
TOM EDWARDS

RECEIVED
MAY 28 1970
OFFICE OF
STATE HIGHWAY ENGINEER

RECEIVED
MAY 27 1970
BRIDGE DIVISION

NOTED
FLOYD QUERY

DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

Address reply to:
COMMANDANT
U.S. COAST GUARD
WASHINGTON, D.C. 20591

BRIDGE PERMIT
(41-70)

20 MAY 1970

WHEREAS by Title V of an act of Congress approved August 2, 1946, entitled General Bridge Act of 1946, as amended (33 U.S.C. 525-533), the consent of Congress was granted for the construction, maintenance, and operation of bridges and approaches thereto over the navigable waters of the United States;

AND WHEREAS under Section 502(b) of said act as transferred to and vested in the Secretary of Transportation by Section 6(g)(6)(C) of the Department of Transportation Act (80 Stat. 931) and delegated by the Secretary to the Commandant, U. S. Coast Guard in Title 49 Code of Federal Regulations, Part 1, it is required that the location and plans for such bridges be approved by the Commandant before construction is commenced and in approving the location and plans of any such bridge, the Commandant may impose any specific conditions relating to the construction and maintenance of the structure which he deems necessary in the interest of public navigation, such conditions to have the force of law;

AND WHEREAS the - STATE OF OREGON - has submitted plans and a map of location of dual bridges to be constructed across the COLUMBIA RIVER near Portland, Oregon;

NOW THEREFORE, This is to certify that the location and plans dated 21 November 1969 are hereby approved by the Commandant, subject to the following conditions:

1. No deviation from the approved plans shall be made either before or after completion of the structures unless the modification of said plans has previously been submitted to and received the approval of the Commandant.

2. All work shall be so conducted that the free navigation of the waterway is not unreasonably interfered with and the present navigable depths are not impaired. The construction of falsework, pilings or other obstructions, if required, shall be accomplished in accordance with plans submitted to and approved by the Commander, Thirteenth Coast Guard District prior to construction of the bridges. The channel or channels through the structures shall be promptly cleared of all obstructions placed therein or caused by the construction of the bridges to the satisfaction of the District Commander, when in his judgment the construction work has reached a point where such action should be taken, and in any case not later than ninety days after the bridges have been opened to traffic.

3. Issuance of this permit does not relieve the permittee of the obligation or responsibility for compliance with the provisions of any other law or regulation as may be under the jurisdiction of the Corps of Engineers,

RECEIVED
MAY 27 1970
BRIDGE DIVISION

20 MAY 1970

BRIDGE PERMIT: State of Oregon bridges across the Columbia River near
(41-70) Portland, Oregon

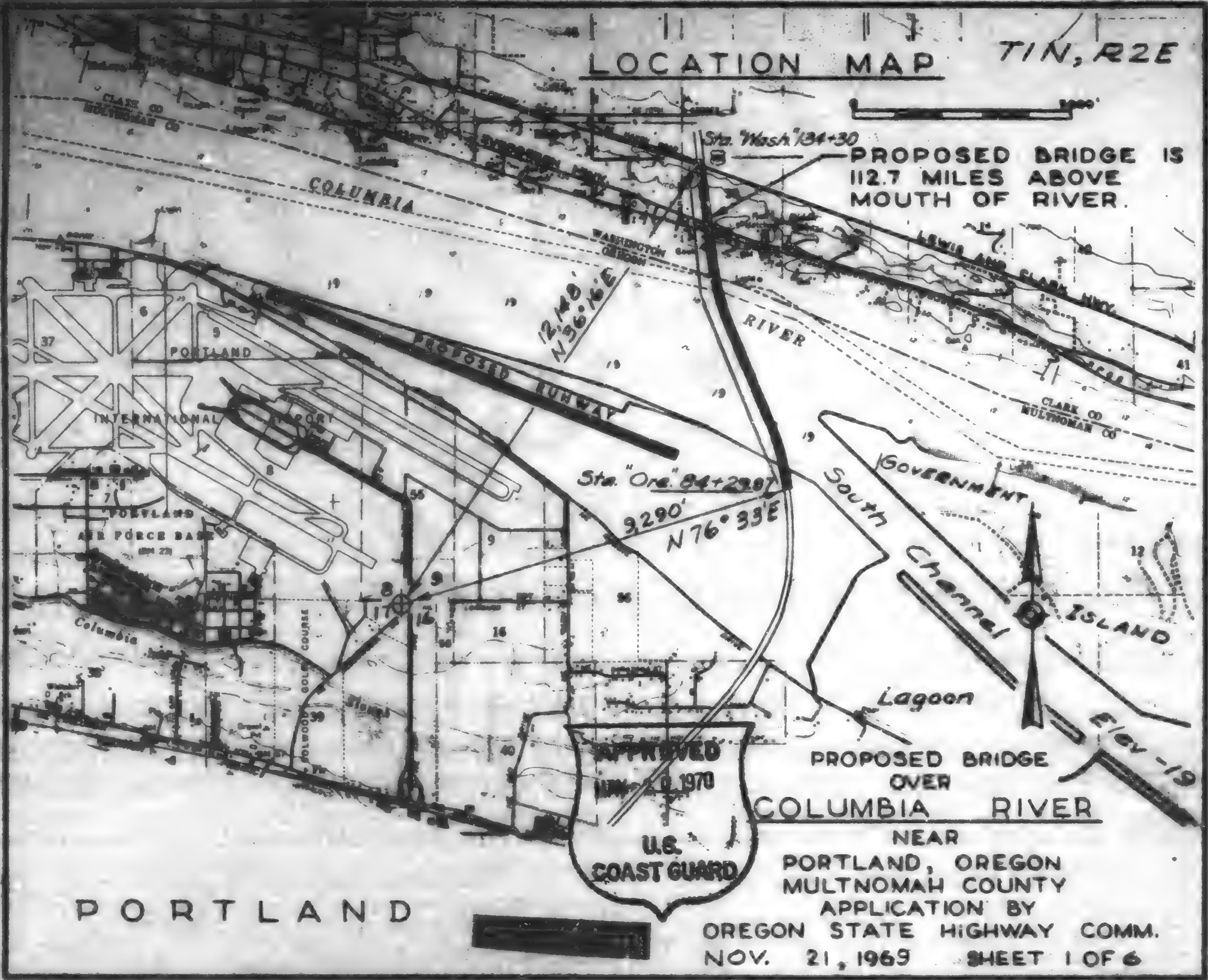
State of Washington Water Pollution Control Commission, or any other federal, state or local authority having cognizance of any aspect of the location, construction, or maintenance of said bridges.

4. Clearance gauges shall be installed and maintained in a good legible condition by and at the expense of the owner of the bridges. The Commander, Thirteenth Coast Guard District will specify the type of gauges and location in which they are to be installed.

5. The approval hereby granted shall cease and be null and void unless the actual construction of the bridges be commenced within 3 years and completed within 6 years of the date of this permit.

R. W. GOEHRING
Rear Admiral, U. S. Coast Guard
Chief, Office of Operations

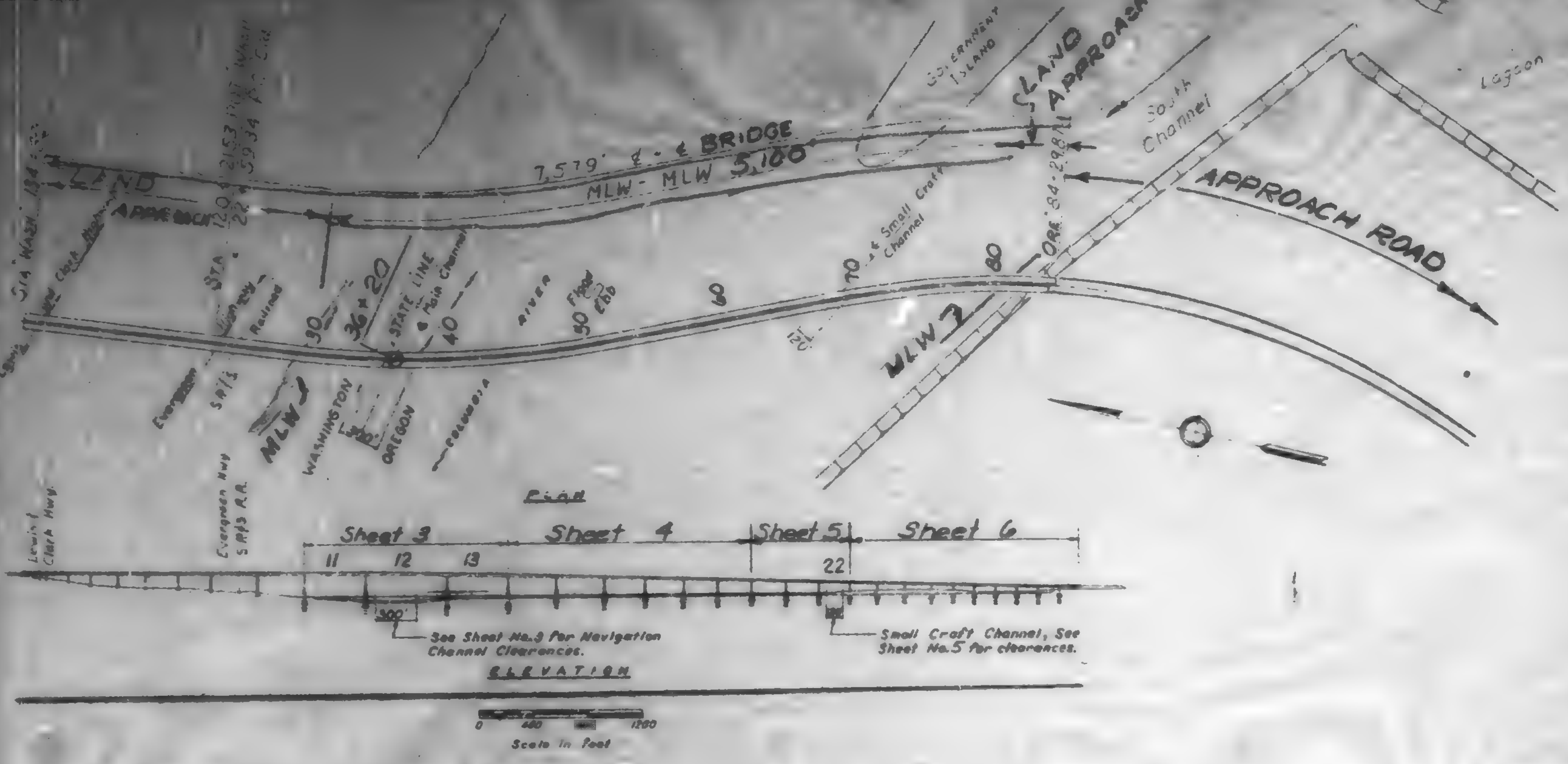
RECEIVED
MAY 27 1970
BRIDGE DIVISION


LOCATION MAP
T1N, R2E
Sta. "Wash." 134+30
PROPOSED BRIDGE IS 112.7 MILES ABOVE MOUTH OF RIVER.
COLUMBIA
RIVER
WASHINGTON
OREGON
LEWIS AND CLARK HWY.
CLARK CO
MULTNOMAH CO
12,148'
N36°16'E
PROPOSED RUNWAY
PORTLAND
INTERNATIONAL AIRPORT
PORTLAND AIR FORCE BASE
Sta. "Ore." 84+29.87
9,290'
N76°33'E
South Channel
GOVERNMENT ISLAND
Lagoon
Elev -19
Columbia Slough
GOLF COURSE
PORTLAND

[redacted]

APPROVED
JAN 20 1970
U.S. COAST GUARD

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY COMM.
NOV. 21, 1969 SHEET 1 OF 6

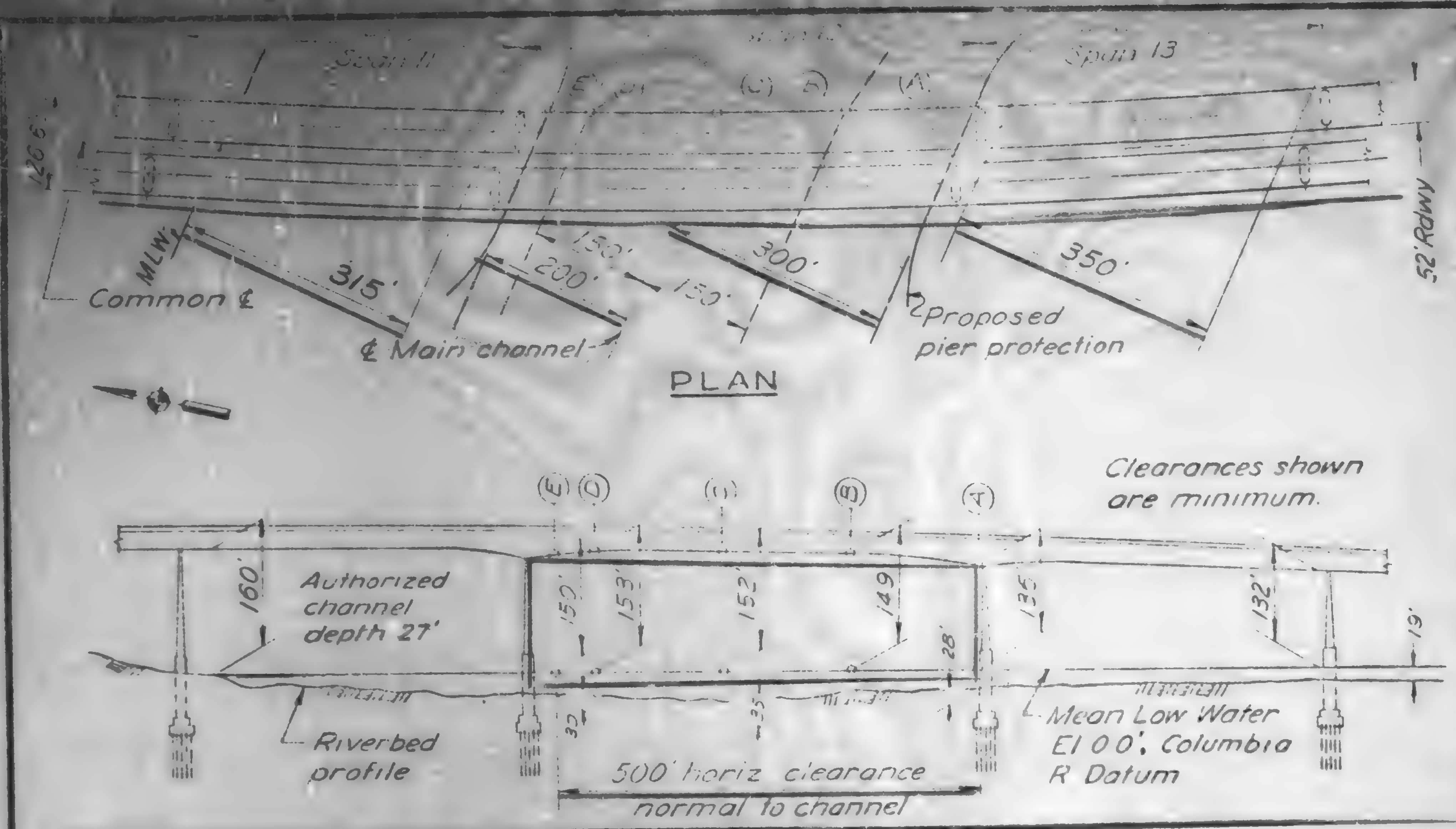

Sta. Wash. 134+
Lewis & Clark Hwy
LAND APPROACH
Sta. 120+ 2153 Mult. Wash
22+ 5934 P.C. C.L.
7,579' ℄ - ℄ BRIDGE
MLW - MLW 5,100
Evergreen Hwy
SP&S Railroad
Sta. Highway
MLW
90
36+20
STATE LINE
℄ Main Channel
40
WASHINGTON
OREGON
300'
COLUMBIA
RIVER
Flood Ebb
90
80
70 ℄ Small Craft Channel
120
80
MLW
ORE. 84-29.8
GOVERNMENT ISLAND
LAND APPROACH
South Channel
APPROACH ROAD
Lagoon
PLAN
Lewis & Clark Hwy
Evergreen Hwy SP&S R.R.
Sheet 3
Sheet 4
Sheet 5
Sheet 6
11
12
13
22
300
See Sheet No. 3 For Navigation Channel Clearances.
Small Craft Channel, See Sheet No. 5 for clearances.
ELEVATION
0
600
1200
Scale in Feet

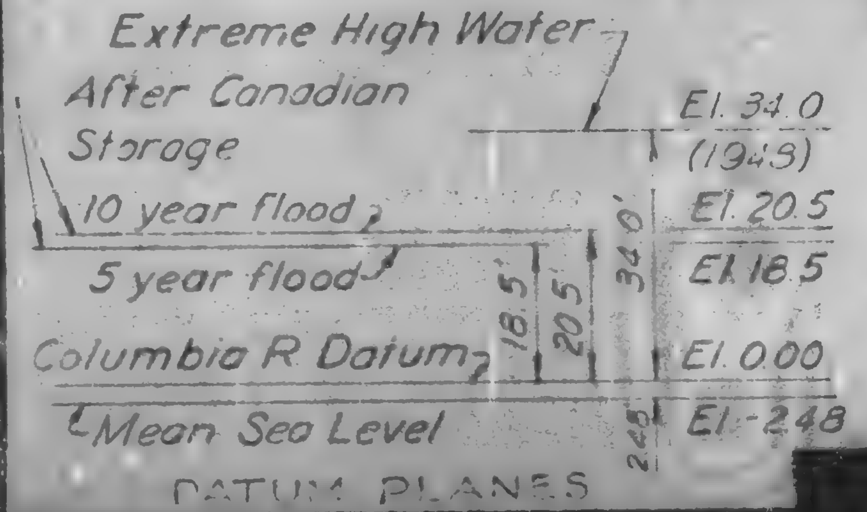
Note:
See sheets 3, 4, 5 and 6 for all horizontal and vertical clearances in water spans.

APPROVED
MAY 20 1970
U.S.
COAST GUARD

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY COMMISSION
NOVEMBER 21, 1969 SHEET 2 OF 6

[redacted]

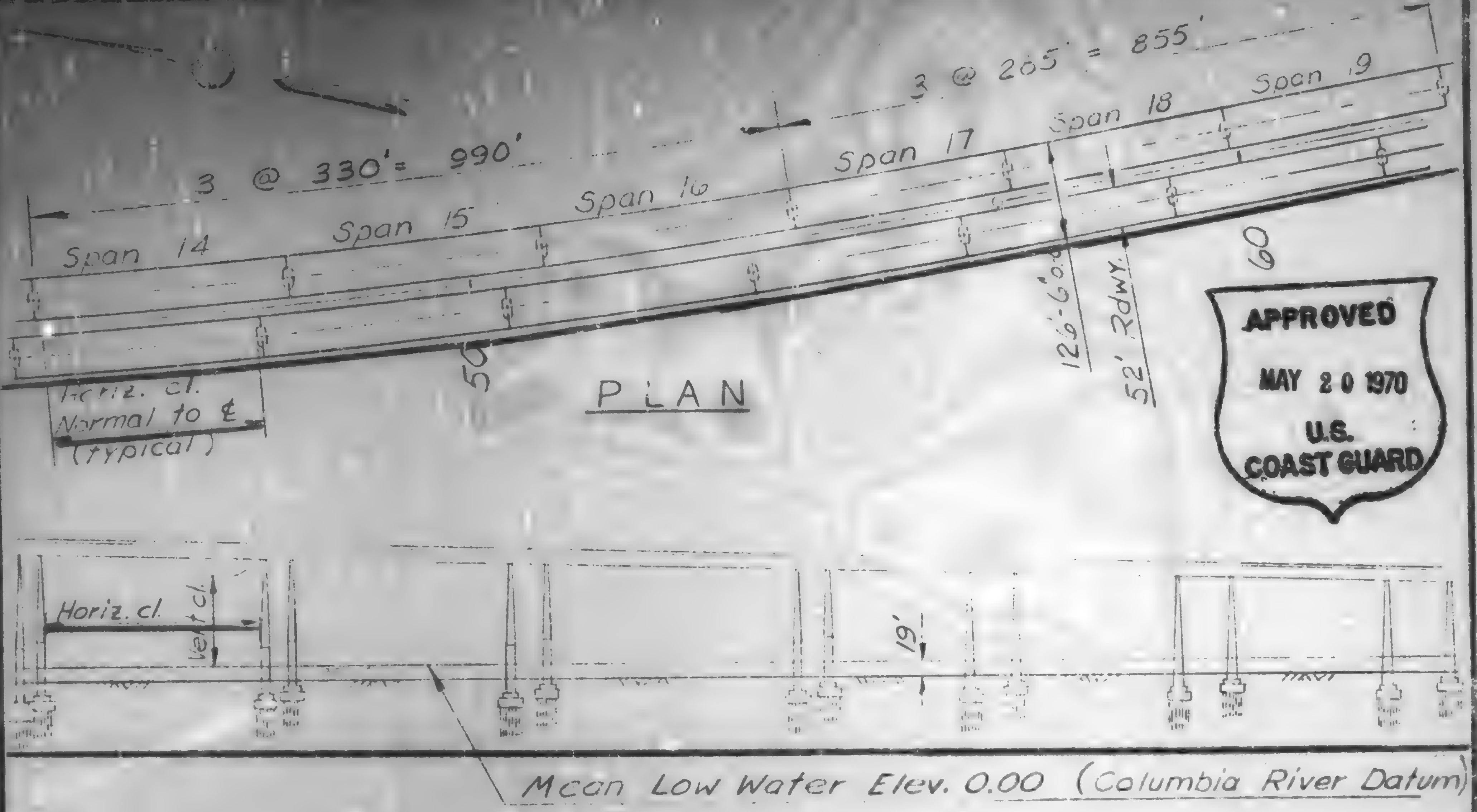

Span 11
Span 13
(E) (D) (C) (B) (A)
126.6'
MLW
Common ℄
315'
150'
200'
150'
300'
350'
52' Rdwy
℄ Main channel
Proposed pier protection
PLAN
Clearances shown are minimum.
(E) (D) (C) (B) (A)
160'
Authorized channel depth 27'
150'
153'
152'
149'
135'
132'
19'
28'
32
35
Riverbed profile
500' horiz clearance normal to channel
Mean Low Water El 0.0', Columbia R Datum
ELEVATION


Extreme High Water After Canadian Storage
El. 34.0 (1948)
10 year flood
El. 20.5
5 year flood
El. 18.5
Columbia R Datum
El. 0.00
Mean Sea Level
El. -2.48
18.5'
20.5'
34.0'
2.48
DATUM PLANES

APPROVED
MAY 20 1970
U.S. COAST GUARD

SCALE IN FEET
0 100 200 400

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY COMMISSION
NOV 21, 1969 SHEET 3 OF 6



3 @ 330' = 990'
3 @ 265' = 855'
Span 14
Span 15
Span 16
Span 17
Span 18
Span 19
50
60
126'-6" c.c.
52' Rdwy.
Horiz. cl. Normal to ℄ (typical)
PLAN
Horiz. cl.
Vert. cl.
19'
Mean Low Water Elev. 0.00 (Columbia River Datum)

APPROVED
MAY 20 1970
U.S.
COAST GUARD

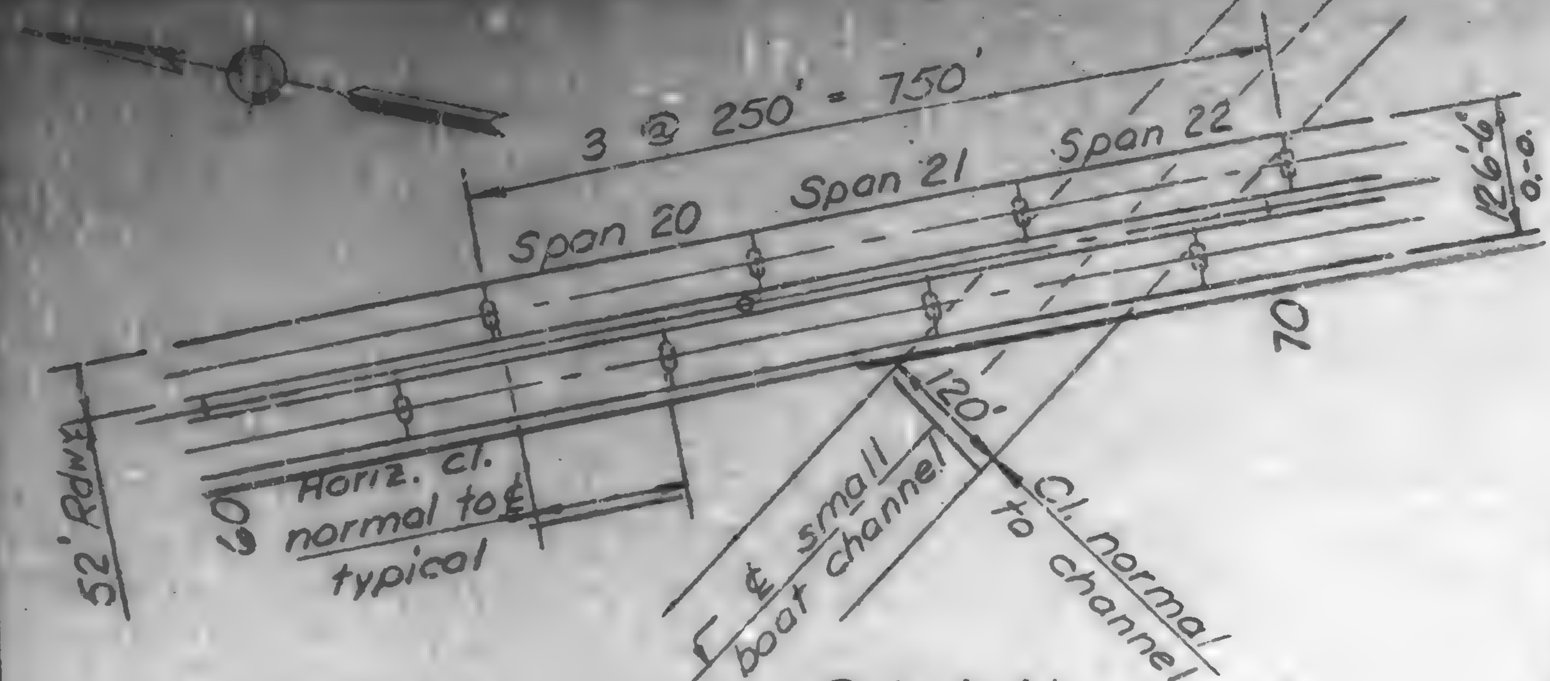
ELEVATION

0 100 200 300
Scale in feet

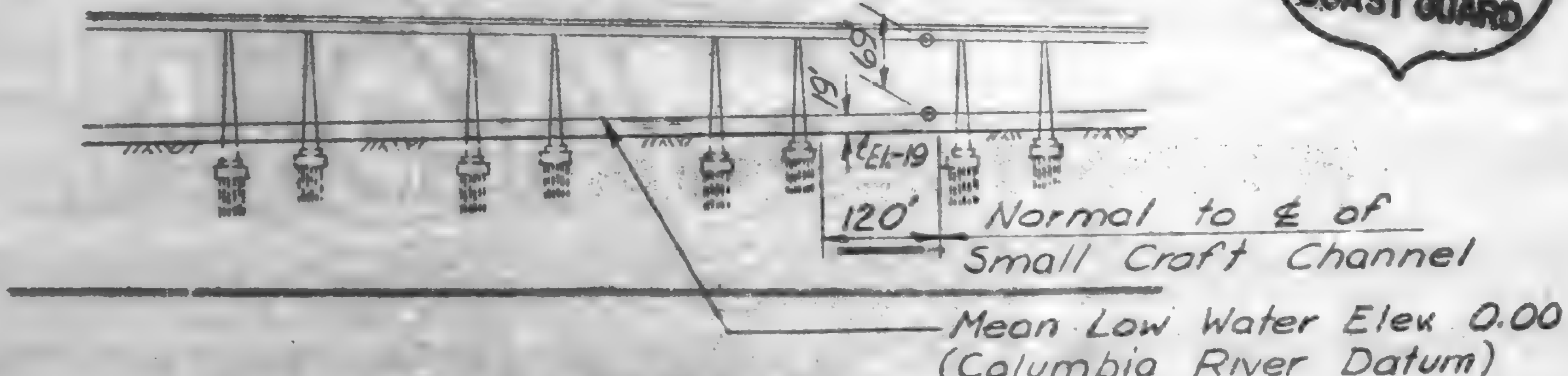
SPAN	HORIZ. CL.	VERT. CL.
14	275'	128'
15	265	119
16	250	111
17	200	107
18	195	99
19	180	91

[redacted]

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY COMMISSION
NOV. 21, 1969 SHEET 4 OF 6


3 @ 250' = 750'
Span 20
Span 21
Span 22
126'-6" 0-0
70
52' Rdwy
60
Horiz. cl. normal to ℄ typical
120'
℄ small boat channel
Cl. normal to channel

PLAN


69'
19'
El-19
120'
Normal to ℄ of Small Craft Channel
Mean Low Water Elev 0.00
(Columbia River Datum)

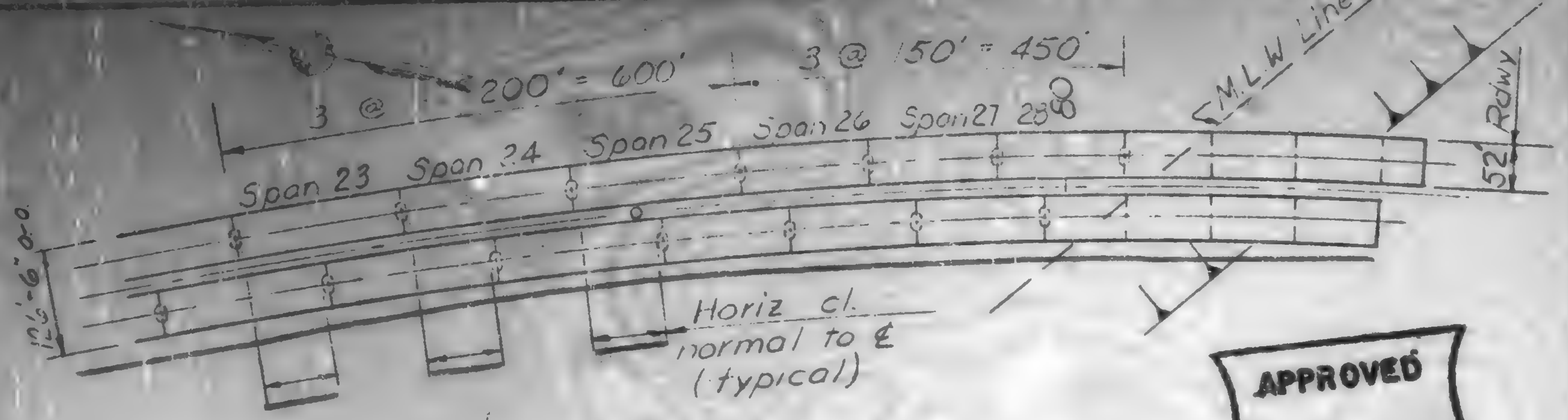
ELEVATION

0 100 200 300
Scale in Feet

SPAN	HORIZ CL.	VERT CL.
20	150	87
21	150	78
22	150	69

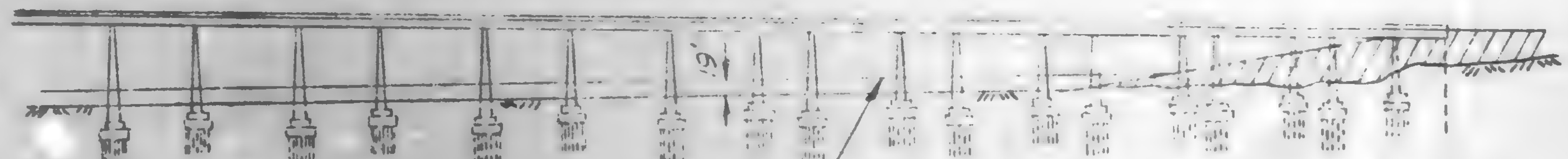
PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY COMMISSION
NOV 21, 1969 SHEET 5 OF 6

APPROVED
MAY 20 1970
U.S.
COAST GUARD


3 @ 200' = 600'
3 @ 150' = 450'
Span 23
Span 24
Span 25
Span 26
Span 27
28
M.L.W. Line
52' Rdwy
12'-6" 0-0
Horiz cl. normal to ℄ (typical)

PLAN

APPROVED
MAY 20 1970
U.S. COAST GUARD



Mean Low Water Elev. 0.00
(Columbia River Datum.)

ELEVATION

0
100
200
300

Scale in feet

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY COMMISSION
NOV. 21, 1969 SHEET 6 OF 6

SPAN	HORIZ CL	VERT CL
23	90'	67'
24	90'	60'
25	90'	53'
26	80'	46'
27	80'	12'

[redacted]

8905

RECEIVED
FEB 20 1970

FOR FILING

February 19, 1970

Commander (0-4)
13th Coast Guard District
618 Second Avenue
Seattle, Washington 98104

Dear Sir:

Your Reference: 3271

Re: Navigation Permit I205
Columbia River Bridge

This letter is with reference to the Oregon State Highway Department's previous request for a navigation permit for construction of a bridge over the Columbia River on I-205 and, more particularly, as described in your Public Notice 69-22.

The normal length of time after a permit is obtained is two years for the beginning of construction and two years for actual construction. Due to the magnitude of this bridge project, the necessity for extensive preliminary studies after which the contract plans and specifications would be prepared, possible delays due to financing and our dependence on other agencies for construction work in the immediate area it is requested that the permit allow a period of three years for the beginning of construction after the permit is received and three years for the actual construction.

It is our understanding that the material for this navigation permit is now being prepared in your office for submission to higher authorities and the above request for the extended time for beginning of construction and for construction is requested with the understanding that this will in no way delay the submission of the permit request to your higher authorities.

Yours very truly,

Forrest Cooper
State Highway Engineer
By:

R. L. Porter
Deputy State Highway Engineer

IDM:jf
cc: Tom Edwards
Bureau of Public Roads
Attn: R. E. Simpson
Ivan D. Merchant

cc Forrest Cooper
Victor D. Wolfe

7705

RECEIVED
FEB 26 1970
FOR FILING

222 S. W. Morrison Street
Portland, Oregon 97204

February 19, 1970

08-00.33
Navigation Permit
I-205
Columbia River Bridge
Public Notice 669-22

Commander
13th Coast Guard District
618 Second Avenue
Seattle, Washington 98104

Dear Sir:

The State Highway Department of Oregon is today writing you to request that the subject permit be worded to allow three years for preparation of preliminary studies and design prior to the beginning of construction. An additional three years is requested for construction activities.

We concur in the State's request that these time allowances be granted in the permit issued for this project. Due to the magnitude of the project, it is our opinion that these requests are entirely reasonable.

Very truly yours,

D. J. McClarty, Director
Highway Programs Office

NOTED
R. L. PORTER

cc: Oregon Division (2)
Washington Division (2)
S. M. Williams (33-70)

NOTE: In a telephone conversation today Mr. Shields of the Coast Guard in Seattle advised that, with this information, the request for permit would be immediately forwarded to his Washington office headquarters. We would appreciate any assistance you may be able to give in expediting its approval.

Copy - Merchant 2-25-70

NOTED
TOM EDWARDS

RECEIVED
FEB 24 1970
OFFICE OF
STATE HIGHWAY ENGINEER

RECEIVED
FEB 20 1970
FOR FILING

222 S. W. Morrison Street
Portland, Oregon 97204

February 17, 1970

08-00.33
Navigation Permit
I-205
Columbia River Bridge
Public Notice #69-22

Commander
13th Coast Guard District
618 Second Avenue
Seattle, Washington 98104

Dear Sir:

Submitted herewith are statements from [illegible] the Oregon and Washington State Highway Departments in response to your [illegible] of January 30, 1970 for comments and evaluations on several [illegible] to a navigation permit for the subject bridge.

We concur in the findings of both States that [illegible] of this Interstate Bridge will not have a detrimental effect on the hydrology nor stability of the Columbia River channel.

We have also reviewed the provisions of the "National Environmental Policy Act of 1969" in respect to this navigation permit request. Consideration of the environmental effects has been a prime objective of all the agencies involved. In our opinion these considerations and plans are consistent with the policies and aims of the Act.

It is the recommendation of this office that the subject navigation permit be approved.

Very truly yours,

R. J. McClarty, Director
Highway Programs Office

Attachment

cc: Oregon Division (2)
Washington Division (2)
G. M. Williams (32-70) w/attachments

NOTED
F.B. KLABOE

NOTED

RECEIVED
FEB 19 1970
OFFICE OF
STATE HIGHWAY ENGINEER

February 6, 1970

Commander (O-4)
13th Coast Guard District
618 Second Avenue
Seattle, Washington 98104

Your Ref: 3271
Serial: 80

Gentlemen:

Navigation Permit
I-205
Columbia River Bridge

This will acknowledge receipt of your letter of January 30, 1970 with copies of letters of objection from Dr. Petterson, dated January 19, 1970; a letter from Virgil L. Shipley, Portland, Oregon, undated; and a letter dated December 18, 1969, from Drs. Dowd, Turner and Dixon. Also enclosed was a copy of Titles 1 and 2 of Public Law 91-190, the National Environmental Act of 1969.

Comments on the three letters of objection are as follows:

Letter of January 19, 1970, from Dr. Petterson:

I. In a bridge of the magnitude proposed, much preliminary study is required. On-site foundation exploration type study and preliminary estimates and final span arrangements require time. It is the desire of all concerned in the construction of this bridge project that a permit be issued so that the above-mentioned preliminary studies may proceed in an orderly manner.

II. The State is fully aware of the proposed project plans for airport expansion and does not feel that there will be more danger, in any way, to the structure than at any crossing with an alluvial river bed and with span openings for navigation.

III and
IV. The curvature of the bridge center line is made necessary by the freeway corridor on both the W Washington and Oregon land approach and the necessity of undercrossing the airport glide path on the south. The vertical and horizontal clearances for navigation proposed are acceptable to navigation interests in general.

V. No comment except that the State believes this is a problem to be determined by the Port of Portland.

VI. The basic features of the airport expansion plan have been determined and the State does not believe that any minor alterations to finalize the Port of Portland's plans will affect the bridge structure.

VII. The proposed bridge structure and grade line have been approved by the FAA.

The excerpts from the August 1, 1968, USCG hearing of Dr. Petterson's comments cover the same general area as the letter of January 19, 1970. No further comments will be made.

Undated letter from Virgil L. Shipley, Box 852, Portland 7, Oregon:

This letter requests that no further bridge crossings of the Willamette or Columbia Rivers be permitted and that future crossings be underground. An underground crossing was considered and was eliminated from further consideration because of excessive costs to meet the grade line criteria of the Interstate Highway System.

Letter of December 18, 1969, from Drs. Dead, Turner and Dixon:

This letter objects to the location of the proposed bridge and suggests a crossing two miles east. As stated in the comments under III and IV of Dr. Petterson's letter, the land approach corridors in both Oregon and Washington are fixed.

Your letter also requested our comments regarding the use of falsework during construction of the proposed bridge. At this time the type of structure has not been determined and the type of structure would determine the necessity for falsework in the main 600-foot channel span. The maximum possible channel opening will be furnished during the construction operations with the absolute minimum opening between falsework towers, if required, to be 300 feet perpendicular to the navigation channel.

It is our desire that the permit application be processed at the earliest possible time so that preliminary studies can progress in an orderly manner.

This letter will be sent to you through the Division Office of the Bureau of Public Roads who will add their own comments.

Very truly yours,

Forrest Cooper
State Highway Engineer
By

Tom Edwards
Assistant State Highway Engineer

[illegible]

cc Mr. George Stevens
Bridge Engineer
Washington Department of Highways

bc Forrest Cooper
R. L. Porter
Victor D. Wolfe
Ivan Merchant

DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

Address reply to:
COMMANDER (o-4)
Thirteenth Coast Guard District
618 Second Ave.
Seattle, Wash. 98104

3271
30 January 1970
Serial: 80

Mr. Tom Edwards
Assistant State Highway Engineer
Oregon State Highway Department
State of Oregon
Salem, Oregon 97310

Dear Mr. Edwards:

Enclosed are three additional letters of objection received in connection with your proposed I-205 bridge over the Columbia River. It is suggested that you examine them carefully and submit your comments on each.

It is not necessary to attempt resolution of differences as you have met previously with them. Mr. Marvin Durning, Attorney, indicated through the Coast Guard District Legal Officer that he would not submit a specific objection. However, he directed our attention to the National Environmental Policy Act of 1969, a copy of which is enclosed for your information. This Act is so new, we have no instructions about how to apply it.

We feel it appropriate to also request your comments about the feasibility of constructing the proposed bridge without use of falsework that would obstruct the main ship channel.

We do not know of any other potential objectors.

Sincerely yours,

R S Emerson
R. S. EMERSON
Captain, U. S. Coast Guard
Chief, Operations Division
By direction of the District Commander

RECEIVED
FEB 4 - 1970
BRIDGE DIVISION

Encl. (1) as noted

Copy ltr + attachments
to BPR - 2-10-70
Per its request
j.a.

Ivan
R/D copy

RECEIVED
FEB 2 1970
OFFICE OF
STATE HIGHWAY ENGINEER

January 19, 1970

Commander
13th Coast Guard District
618 Second Avenue
Seattle, WA 98104

RE: Public Notice #69-22

Dear Sir:

I have previously protested the approval of the I-205 Bridge proposal following Public Notice #68-10 and #69-19. These protests are still valid and should be considered part of the record. I wish to further protest the approval of I-205 Bridge as proposed in Public Notice #69-22 for the following reasons:

I. THE APPROVAL OF THE I-205 BRIDGE AS PROPOSED AT THIS TIME IS A MERE ACADEMIC EXERCISE WITHOUT MEANING AND IS AN INAPPROPRIATE WASTE OF PUBLIC MONIES IN PLANNING TIME AND EXPENSE AT LOCAL AND FEDERAL LEVEL.

As planned, the I-205 Bridge utilizes for its southerly approach a fill in the South Channel of the Columbia River near Government Island, approved by the Corps of Engineers on August 5, 1969.

On September 4, 1969, The Citizens' Committee for the Columbia River, the Washington State Sportsmen's Council and the Sierra Club brought suit in the U. S. District Court for Oregon (Civil Action No. 69-498) to stop this fill. Defendents include Stanley S. Resor, Secretary of the Army; the Chief of the Corps of Engineers; the Portland District Engineer; Secretary of the Interior, Walter Hickel; and Secretary of Transportation, John Volpe. A copy of this Complaint has been previously submitted to you for the record.

II. THE APPROVAL OF A BRIDGE SITE AND DESIGN SIMULTANEOUSLY WITH A PROJECT WHICH WILL CREATE MAJOR ALTERATIONS IN RIVER FLOW DIRECTION, POSITION AND VELOCITY AND WITH UNPREDICTABLE CAPACITY FOR EROSION AND SHOALING INVITES CALAMITY.

At our informal meeting of 12-3-69, I was amazed and dismayed at the reliance placed on the Bauer Report by your hydrologist, Mr. Shields. My own opinions of the Report are expressed in the accompanying statement (Appendix A). My introduction to the Bauer Report was an explanation by Mr. Beeman, Port of Portland hydrologist, who prefaced his remarks with the confession that the Bauer Report was dependent upon the assumption that the river banks were stable, (i.e. that the river, once dredged to Dr. Bauer's specification, would forever remain that way). This was at the time that we were asking(?) reassurance and proof that the banks were stable and would not be affected by the proposed river alterations. No logical system of proofs can be set up when the conclusions are assumed to be true; therefore, the conclusions drawn by the Port of Portland and Mr. Shields based on the Bauer Report are not valid. I would like to reiterate some of the basic fallacies of Mr. Beeman and Dr. Bauer.

1. Meanders are at work in the Government Island reach, despite Mr. Beeman's claim that the reach is free of them. Comparison of the C&GS charts through the past ten years, reveals natural channel changes that have been recognized by the Corps of Engineers as the designated navigation channel, to minimize dredging.

2. Even now, the latest C&GS chart indicates that the naturally occurring northerly thalweg of the meander is further west than the designated dredged channel (i.e. below Ellsworth instead of at the bridge site.)

3. The Port hydrologist has expressed belief that the altered channel will be "more stable" and therefore will have a tendency to drift southward, and be less errosive to the Washington shore. This theory is based on the erroneous idea that removing Sand Island will attract the channel riverward. This theory ignores the geomorphological development of islands and divergent streams (i.e. shoaling and island formation are usually the result of meandering streams rather than the cause of the meanders).

4. Some of us who have lived on the banks of the Washington shore and have sailed the Columbia waters for 20 or more years feel that the force of the flow through the Government Island "cut" (equal in size to the Willamette River and carrying a third or more of the flood waters) will force the resultant combined channel even more northwar

Therefore, I charge that the natural and designated navigation channels do not even now coincide and that neither I, the Corps of Engineers, the Port of Portland, or the Coast Guard know where the new channels will form after the Port's "dredge and fill" is carri out. How, then, can the bridge department designate spans for navigation.

III. THE DISTORTED BRIDGE DESIGN WITH BOTH CHANNELS AT OBLIQUE POSITIONS IS ILLOGICAL AND POTENTIALLY HAZARDOUS.

I was relieved to hear the bridge designer himself confess that he would much prefer to take the bridge straight across the river instead of curving it around the end of a jet runway. This still could be done by siting farther east.

Although navigation representatives believe that they can navigate the 500 feet horizon clearance, I still challenge this because of the angulation of the ranges at this point (I do have admiration for the skills of the tug operators). I propose the following experiment: Anchor two boats at the site of the channel pilings. Send upstream a half mile overall tug and lograft, so that it is half way under the proposed bridge. Then se a large barge assembly down stream to attempt to pass either inside or outside, and negotiate the range angulation. Further assume that this is the only available span at low water because of the probable shoaling elsewhere from the tip of the remainder of Government Island.

IV. IF ONE SPAN CAN BE MADE 500 FT. WIDE, PERHAPS ALL SPANS SHOULD BE 500 FT. OR AT LEAST THE SECONDARY CHANNEL.

I assume the Coast Guard has assurances from the Crown Zellerbach Corporation that thei raft tows can navigate the offset 120 feet spans near the Oregon shore regardless of where the "small boat" channel forms. (Nature does not respect the red and green light mounted on bridges, presumably telling the river where it must flow.) One "old timer" certain the Corps of Engineers is planning eventually to route the main channel south o Government Island and through the new cut. Such ideation should not be dismissed light not as a deliberate act but an accidental event. The proposed extensively dredged sout channel and Government Island cut, together with a few years of unusually high water or a single destructive flood could indeed form a new channel despite the wing dams furthe upstream, embarrassing the Highway Department and the Coast Guard.

V. THE NEED FOR A HYDRAULIC MODEL STUDY OF THE JETPORT PROPOSAL AND THE BRIDGE SITE STILL EXISTS THOUGH DENIED BY OFFICIALS IN THE CORPS OF ENGINEERS.

In Appendix B, Mr. Fernald, North Pacific Division Chief Engineer, agrees with our claim and especially notes:

1. Extrapolation of data from limited observed readings is of "questionable accuracy". (Even then the extrapolations were only carried to flows of 700,000 c.f.s. while the Corps of Engineers project flood through 1975 is 850,000 c.f.s.)

2. Stabile cross sections are impossible to attain at a channel bifurcation or junction in an alluvial river. Scour, fill and erosion tendencies are unknown.

3. Bauer Report type mathematical studies usually only supplement the primary model study.

4. The Corps would ordinarily require a model study if this were their project.

5. The alternate solution of assigning the responsibility of damage to the Port of Portland instead of the Corps (in lieu of a model study) is admittedly a "solution difficult to administer" and "less than satisfactory to the opposing interest". The Corps of Engineers elected to disregard the requests of residents, city, county and state officials, in refusing to carry out a model study. If the Coast Guard also proceeds with such reckless disregard for prudent planning and scientific study, it, too, may share the wave of unpopular public opinion that the Corps of Engineers is experiencing. The day of trial and error engineering should be past; errors should be avoided, not patched up, hidden or bought off in courts.

VI. THE PORT OF PORTLAND'S RIVER PLAN ALTERATION IS NOT FINALIZED--CHANGING PLANS DO CHANGE THE RIVER FLOW PATTERNS AND MAKE BRIDGE PLANS IMPOSSIBLE.

News stories and now answers to Interrogatories from the District Engineer indicate that the Port will ask for a modification to its permit, presumably changing the "Columbia Bay" openings from two to one. The change from a "flow-thru" lagoon with egress near the bridge to a tidal basin with central opening will produce different patterns of flow. Inasmuch as these aspects of the Port of Portland's plans for a recreational complex beneath landing jet aircraft are political rather than practical, it is most probable that they will be unsuccessful even if permitted, the resulting alternate land uses may create yet different navigational patterns and engineering problems. Designing a bridge at such an unsettled stage of planning could just as well be planned with a throw of dice.

VII. THE NEWEST BRIDGE DESIGN IMPOSES EVEN GREATER ARBITRARY LIMITATION OF VERTICAL CLEARANCE THAN BEFORE, ALL BRIDGES DOWN STREAM PROVIDING GREATER VERTICAL CLEARANCE.

IN SPITE OF THIS BEING THE LOWEST BRIDGE IN THE RIVER TO THIS POINT, IT IS STILL A HAZARD TO AIR NAVIGATION AS DEFINED BY THE F.A.R. 77 OBSTRUCTION STANDARDS. Even if this second objection were waived by the FAA, I would consider the authority and wisdom of doing so challengeable in court. Barges, trucks and aircraft get bigger with different handling characteristics, requiring new standards in highway, bridge and airport design, these facilities being frequently outmoded before completion. To attempt to design a bridge for the future by minimally meeting today's standards is to fall into the planning

January 19, 1970

RE: Public Notice #69-22

trap that has created today's "bottlenecks". The Coast Guard has the responsibility for providing for the future, overcoming yesteryear's mistakes, rather than copying and perpetuating them.

Sincerely yours,

Carl A. Petterson MD

CARL A. PETTERSON, M. D.
President
The Citizens' Committee for the
Columbia River
2612 S. E. Ellsworth Road
Vancouver, Washington 98664

Copy to:
Marvin Durning, atty, C.C. for the C.R., et al.

COMPLETE STATEMENT MADE BY
DR. CARL PETTERSON, REPRESENTING
THE MAYOR'S AD HOC COMMITTEE,
CITY OF VANCOUVER,
AT
THE CORPS OF ENGINEERS' HEARING
AUGUST 1, 1968

MR. MITCHELL: Colonel Bangert, Dr. Carl Petterson will speak on an evaluation of the hydraulics aspect of the proposed dredging and filling operation.

DR. PETTERSON: Colonel Bangert. I speak as one of the original alarmists who was shocked at realizing the awfulness of this plan at the Sumner School hearing in February. I was one of the first outspoken protesters. I was elected to a study committee of the North Bank Suburban Club. I've been an invited member of the Vancouver Mayor's Committee, but more specifically I wish to speak for those members of the north shore property owners who have signed the following special petition. These now number 54.

"We, the undersigned property owners with frontage on the north shore of the Columbia River opposite the proposed PIA expansion, do object to the proposal to extend a new runway into the Columbia River on a sand fill. This deliberate accretion of land on the Oregon shore with the considerable northerly diversion of the river itself does and will constitute a threat to the Washington shore line. For this and the many reasons spelled out by others, we believe that the District Engineer of the Corps of Engineers should deny the Port of Portland's dredge and fill request. In any event, if this cannot now be considered reasonable, we respectfully request that a physical hydraulic model be completed at the Bonneville hydraulic laboratory before a permit be granted."

APPENDIX "A"

That is the end of the petition which I said was signed by 54 people.

I myself was flattered that it was my letter of protest that was referred to the Bauer Engineering Company for rebuttal. If it were not so serious a matter, I would be amused by the Port's July 3rd amendment to the original plan (signed by George Baldwin but dictated by their hydrologist, Ogden Beeman). In this 25 page memorandum, 9 pages were devoted to a belated recreation proposal of unbelievable impracticality. But more important were the 16 pages constituting a plea to you, the District Engineer, to spare the public the expense of a physical hydraulic model study. The excessiveness of the plea should arouse suspicion; there are many reasons for the Port to fear the results of a physical model and the only excuse they offer, public expense, is the least of them.

Not only have Mr. Beeman and Dr. Bauer failed to answer my questions, but they have introduced new contradictions and have made some erroneous conclusions. I'll outline a few.

The Port suggests that their prototype experience dates from 1891 and this should exempt them from physical model proof--in other words, what was good enough for grandfather is good enough for us. The fallacy of this argument is that grandfather had to work by trial and error, because your laboratory was not built until 1938. Furthermore, if an exact prototype of this particular plan does exist on this or any other river, the Port must be challenged to produce such evidence.

One potential prototype in reverse might have existed at Longview, where the Corps wished to create an island for dredge spoils and to create independent narrow channels to insure favorable scour and save navigation channel dredge costs. This is the situation that does already exist in this area; the Corps should be as concerned about upsetting this favorable state as are th citizens, civic groups and political bodies meeting in protest here today.

The Port has been attempting to equate the Bauer report with a physical model study by now referring to what was once a feasibility study as now a "mathematical, computer, hydraulic model study". Fortunately, no one has been deceived by this trickery of words.

What does the Bauer report say? It's really quite simple. First it says that if you dig one big ditch equal in size to two small ditches, the same amount of water will get through. Secondly, it states that during the spring freshet the water will be dirtier than in the fall because of the increased capacity for sediment transport. I have been willing to concede both points.

However, with regard to the accuracy of the second study, namely sediment transport, I would like to quote from the 1964 textbook, Fluvial Processes in Geomorphology by Leopold, the head hydrologist of the United States Geological Survey. "Estimates of the rate of sediment transport in natural channels based on existing equations may be as much as 100% in error. In practice, several equations are often used as checks (The Bauer Company used only the Myer Peter equation). The very number of empirical equations itself testifies to the continuing need of a more fundamental knowledge of the basic processes governing sediment transport. Because of the variables involved, it appears likely that major advances will be made primarily through advances in theory and critical experiments rather than amassing volumes of additional data".

As to the former matter, that of the water getting through, the question of how it gets through the maze of cuts, training dikes, boating lagoons with ingress and egress, peninsula parks, unbuilt bridges, cannot be answered mathematically. Certainly this is a greater problem than their simple formula - two little ditches equals one big ditch.

I am indebted to Mr. Beeman for enclosing some reprints in his July 3rd memorandum. Most of them were unnecessary because I'm sure that the Corps is aware of the techniques of distortion in hydraulic models. If they are not, we are indebted to Mr. Beeman for his guidelines in setting up a model with regard to limitations from distortion.

But I was more interested in the inclusion of remarks by Walter Carey, Ex-Assistant Chief Engineer, New Orleans Division, who called attention to the Tyler-Friedkin report on river meandering, urging hydrologists to re-examine this out-of-print classic. I, too, have previously recommended the application of the "laws of meander" to the present situation, with particular reference to the Leopold work just cited, and to An Introduction to Fluvial Hydraulics, by Leliavsky. A more brief account may be found in the June 1966 Scientific American, again by Luna Leopold under the title "River Meanders". Had Mr. Beeman applied these established principles to his arguments, he would not have made the errors that he has.

For instance, Mr. Beeman believes that removing Sand Island will cause the north channel to shift southward. In reality, Sand Island is the result of the present channel location, not the cause of it. Once removed, the island will reform, this time downstream on the Oregon shore. The Oregon marina owners are quite properly alarmed at this threat of shoaling.

Dr. Bauer objects to my use of the term "overdredging" and states he made no such recommendation. I'm with him, I too think it's a poor idea, and have so stated. It was the Port who suggested the "overdredge" concept as a part of their plan.

Dr. Bauer minimizes the possibility of shoaling because he claims to have designed a river free of acceleration and deceleration. There are factors other than shape and man-made obstructions that affect velocity. In an article in the March 1968 Oregon Cruising and Sailing Activities, Roger Korn analyzes the current in this reach, a popular sailing area. He points out that in September, tidal swings of 3.5 feet may be expected.

APPENDIX "A" (CONTINUATION)

With this there may be variation in current from 1.5 knots downstream to .04 knots upstream every 12 hours. Mr. Beeman and Dr. Bauer have chosen to ignore this type of acceleration and deceleration, which nonetheless is conducive to shoaling.

The Bauer study also omits discussion of counter-currents which may cause shoaling. They cannot be treated mathematically. Even the mother duck can bring her fledgling flock home effortlessly by intuitively utilizing the counter-currents after a brisk initial swim towards Astoria. This nature lesson would be pointless if the Bauer report had not included an imaginery isovel diagram of laminar flow, allegedly demonstrating what would happen in this same area. Ten months of the year, my sand-covered tidelands move gradually upriver from a favorable counter-current. Two months of the year, my riprap embankment sounds like the Jolly Green Giant gnashing his teeth, and with the subsidence of the flood, I winch-in the ton-sized boulders that have been displaced downriver. Once again, the complexity of the annual cycle of current direction, velocity and force defies mathematical analysis and reduces the single Bauer isovel diagram of this area to a meaningless propaganda device.

I take exception to Mr. Beeman's description of and statement of non-erodibility of the north shore. First, the Bauer report charts the gradual northward migration of the northward concavity of the low water natural channel in the region of Ellsworth. Above this channel and between it and the flood-plain bank is a tidal area, composed of pebbles and small boulders eroded out of the layers of allegedly non-erodible conglomerate to which Mr. Beeman has referred. Westward from Ellsworth, the upper flood plain bank is of variable height and does demonstrate the eroded outcropping of the alternate layering of conglomerate and clay, topped with overhanging trees with bared roots. Mr. Beeman and I have walked this stretch of gravelly tidelands together and have discussed the finding of Indian artifacts along this area, especially after a spring flood, again testifying to the erodibility of the bank and dating the formation to recent historic time rather than ancient geologic time.

Navigation representatives must now decide whether they want a slow, wide, shallow river or a deep, swift, narrow one. At least they have nothing to lose by joining us in requiring a working mock-up before permitting the wholesale destruction of the river islands. The matter of where the training pile dikes will have to be placed, where the new channel will reform, how much maintenance dredging will be required, who pays for these and when, are all unresolved.

The Oregon Highway Department in attempting to make its Interstate 205 bridge compatible with the airport plan is leaving itself open to ridicule. The future location of the north channel is purely guesswork. The plan to bridge the small boat channel more with the current rather than across the current is folly. And finally, to build a bridge on an unstabilized river undergoing tremendous changes of flow from the Port's proposed alterations, would be to court disaster.

Dr. Bauer cites a textbook quotation. "In the final analysis, the validity of the results of a movable-bed model study and the interpretation of the results therof are largely dependent upon the general judgment and reasoning, the basis of such reasoning being the verification of the model, a knowledge of the prototype and familiarity with the general characteristics of such tests." It is an affront to suggest that the Corps of Engineers in its three decades of experience at its Bonneville Hydraulic Laboratory, does not possess the judgment, reasoning, familiarity with model, and knowledge of the prototype to execute a proper study.

On May 1st, I visited the public demonstration of the model study of the Kalama-Longview reach at the Division Hydraulic Laboratory in Bonneville. I was impressed with what I learned and I therefore refuse to accept the Port's plea that we be content with a less thorough study than was accorded the Longview project. Finally, in regard to Dr. Bauer's further belittling remarks concerning the inadequacy of model instrumentation, I quote from the brochure handed me at the Bonneville Laboratory. "In connection with the design and construction of multipurpose dams and navigation channel improvement plans, many problems arise which cannot be solved by theoretical analysis or past experience. These problems are solved in the laboratory by means of hydraulic models. The structures and topography in each model, and all hydraulic quantities, flow directions and velocities, discharges and pressures are to scale. Results of these investigations provide practical solutions to problems in question, contribute greatly to engineering knowledge and research, and enable the Corps to save many millions of dollars. Studies have been made on approximately 100 models. The laboratory maintains an electronic instrumentation section for the development of gaging and recording equipment to accurately measure either model or prototype pressures and flow characteristics".

In conclusion, I believe that the above arguments constitute sufficient reason to deny the Port of Portland's dredge and fill request at this time. However, if it is felt that there is some merit to the Port of Portland's proposal, then certainly no public official would proceed without the exhaustive study of the potential dangers inherent in the plan without exhausting every avenue of investigation. This includes a physical working hydraulic model at the Bonneville Laboratory before a dredging permit is issued.

COLONEL BANGERT: Thank you, Dr. Petterson.

MR. MITCHELL: Colonel Bangert. As the citizens of Vancouver representative of the Mayor's Committee, viewed the projection for an increase in traffic volume at Portland International Airport and viewed the 2,000 foot encroachment upon Vancouver residential areas of the new airport, many became concerned about the noise problems that might be anticipated. We know what they are. We felt we wanted to know what they would be as operations at Portland International Airport approached 500,000 operations per year, or approximately 1,200 operations per day, approximately half of which are to be projected as commercial operations. In view of this

APPENDIX "A" (CONTINUATION)

NPDEN-WC (31 May 68) 1st Ind
SUBJECT: Application for Dredging Permit for Proposed Airport Expansion

DA, North Pacific Division, Corps of Engineers, 210 Custom House
Portland, Oregon 97209 28 June 1968

TO: District Engineer, Portland

1. The inclosed report has been reviewed by this office with particular emphasis on the necessity for a hydraulic model study of the proposed channel changes.

2. In general, we concur that the computations in the inclosed report are based on reasonable assumptions. However, it appears on Exhibit S of the report that the only prototype information on flow distribution around Government Island was obtained for river flows in the range of 110,000 to 160,000 cfs. Extrapolation of this observed distribution to a total river flow of 700,000 cfs is of questionable accuracy.

3. Some question exists as to the long-range stability of the proposed cross-sections in the affected reach of the river. The computations are based on the assumed as-constructed cross-sections, but equilibrium of sediment transport and stable cross-sections are nearly impossible to attain at channel bifurcations and junctions in an alluvial river. Thus, the scour and fill tendencies of the modified channel over a period of time will produce unknown effects on both the erosion along the Washington shore and the extent of maintenance dredging for the navigation channel.

4. The section of the report entitled Possible Hydraulic Model Test implies that movable-bed model studies are of insufficient accuracy and should be replaced by one-dimensional analytical methods as utilized by Bauer Engineering, Inc. in this report. While it is recognized that a mathematical analysis is often a desirable adjunct to a model study, the mathematical analysis in its present state of development cannot completely supplant a three-dimensional model study. Although the conventional backwater computation procedure, termed a "mathematical model" in the report, can usually provide adequate water surface elevations and mean velocities, this type of flow analysis is not particularly suited for determination of the local velocities that can be observed in a fixed-bed model. A movable-bed model could be of additional value to observe the changes in these localized velocities due to changes in the channel cross-section as scour and fill occurs. However, complete movable-bed model results may not entirely eliminate objections by local interests because even this information must be considered qualitative in nature and subject to varying interpretations.

5. It appears that sufficient prototype data for the model study is not available on existing velocities, flow directions and flow distribution around Government Island. Assuming that model construction is started this year and the necessary prototype information is obtained during the next

File -

PPDEX 014 B

high water season, it is estimated that information could be obtained from a fixed-bed model study in about 18 months and from a movable-bed in about 24 months. However, these estimates of time required for model studies must be considered to be optimistic since the exact information to be obtained is not specifically defined, and in the case of the movable-bed study, time required for the verification process is most difficult to estimate. A model extending from river mile 109 to 120 constructed to a vertical scale of 1:100 and a horizontal scale of 1:300 is estimated to cost about $50,000. The basic construction cost of a fixed-bed or movable-bed model would be essentially the same. However, the operational costs are estimated to be $50,000 for the fixed-bed and $120,000 for the movable-bed.

6. It is evident that any requirement for model studies would adversely affect the timeliness of response to the applicant. However, if the Corps were proposing a project of this magnitude which produces a permanent change in flow regime of this nature, we normally include model studies as a part of the required preconstruction engineering. It would therefore be difficult for the Corps to declare model studies unnecessary in this case, in reply to strong requests for such studies, regardless of their reasons for the request. This problem is further complicated because it is believed that the expense of this particular model should be the responsibility of the Port of Portland.

7. An alternative scheme which simplifies the channel geometry and possibly reduces the need for comprehensive model studies is suggested for consideration by your office and possible informal suggestion to the Port of Portland. Eliminating the division of flow around Government Island by blocking the south channel would provide more desirable flow conditions and minimize the possibility of flow impingment on the Washington shore. The north channel could be enlarged by dredging along the north side of Government Island to accommodate the loss of capacity in the south channel. A narrow passageway for recreation boating, or a culvert if the passageway is not required, could be provided at the upper end of the south channel for flushing action. Benefits from development of this south channel area as a water-oriented recreation area without the problems of flood velocities might offset the added cost of this scheme. The proposed cut for the south channel through the lower end of Government Island could be reduced in size because the flood capacity requirement would be eliminated. If small boat passage is provided through the plug at the upper end of the south channel the entire drop in water surface from Station 580 to Station 360 would occur at this point (See Exhibit A in report). Bauer's report indicates that the maximum differential for flows up to 700,000 cfs would be about 0.7 ft. The corresponding velocity of 6.7 ft/sec or 4.6 mi/hr does not appear to be excessive or hazardous for small boat traffic.

APPENDIX B

NPDEN-WC (31 May 68) 1st Ind
SUBJECT: Application for Dredging Permit for Proposed Airport Expansion

8. An alternative solution to avoid excessive delay in response might be to include firm stipulations in the dredging permit to define the responsibility of the applicant with regard to all future maintenance and erosion protection. Such a solution would be difficult to administer as well as being less than satisfactory to the opposing interests.

FOR THE DIVISION ENGINEER:

Gordon H. Fernald
GORDON H. FERNALD, JR.
Chief, Engineering Division

1 Incl
nc

Copy furnished:
Division Hydraulic Lab

APPENDIX B

Virgil L. Shipley
Box 852
Portland 7, Oregon
97207

ommander,
3th Coast Guard District
618 2nd Street
Seattle, Washington 98104

Dear Sir.

I am opposed to building any more bridges over the Willamette and Columbia Rivers. Period.

Within the narrow limits permitted by the Coast Guard for criticism of the I-205 Bridge as revea in your newspaper statement; everything mentione in the article is affected adversely by above ground contruction, while nothing beneficial can be attributed to further above ground constructio Whereas, the time for underground construction o highways, communication lines, inter-urban transportation (subways) fuel lines, hospitals and Civil Defense emergency centers, and emergency supply and power stations, is long overdue.

Every method that can be devised for forcin public and private agencies to start building & generally expanding underground is both in the public interest and the private interests.

And to ignore or underestimate the change to super ships, super railroads, super aircraft, super truc and "truck-trains", and super barges is absolute folly.

Last of all, huge ships and increasing barge traffic & bridge traffic in an ever increasing number of times the bridges must be raised to permit tugs and ships to pass up and down stream.

Alternate routes must be sought, to keep the various streams of traffic flowing continuously and smoothly.

Thank you

Sincerely you

Virgil L. Shipe

[illegible] MacArthur Boulevard
Vancouver, Wash. 98661

Telephone 693-4763

G. CAMPBELL DOWD, M.D.
PAUL C. TURNER, M.D.
DAVID L. DIXON, M.D.
PHYSICIANS AND SURGEONS

15 January 1970

3271
18 December 1969
Serial: 978

Commander (0-4)
Thirteenth Coast Guard District
618 Second Avenue
Seattle, Washington 98104

Dear Sir:

In response to your notice of 18 December 1969 I should like to take this opportunity to reiterate my opposition to the building of a bridge approximately five and one-half miles up river from the present Vancouver-Portland twin bridge across the Columbia River.

In the event that the present litigation involving the Port of Portland should terminate in the Port's being unable to build its proposed airport addition into the Columbia River and thereby provide a south end for the bridge concerned in your present proposal, I should therefore feel that all the previous drawbacks to this bridge would remain unchanged and that in any case a new bridge proposal must be presented for evaluation.

In the event that this litigation should be ended favorable to the Port's desire to extend the airport into the Columbia River, then I feel that a far better, cheaper route for this bridge would be as I have previously advised at least one to two miles farther east than this projected site. The reasons remain unchanged in that bridge construction in the farther east area would be cheaper and would be less destructive of personal and real property, that the service areas to Clark County would be superior, that from a navigation viewpoint building a fill across Government Island and bridging from Government Island on the south to the height of land two miles farther east than the proposed site would provide easier obtaining of clearances at high levels. It is my considerate opinion that the existing proposed site for the bridge is possibly the very worst one that could be proposed from an economic and use viewpoint and that further continuance of this proposal should not be allowed.

Sincerely,

G. Campbell Dowd

G. Campbell Dowd, M.D.

GCD:mn

Public Law 91-190
91st Congress, S. 1075
January 1, 1970

An Act

To establish a national policy for the environment, to provide for the establishment of a Council on Environmental Quality, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act may be cited as the "National Environmental Policy Act of 1969".

National Environmental Policy Act of 1969.

PURPOSE

Sec. 2. The purposes of this Act are: To declare a national policy which will encourage productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; to enrich the understanding of the ecological systems and natural resources important to the Nation; and to establish a Council on Environmental Quality.

TITLE I

DECLARATION OF NATIONAL ENVIRONMENTAL POLICY

Policies and goals.

Sec. 101. (a) The Congress, recognizing the profound impact of man's activity on the interrelations of all components of the natural environment, particularly the profound influences of population growth, high-density urbanization, industrial expansion, resource exploitation, and new and expanding technological advances and recognizing further the critical importance of restoring and maintaining environmental quality to the overall welfare and development of man, declares that it is the continuing policy of the Federal Government, in cooperation with State and local governments, and other concerned public and private organizations, to use all practicable means and measures, including financial and technical assistance, in a manner calculated to foster and promote the general welfare, to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans.

(b) In order to carry out the policy set forth in this Act, it is the continuing responsibility of the Federal Government to use all practicable means, consistent with other essential considerations of national policy, to improve and coordinate Federal plans, functions, programs, and resources to the end that the Nation may—

(1) fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;

(2) assure for all Americans safe, healthful, productive, and esthetically and culturally pleasing surroundings;

(3) attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences;

(4) preserve important historic, cultural, and natural aspects of our national heritage, and maintain, wherever possible, an environment which supports diversity and variety of individual choice;

(5) achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life's amenities; and

(6) enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

(c) The Congress recognizes that each person should enjoy a healthful environment and that each person has a responsibility to contribute to the preservation and enhancement of the environment.

Administration.

SEC. 102. The Congress authorizes and directs that, to the fullest extent possible: (1) the policies, regulations, and public laws of the United States shall be interpreted and administered in accordance with the policies set forth in this Act, and (2) all agencies of the Federal Government shall—

(A) utilize a systematic, interdisciplinary approach which will insure the integrated use of the natural and social sciences and the environmental design arts in planning and in decisionmaking which may have an impact on man's environment;

(B) identify and develop methods and procedures, in consultation with the Council on Environmental Quality established by title II of this Act, which will insure that presently unquantified environmental amenities and values may be given appropriate consideration in decisionmaking along with economic and technical considerations;

(C) include in every recommendation or report on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment, a detailed statement by the responsible official on—

(i) the environmental impact of the proposed action,

(ii) any adverse environmental effects which cannot be avoided should the proposal be implemented,

(iii) alternatives to the proposed action,

(iv) the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity, and

(v) any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented.

Prior to making any detailed statement, the responsible Federal official shall consult with and obtain the comments of any Federal agency which has jurisdiction by law or special expertise with respect to any environmental impact involved. Copies of such statement and the comments and views of the appropriate Federal, State, and local agencies, which are authorized to develop and enforce environmental standards, shall be made available to the President, the Council on Environmental Quality and to the public as provided by section 552 of title 5, United States Code, and shall accompany the proposal through the existing agency review processes;

Copies of statements, etc.; availability.

81 Stat. 54.

(D) study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources;

(E) recognize the worldwide and long-range character of environmental problems and, where consistent with the foreign policy of the United States, lend appropriate support to initiatives, resolutions, and programs designed to maximize international cooperation in anticipating and preventing a decline in the quality of mankind's world environment;

(F) make available to States, counties, municipalities, institutions, and individuals, advice and information useful in restoring, maintaining, and enhancing the quality of the environment;

(G) initiate and utilize ecological information in the planning and development of resource-oriented projects; and

(H) assist the Council on Environmental Quality established by title II of this Act.

Review.

SEC. 103. All agencies of the Federal Government shall review their present statutory authority, administrative regulations, and current policies and procedures for the purpose of determining whether there are any deficiencies or inconsistencies therein which prohibit full compliance with the purposes and provisions of this Act and shall propose to the President not later than July 1, 1971, such measures as may be necessary to bring their authority and policies into conformity with the intent, purposes, and procedures set forth in this Act.

SEC. 104. Nothing in Section 102 or 103 shall in any way affect the specific statutory obligations of any Federal agency (1) to comply with criteria or standards of environmental quality, (2) to coordinate or consult with any other Federal or State agency, or (3) to act, or refrain from acting contingent upon the recommendations or certification of any other Federal or State agency.

SEC. 105. The policies and goals set forth in this Act are supplementary to those set forth in existing authorizations of Federal agencies.

TITLE II

COUNCIL ON ENVIRONMENTAL QUALITY

Report to Congress.

SEC. 201. The President shall transmit to the Congress annually beginning July 1, 1970, an Environmental Quality Report (hereinafter referred to as the "report") which shall set forth (1) the status and condition of the major natural, manmade, or altered environmental classes of the Nation, including, but not limited to, the air, the aquatic, including marine, estuarine, and fresh water, and the terrestrial environment, including, but not limited to, the forest, dryland, wetland, range, urban, suburban, and rural environment; (2) current and foreseeable trends in the quality, management and utilization of such environments and the effects of those trends on the social, economic, and other requirements of the Nation; (3) the adequacy of available natural resources for fulfilling human and economic requirements of the Nation in the light of expected population pressures; (4) a review of the programs and activities (including regulatory activities) of the Federal Government, the State and local governments, and nongovernmental entities or individuals, with particular reference to their effect on the environment and on the conservation, development and utilization of natural resources; and (5) a program for remedying the deficiencies of existing programs and activities, together with recommendations for legislation.

Council on Environmental Quality.

SEC. 202. There is created in the Executive Office of the President a Council on Environmental Quality (hereinafter referred to as the "Council"). The Council shall be composed of three members who shall be appointed by the President to serve at his pleasure, by and with the advice and consent of the Senate. The President shall designate one of the members of the Council to serve as Chairman. Each member shall be a person who, as a result of his training, experience, and attainments, is exceptionally well qualified to analyze and interpret environmental trends and information of all kinds; to appraise programs and activities of the Federal Government in the light of the policy set forth in title I of this Act; to be conscious of and responsive to the scientific, economic, social, esthetic, and cultural needs and interests of the Nation; and to formulate and recommend national policies to promote the improvement of the quality of the environment.

SEC. 203. The Council may employ such officers and employees as may be necessary to carry out its functions under this Act. In addition, the Council may employ and fix the compensation of such experts and consultants as may be necessary for the carrying out of its functions under this Act, in accordance with section 3109 of title 5, United States Code (but without regard to the last sentence thereof).

80 Stat. 416.

Duties and functions.

SEC. 204. It shall be the duty and function of the Council—

(1) to assist and advise the President in the preparation of the Environmental Quality Report required by section 201;

(2) to gather timely and authoritative information concerning the conditions and trends in the quality of the environment both current and prospective, to analyze and interpret such information for the purpose of determining whether such conditions and trends are interfering, or are likely to interfere, with the achievement of the policy set forth in title I of this Act, and to compile and submit to the President studies relating to such conditions and trends;

(3) to review and appraise the various programs and activities of the Federal Government in the light of the policy set forth in title I of this Act for the purpose of determining the extent to which such programs and activities are contributing to the achievement of such policy, and to make recommendations to the President with respect thereto;

(4) to develop and recommend to the President national policies to foster and promote the improvement of environmental quality to meet the conservation, social, economic, health, and other requirements and goals of the Nation;

(5) to conduct investigations, studies, surveys, research, and analyses relating to ecological systems and environmental quality;

(6) to document and define changes in the natural environment, including the plant and animal systems, and to accumulate necessary data and other information for a continuing analysis of these changes or trends and an interpretation of their underlying causes;

(7) to report at least once each year to the President on the state and condition of the environment; and

(8) to make and furnish such studies, reports thereon, and recommendations with respect to matters of policy and legislation as the President may request.

SEC. 205. In exercising its powers, functions, and duties under this Act, the Council shall—

(1) consult with the Citizens' Advisory Committee on Environmental Quality established by Executive Order numbered 11472, dated May 29, 1969, and with such representatives of science, industry, agriculture, labor, conservation organizations, State and local governments and other groups, as it deems advisable; and

34 F. R. 8693.

(2) utilize, to the fullest extent possible, the services, facilities, and information (including statistical information) of public and private agencies and organizations, and individuals, in order that duplication of effort and expense may be avoided, thus assuring that the Council's activities will not unnecessarily overlap or conflict with similar activities authorized by law and performed by established agencies.

SEC. 206. Members of the Council shall serve full time and the Chairman of the Council shall be compensated at the rate provided for Level II of the Executive Schedule Pay Rates (5 U.S.C. 5313). The other members of the Council shall be compensated at the rate provided for Level IV or the Executive Schedule Pay Rates (5 U.S.C. 5315).

Tenure and compensation.
80 Stat. 460, 461.

81 Stat. 638.

SEC. 207. There are authorized to be appropriated to carry out the provisions of this Act not to exceed $300,000 for fiscal year 1970, $700,000 for fiscal year 1971, and $1,000,000 for each fiscal year thereafter.

Appropriations.

Approved January 1, 1970.

LEGISLATIVE HISTORY:

HOUSE REPORTS: No. 91-378, 91-378, pt. 2, accompanying H. R. 12549 (Comm. on Merchant Marine & Fisheries) and 91-765 (Comm. of Conference).
SENATE REPORT No. 91-296 (Comm. on Interior & Insular Affairs).
CONGRESSIONAL RECORD, Vol. 115 (1969):
July 10: Considered and passed Senate.
Sept.23: Considered and passed House, amended, in lieu of H. R. 12549.
Oct. 8: Senate disagreed to House amendments; agreed to conference.
Dec. 20: Senate agreed to conference report.
Dec. 22: House agreed to conference report.

GPO 37-139

5905

47

RECEIVED
~~DEC 5 - 1969~~
Jan 70
FOR FILING

STATE OF WASHINGTON
DANIEL J. EVANS, GOVERNOR

WASHINGTON
STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OFFICE OF DISTRICT ENGINEER
4200 MAIN STREET
VANCOUVER, WASHINGTON

29 December 1969

Mr. Forrest Cooper
State Highway Engineer
Oregon State Highway Division
Salem, Oregon 97310

Attention: Mr. F. B. Klaboe
Asst. State Highway Engineer

I-205 - Columbia River Bridge

Dear Sir:

This will acknowledge receipt of the revised map and profile showing changes in the alignment and design of the Columbia River Bridge on I-205.

Mr. Pierre Henrichsen, District Location-Design Engineer, and his principal assistant Mr. Don Cox, Assistant Location-Design Engineer, will be in Salem at eleven o'clock 31 December 1969 to review the proposed changes with representatives of your Bridge Division.

A brief review of the data indicates that we may have some major problems in our design of the SR-14 - I-205 Interchange on the basis of the twin structures and median width.

I appreciate being advised of the proposed changes and your cooperation in providing an opportunity for my staff to discuss the matter in detail with your designers.

Very truly yours,

R L Carroll

R. L. CARROLL, P.E.
District Engineer

copies 12-30-69

REFERRED TO
Merchant - Barber -
BY ASST. STATE HWY. ENGR
Schroeder

F. B. KLABOE

RLC:bar
cc: Records Control

Please attend -
Merchant's office

RECEIVED
DEC 30 1969
OFFICE OF
STATE HIGHWAY ENGINEER

8905

RECEIVED
DEC 19 1969
FOR FILING

December 19, 1969

Mr. Richard Carroll
District Engineer
Washington Department of Highways
Post Office Box 1717
Vancouver, Washington 98663

Dear Mr. Carroll:

Re: Columbia River Bridge, East Portland
Freeway (I-205), Multnomah County

I have been advised by our Bridge Engineer that recent requirements of the Coast Guard for additional opening for the main channel on the Columbia River have made it necessary to increase the main span to 600 feet, and that this will require a flattening of the centerline curvature from a 0° 45' curve to a 0° 30' curve. The same tangents are to be used as before.

Enclosed are a revised map and profile which indicate the necessary changes. Since formal approval has not been received for eight lanes, our exhibits for the Coast Guard have indicated a six-lane section which is readily convertible to eight lanes without revision of pier spacing or location. This is indicated on the enclosed map.

If you have any questions or comments, please contact me.

Very truly yours,

Forrest Cooper
State Highway Engineer

By

F. B. Klaboe
Assistant State Highway Engineer

Enclosures

cc: Forrest Cooper
R. L. Porter
Tom Edwards
D. J. Barbee
Ivan Merchant
A. E. Johnson (w/set of enclosures)

ADO:jp srb

8405

8 P

RECEIVED
DEC 11 1969
FOR FILING

OREGON STATE HIGHWAY DEPARTMENT

INTER-DEPARTMENT CORRESPONDENCE

Salem, Oregon
December 11, 1969

SUBJECT:

To: MEMO TO THE FILE

On Friday, December 5, I attended a meeting in the Coast Guard headquarters in Portland concerning the Department's application for a construction permit for the I-205 bridge. The following were present:

Representing the Coast Guard: Commander Haugen, Lt. Commander Nelson, and Mr. Ed Shields. Commander Haugen is an attorney.

Representing the State of Oregon: Tom Edwards and Ivan Merchant.

Representing the State of Washington: R. L. Carroll.

Representing the Bureau of Public Roads: Roy Tokerud and Herb Schell.

Representing the Sierra Club: Marvin Derning, an attorney.

Representing the Citizens Committee: Dr. Pettersen and Robert Buchanan.

Commander Haugen chaired the meeting. He stated to Dr. Pettersen, Mr. Derning and Mr. Buchanan that the purpose of the meeting was to permit them to be heard. They discussed at considerable length the configuration of the main channel. This was a particular worry of Dr. Pettersen's, he apparently being interested in river currents and a sailboat owner. It was his statement, seconded by Marvin Derning, that no action should be taken unless a hydraulic model study of the river was undertaken.

After considerable discussion, Commander Haugen drew the statement from Dr. Pettersen that they were not against the bridge per se, nor against the highway, but merely that they thought the proposition had not been properly studied from the point of river hydraulics. They took violent exception to the statements in the river study made by the consultant Bauer for the Port of Portland.

Some minor revisions have been made on the drawings accompanying the State's application for permit, which we have now placed in the Coast Guard's hands. The Coast Guard will send out a new public notice allowing everybody proper time to inspect the new proposal - namely, that of a 600-foot span providing a 500-foot opening for the main channel.

I did not get the impression that the Coast Guard was desirous of calling another public hearing, having hoped that the information developed in the meetings would be sufficient for them to use in making a decision.

Tom Edwards
Tom Edwards
Assistant State Highway Engineer

TE:ja

cc Mr. R. E. Simpson
Division Engineer
Bureau of Public Roads
Box 300
Salem, Oregon 97308

bc Forrest Cooper
R. L. Porter
Victor D. Wolfe
Ivan Merchant
A. E. Johnson

8905

RECEIVED
DEC 10 1969
FOR FILING

December 9, 1969

bc Forrest Cooper
R. L. Porter
Victor D. Wolfe
Ivan Merchant
A. E. Johnson
L. W. Rulien

Commander
13th Coast Guard District
618 Second Avenue
Seattle, Washington 98104

Attention: Ed Shields
Aids to Navigation Branch

See 12-17-69
for encl.

Gentlemen:

Re: Navigation Permit
I-205, Columbia River

As requested at the meeting in Portland on December 5 the navigation permit drawings have been revised. I am enclosing Sheets No. 1 to 6, inclusive, of reproducible negatives and 4 prints of Sheets No. 1 to 6.

The revisions requested by you and shown on the enclosed drawings are as follows:

1. The approach roadway outside the limits of the structure have been revised to a double line on Sheets No. 1 and 2 of 6.

2. On Sheet No. 2 the words "Land Approach" have been added at both the north and south ends of the structure to show the approximate limits of structure outside of the mean low water to mean low water line. Incidently the distance mean low water to mean low water has been revised slightly to conform to the latest data obtainable by this office.

I believe the enclosed drawings include all the revisions requested by you and we will be looking forward to receiving copies of the public notice in the very near future.

Yours very truly,

Forrest Cooper
State Highway Engineer
By:

IEM:jf
cc: R. E. Simpson
(w/4 enclosures)

Tom Edwards
Assistant State Highway Engineer

8905

4

RECEIVED
NOV 25 1969
FOR FILING

November 24, 1969

Mr. R. E. Simpson
Division Engineer
Bureau of Public Roads
477 Cottage Street, N. E.
Salem, Oregon 97301

Re: Navigation Permit
I-205 Bridge
Columbia River

Dear Sir:

Attached are original tracings of Sheets 1 through 6, inclusive, and eight sets of prints of the same drawings covering the revised navigation permit drawings for the Columbia River I-205 Bridge. The original tracings and four sets of the prints are for submission to the Coast Guard. The other four sets of prints are for your distribution.

Also attached are two transparencies sent to you for the purpose of illustrating that with a fixed grade line and a fixed structure depth the vertical clearances cannot be revised except for an amount due to the change in grade.

The permit drawings have been prepared on the basis of a 500-foot horizontal clearance between pier protections. The vertical clearances are slightly less than those mentioned in the meeting in Portland on November 13; however, all parties having an interest in navigation through this structure have been contacted by telephone and they are agreeable to the indicated clearances.

I have discussed this matter with Mr. Shields of the Coast Guard staff in Seattle. Please forward this data to him with any comments you wish to add.

It should be stated that the structure as built will provide at least the vertical and horizontal clearances shown for the main navigation channel and the secondary navigation channel with the possibility that some slight increases in vertical clearances would be obtained after the structure is finally designed by our consultants.

Very truly yours,

Forrest Cooper
State Highway Engineer

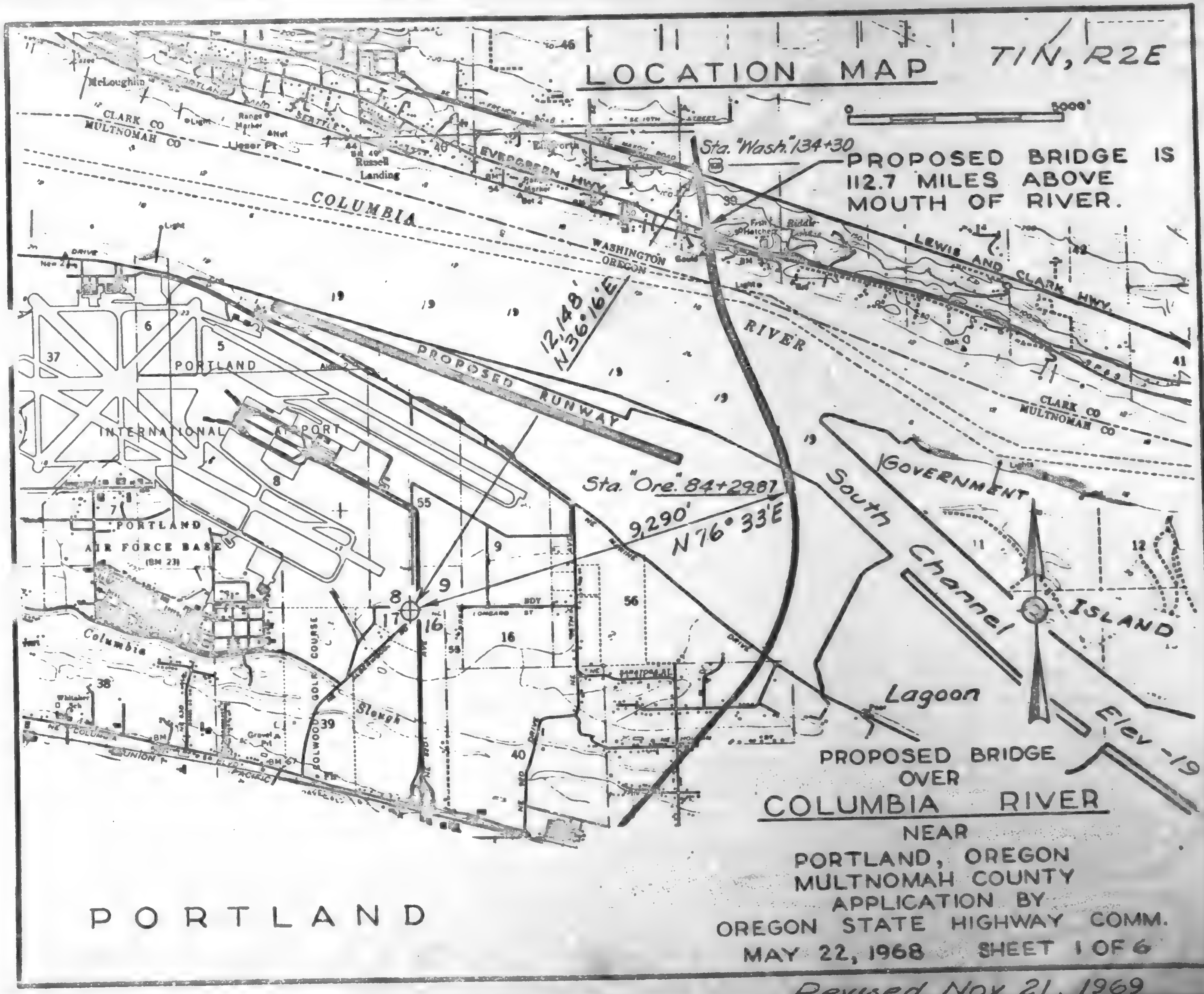
By

Tom Edwards
Assistant State Highway Engineer

Enc.

bc Forrest Cooper
R. L. Porter
Victor D. Wolfe
Ivan Merchant
A. E. Johnson

IDM:jf/TE:jr


T1N, R2E
0
5000'
Sta. "Wash." 134+30
McLoughlin
CLARK CO
MULTNOMAH CO
Lesser Pt.
Russell
Landing
EVERGREEN HWY.
COLUMBIA
WASHINGTON
OREGON
RIVER
LEWIS AND CLARK HWY.
CLARK CO
MULTNOMAH CO
12,148'
N36°16'E
PROPOSED RUNWAY
PORTLAND
INTERNATIONAL
AIRPORT
PORTLAND
AIR FORCE BASE
Columbia
Slough
GOLF COURSE
Sta. "Ore." 84+29.87
9,290'
N76° 33'E
South Channel
GOVERNMENT
ISLAND
Lagoon
Elev -19
37
6
5
8
7
38
39
40
55
9
8
9
17
16
58
16
56
11
12
41

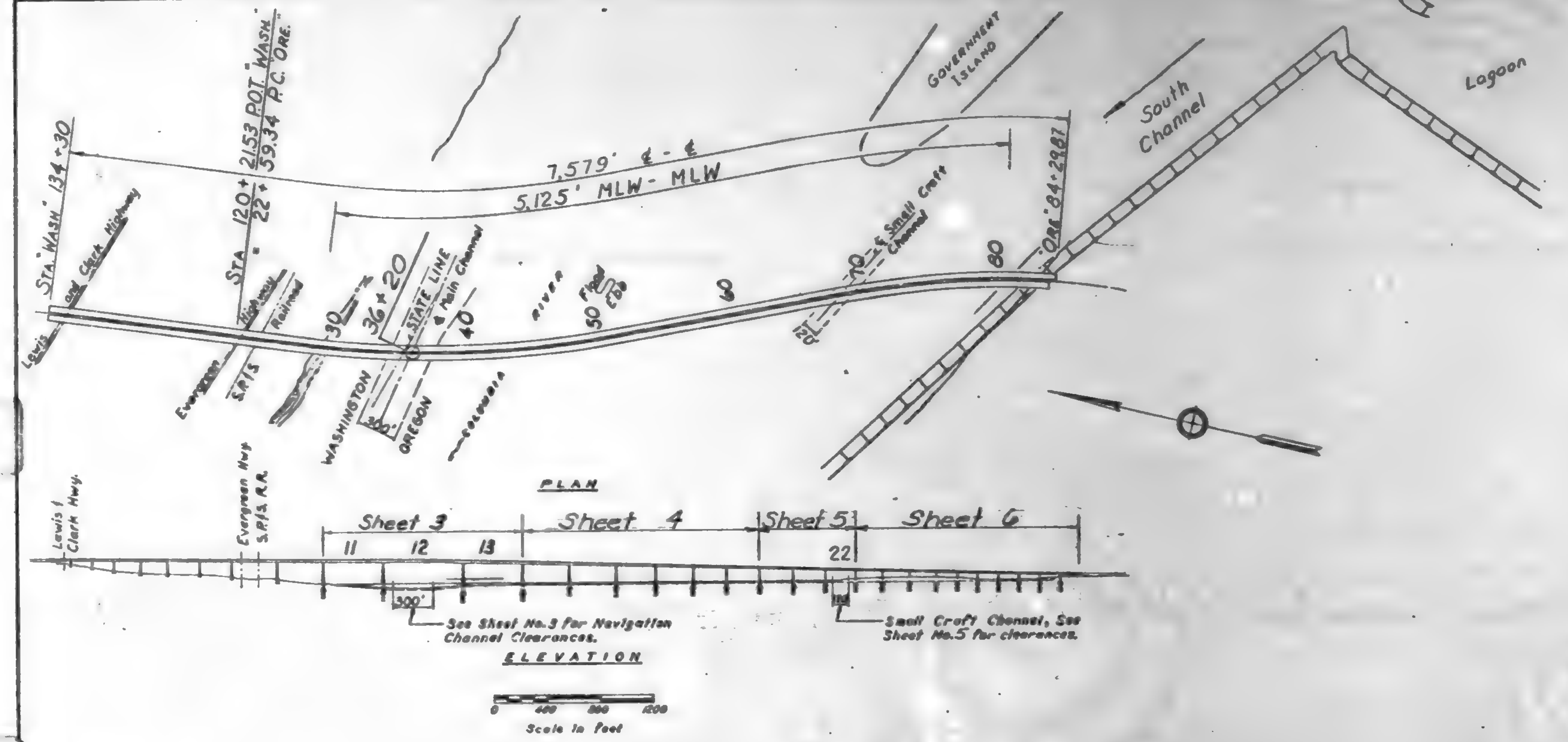
LOCATION MAP

PROPOSED BRIDGE IS 112.7 MILES ABOVE MOUTH OF RIVER.

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY COMM.
MAY 22, 1968 SHEET 1 OF 6

PORTLAND

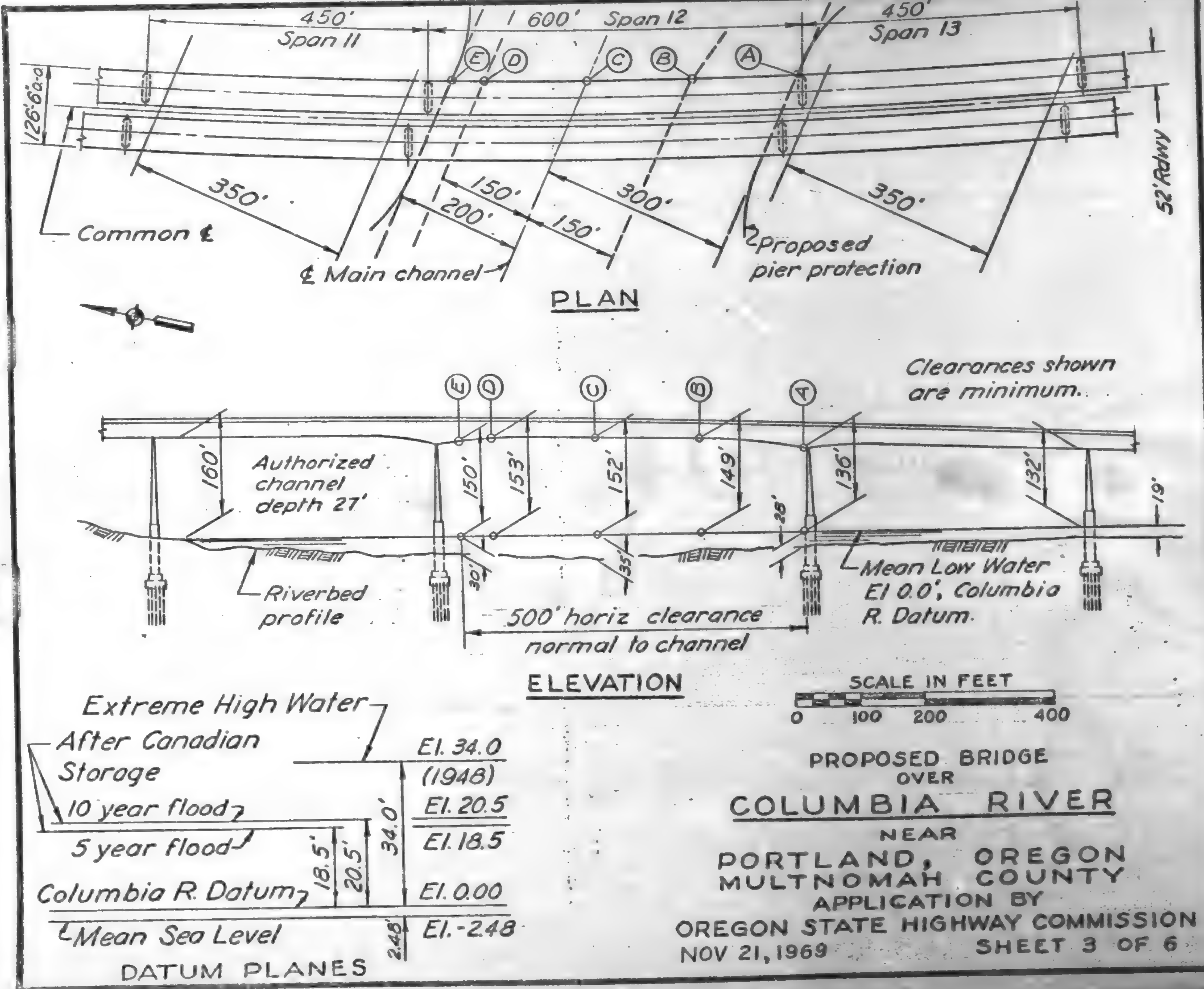
Revised Nov 21, 1969


Sta. "Wash" 134+30
Lewis and Clark Highway
Sta. 120+21.53 POT. "Wash."
= 22+59.34 P.C. "Ore."
Evergreen Highway
S.P.&S. Railroad
Washington
Oregon
30
36+20
State Line
℄ Main Channel
300'
40
Columbia River
50
Flood
Ebb
60
7,579' ℄-℄
5,125' MLW-MLW
Government Island
21
70
℄ Small Craft Channel
80
"Ore" 84+29.81
South Channel
Lagoon
Plan
Lewis & Clark Hwy.
Evergreen Hwy
S.P.&S. R.R.
Sheet 3
Sheet 4
Sheet 5
Sheet 6
11
12
13
22
300'
See Sheet No. 3 for Navigation Channel Clearances.
Small Craft Channel, See Sheet No. 5 for clearances.
Elevation
0
400
800
1200
Scale in Feet

Note:
See sheets 3, 4, 5
and 6 for all horizontal
and vertical clearances
in water spans.

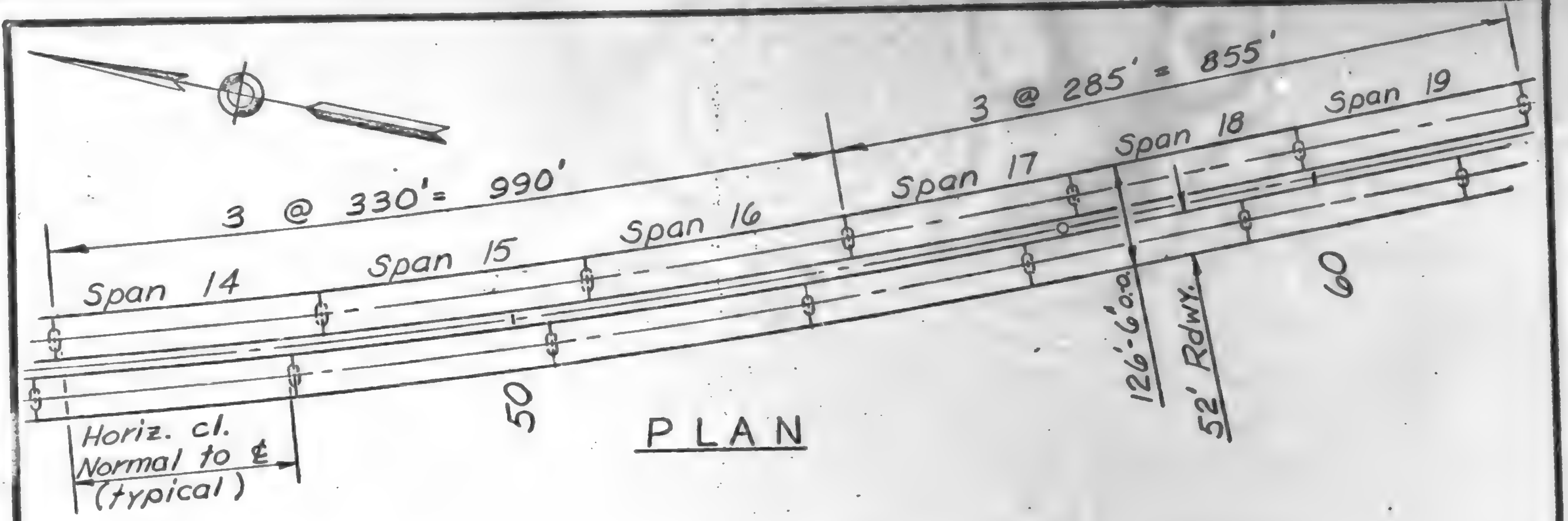
PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY COMMISSION
NOVEMBER 21, 1969 SHEET 2 OF 6

(Revised Line)

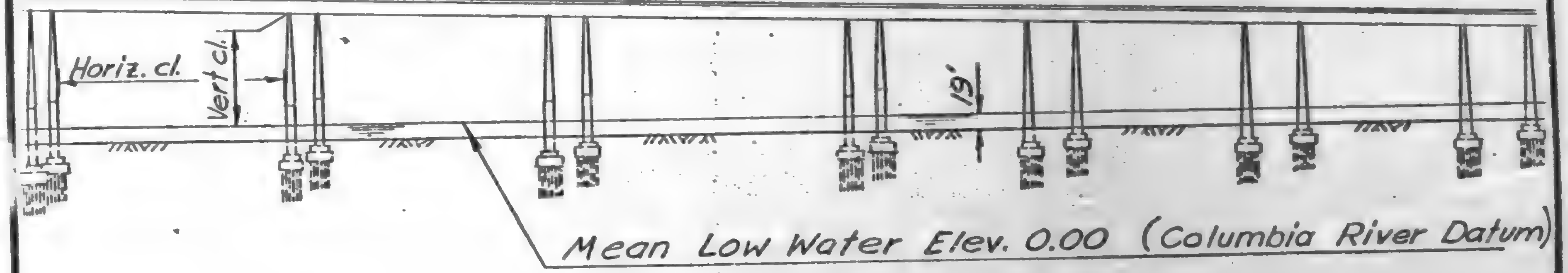


450'
Span 11
600'
Span 12
450'
Span 13
126'6" o-o
E
D
C
B
A
350'
150'
200'
150'
300'
350'
Common ℄
℄ Main channel
Proposed pier protection
52' Rdwy
PLAN
Clearances shown are minimum.
160'
Authorized channel depth 27'
150'
153'
152'
149'
136'
132'
19'
28'
30'
35'
Riverbed profile
Mean Low Water El 0.0', Columbia R. Datum.
500' horiz clearance normal to channel
ELEVATION
SCALE IN FEET
0
100
200
400
Extreme High Water After Canadian Storage
El. 34.0 (1948)
10 year flood
El. 20.5
5 year flood
El. 18.5
Columbia R. Datum
El. 0.00
Mean Sea Level
El. -2.48
34.0'
20.5'
18.5'
2.48'
DATUM PLANES

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY COMMISSION
NOV 21, 1969 SHEET 3 OF 6


3 @ 330' = 990'
3 @ 285' = 855'
Span 14
Span 15
Span 16
Span 17
Span 18
Span 19
50
60
126'-6" o.o.
52' Rdwy.
Horiz. cl.
Normal to ℄
(typical)

PLAN

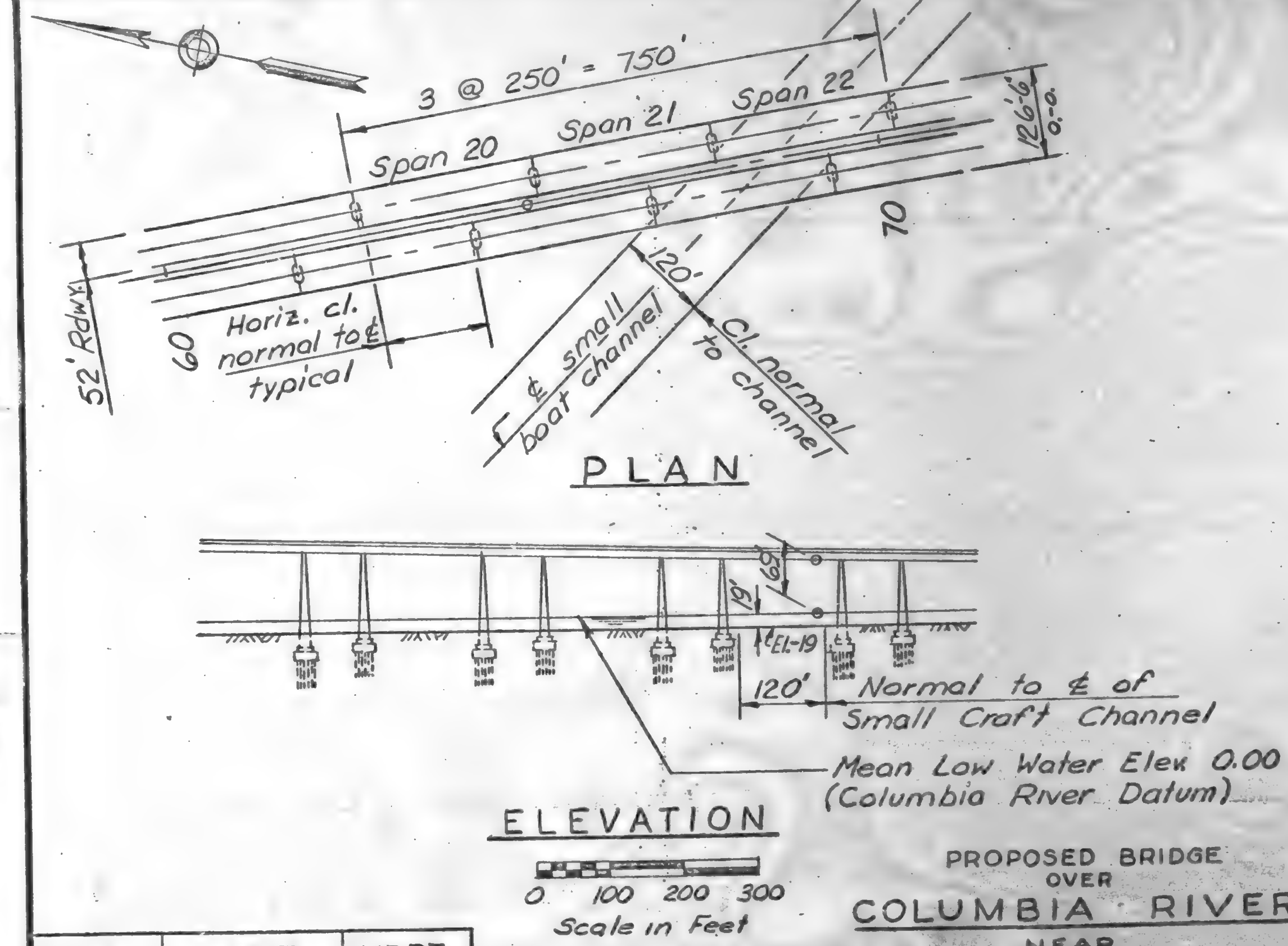

Horiz. cl.
Vert cl.
19'
Mean Low Water Elev. 0.00 (Columbia River Datum)

ELEVATION

SPAN	HORIZ. CL	VERT. CL.
14	275'	128'
15	265	119
16	250	111
17	200	107
18	195	99
19	180	91

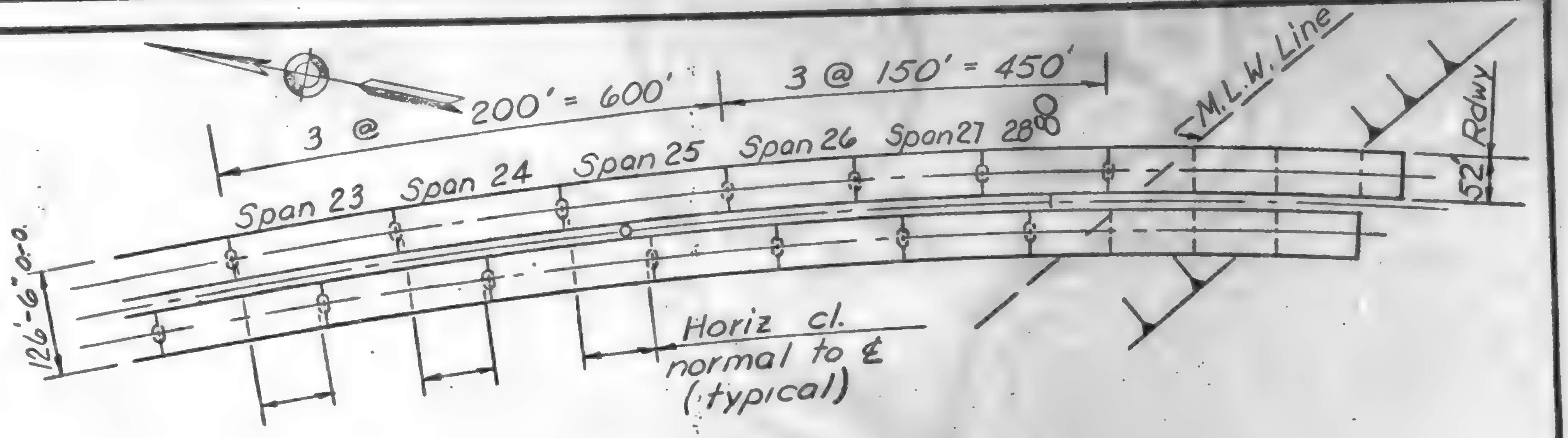
0 100 200 300
Scale in feet

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY COMMISSION
NOV. 21, 1969 SHEET 4 OF 6

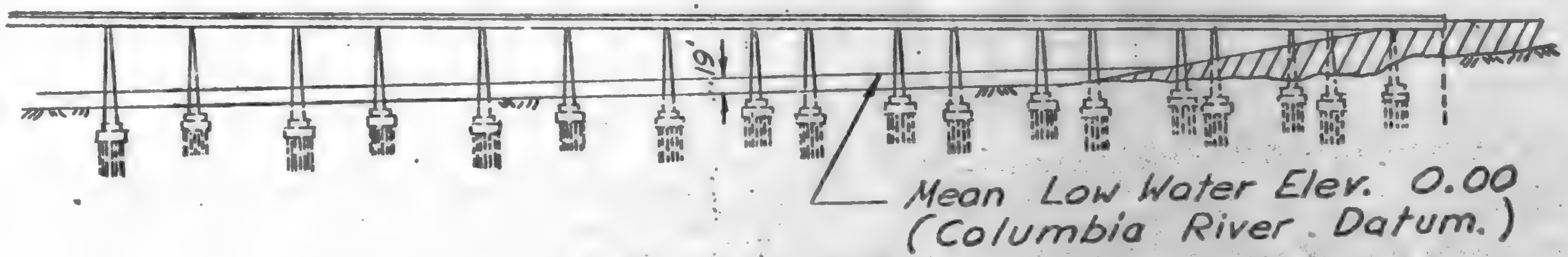

3 @ 250' = 750'
Span 20
Span 21
Span 22
126'-6" o.-o.
70
120'
52' Rdwy.
60
Horiz. cl. normal to ℄ typical
℄ small boat channel
Cl. normal to channel
PLAN
69'
19'
El.-19
120'
Normal to ℄ of Small Craft Channel
Mean Low Water Elev. 0.00 (Columbia River Datum)
ELEVATION
0 100 200 300
Scale in Feet

SPAN	HORIZ CL.	VERT CL.
20	150	87
21	150	78
22	150	69

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY COMMISSION
NOV 21, 1969 SHEET 5 OF 6


3 @ 200' = 600'
3 @ 150' = 450'
Span 23
Span 24
Span 25
Span 26
Span27
28
M.L.W. Line
52' Rdwy
126'-6" o-o.
Horiz cl. normal to ℄ (typical)

PLAN


19'
Mean Low Water Elev. 0.00
(Columbia River Datum.)

ELEVATION

0 100 200 300
Scale in feet

SPAN	HORIZ CL	VERT CL
23	90'	67'
24	90'	60'
25	90'	53'
26	80'	46'
27	80'	42'

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY COMMISSION
NOV. 21, 1969 SHEET 6 OF 6

8905

RECEIVED
NOV 24 1969
FOR

November 24, 1969

Commander
13th Coast Guard District
618 Second Avenue
Seattle, Washington 98104

Re: Navigation Permit
I-205 Bridge
Columbia River

Dear Sir:

Pursuant to discussions at a meeting November 13 in the Corps of Engineers office in Portland, a revised drawing is being submitted through the Bureau of Public Roads to be attached to and used in lieu of previous presentations made by the Oregon State Highway Division in its request for a navigation permit for a structure over the Columbia River on the route of I-205.

This submission with the Bureau of Public Roads' comments should be in your hands in the very near future. The State will be appreciative of any action that you can take in processing this permit to the end that a permit may be received at the earliest possible time.

Very truly yours,

Forrest Cooper
State Highway Engineer

By

Tom Edwards
Assistant State Highway Engineer

bc Forrest Cooper
R. L. Porter
Victor D. Wolfe
Ivan Merchant
A. E. Johnson

IDM:jf/TE:ja

8905

RECEIVED
NOV [illegible]0 1969

U. S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
Room 412 Mohawk Building
222 S.W. Morrison Street
Portland, Oregon 97204

October 31, 1969

IN REPLY REFER TO
08-00.35

Commander
Thirteenth Coast Guard District
618 Second Avenue
Seattle, Washington 98104

Reference: Navigation Permit, I-205 bridge over Columbia River,
Public Notice 69-19

Dear Sir:

With reference to our letter to you dated October 23, 1969, we have further reviewed the material furnished by the Oregon State Highway Department in response to your letter to them dated September 25,1969.

We concur with the State's contention that the vertical clearance at this crossing is not now under consideration in view of the earlier actions taken by the Department of Transportation.

As for the horizontal clearance, we are concerned with the added increment of $1.5 million dollars of highway costs that would be involved if the horizontal clearance is increased from 400 feet to 500 feet. As we recall, the 400 foot horizontal clearance was considered generally satisfactory at the time of the first hearing held in May 1967.

We can appreciate the point of view of the shipping interests in requesting generous clearances since all will agree that greater clearances are advantageous from a shipping standpoint. However, by the same token the reverse is true when judging this matter of clearances from the highway standpoint. We suggest that the overall public interest would require that a study be made of relative benefits before any recommendation is made to increase the horizontal clearance above 400 feet. In reviewing some of the past correspondence, we note that the horizontal clearance now available under three existing structures upstream between Bonneville and The Dalles are respectively 284 feet, 246 feet and 250 feet.

-more-

NOTED
R. L. PORTER

NOTED
TOM EDWARDS

NOTED
FORREST [illegible]

Copy - Merchant
11-6-69

Apparently the abrupt bend in the navigation channel just upstream from the proposed bridge crossing increases the hazard of navigation through the bridge opening. We understand that the possibility of straightening out the channel by dredging is now being studied and will be considered at a forthcoming meeting of interested parties. The outcome of that study should be another factor in a determination of appropriate horizontal clearance.

If we can be of any further assistance in this matter, please call on us.

Very truly yours,

B. J. McCLARTY
Deputy Regional Administrator

RECEIVED
NOV 5 1969
OFFICE OF
STATE HIGHWAY ENGINEER

PORTLAND.ORE 97208
503 224-4260

RIVERS & HARBORS CONGRESS

BRIDGE
COMMITTEE

October 30, 1969

District Engineer
Portland District
U. S. Corps of Engineers
P. O. Box 2946
Portland, Oregon 97208

Subject: I-205 Bridge Clearances

Dear Sir:

As the result of discussions with Mr. Shields of the U. S. Coast Guard in Seattle, it has been found that several objections have been received to the proposed clearances for the I-205 bridge as the result of the latest public notice. In discussing the proposed horizontal clearance of 400 feet with the objectors, it is found that the combination of the 400-foot clearance along with the bend in the channel immediately upstream of the bridge, and with added experience of operating the larger tows in recent years has brought about a change in their thinking since the public hearing of May 25, 1967. It is believed that a resolution of this matter would be assisted by meeting with the interested parties in order to discuss the relative merits of dredging a straighter channel upriver from the bridge as against the requested widening to a 500-foot clearance. It appears that the navigators feel that the straightening of the channel would be of more benefit than widening the opening.

It would be very much appreciated if your office could review the shoaling pattern in recent years upstream from the bridge since the indication given prior to the meeting was a gradual sharpening of the bend in the dredged channel.

We would be happy to meet with you and the other parties concerned at your convenience. If there are any questions regarding this matter, please call.

Very truly yours,

AJ Heineman
A. J. Heineman, Chairman
Bridge Committee

AJH:mc
cc: Bridge Committee
Capt. Lew Russell, Jr.
Capt. Paul Light
Capt. Dennis Brown

October 29, 1969

Commander
Thirteenth Coast Guard District
618 Second Avenue
Seattle, Washington 98104

Attention: Mr. Ed Shields

Gentlemen:

Reference is made to the telephone conversation between Mr. Shields and the undersigned on October 27 regarding the current data being gathered on clearances for the I-205 bridge. The Port of Portland wishes to reiterate its position regarding vertical clearance made at the public hearing by the Corps of Engineers on May 25, 1967. No evidence has been presented to justify a clearance greater than the 157 feet proposed. A review of available data points out that any vessels that can be reasonably expected to proceed to the ports of Camas-Washougal or The Dalles can be accommodated by this height. The only vessels which would have a minor limitation during high water conditions were a certain class of container ships with on-board container handling cranes.

In regard to the protest by the Port of Camas-Washougal, their original objection was included in a letter dated March 31, 1967 to the Corps of Engineers transmitting a resolution adopted by the IEWA at its convention on October 17, 1966. The resolution was introduced by Mr. Volpentest, the manager of the Port of Camas-Washougal. Subsequent to their letter, the port testified at the May 25, 1967 public hearing with the intent of withdrawing their objection on the basis of the data submitted regarding ship heights. In reviewing the testimony in the transcript, it does not present this fact very clearly, and if you wish additional clarification on this matter, please advise.

In regard to the continued question by the Port of The Dalles, no data has been submitted to justify the increased clearance requested. At the meeting of the Northwest Rivers & Harbors Congress in 1968 their proposed resolution requesting the 178 feet of clearance was voted down by the Resolutions Committee with the discussion regarding the I-205 bridge and the future freeway bridge over the Duwamish in Seattle resulting in the formation of the Bridge Committee.

It is understood that the two towboat firms operating on the upper river have now requested a greater clearance. The record should show that the undersigned personally contacted these firms prior to the public hearing on May 25, 1967 and received their concurrence in the 400 feet being adequate. It should be noted that they did not protest the 400 feet of clearance at the public hearing. It is possible that they have collected additional data since that time, however, no material has been forwarded to this office.

If we can be of assistance in this matter, please call.

Sincerely,

THE PORT OF PORTLAND

ORIGINAL SIGNED BY
A. J. HEINEMAN

A. J. Heineman
Assistant General Manager

AJH:mc
cc: Ivan Merchant, Oregon State Highway Department

8905

RECEIVED
NOV 1 - 1969
FOR FILING

222 S. W. Morrison Street
Portland, Oregon 97204

October 23, 1969

08-09.33

Re: Navigation Permit
I-205 Bridge over
the Columbia River
Mile 112.7

Commander
Thirteenth Coast Guard District
618 Second Avenue
Seattle, Washington 98104

Dear Sir:

In response to your request to the Oregon State Highway Department for preliminary estimates of cost for providing certain horizontal and vertical clearances on the captioned structure, the following material is submitted:

Division Engineer Simpson's memorandum of October 21, 1969
Oregon State Highway Department letter of October 21, 1969
Six Bridge estimate sheets dated October 9, 1969
Corrected transparent sheet of Location Map dated May 22, 1968
Transparent sheet showing relationship of bridge and channel,
  dated October 20, 1969

Except for the estimate of a structure providing a 170-foot vertical clearance, the other requested information appears to be sufficiently complete. We can appreciate the State's hesitancy in attempting to estimate costs for a structure requiring a vertical clearance above those recently approved by the FAA. We trust the information submitted herewith will be sufficient for your needs and that an early approval can be given for this bridge location.

Please call upon us if we can be of assistance in this matter.

Very truly yours,

NOTED
R. L. PORTER

Attachments

RALPH M. PHILLIPS
Regional Administrator

By: Hugh B. Henry, Chief
Design Division

cc: G. M. Williams (32-70) w/attachments
Oregon Division (2)

NOTED
TOM EDWARDS

RECEIVED
OCT 27 1969
OFFICE OF
STATE HIGHWAY ENGINEER

Copy – Marsha –
10-30-69

8905

RECEIVED
OCT 21 1969
FOR FILING

October 21, 1969

Commander
13th Coast Guard District
618 Second Avenue
Seattle, Washington 98104

Re: Navigation Permit
I-205 Bridge over
The Columbia River

Dear Sir:

Receipt is acknowledged of your Serial Letter 974 dated September 25, 1969. With this letter were enclosed copies of letters of objections from:

1. Port of The Dalles.
2. Port of Camas-Washougal.
3. Pacific Inland Navigation Company.
4. Tidewater Barge Lines.
5. Carl A. Peterson, M.D. - Citizens Committee for the Columbia River.

The third paragraph of your letter requested a sketch clarifying the location of the navigation channel with relation to the proposed structure. Also, by phone call on September 30, Mr. Shields requested estimates of cost for four different structure configurations at the main channel -- namely, (1) 400-foot clear horizontal span, 157-foot vertical clearance; (2) 400-foot clear horizontal span, 178-foot vertical clearance; (3) 500-foot clear horizontal span, 157-foot vertical clearance; and (4) 560-foot clear horizontal span, 178-foot vertical clearance.

Estimates have been prepared for Items (1) and (3). Inasmuch as the Department of Transportation, through the Federal Highway Administration, will assume 92 percent of the cost of this structure, we are forwarding our estimates to you through the Division Office of the Bureau of Public Roads, which will add its observations and recommendations.

Mr. Shields also asked for an additional plate showing the exact location of the structure with relation to the location of the channel and the angle point therein as shown on the U.S. Army Corps of Engineers' Drawing No. CL-110-33, dated August 7, 1969. The drawing will be forwarded through the Bureau of Public Roads with the estimates noted above.

Very truly yours,

Forrest Cooper
State Highway Engineer

By

Tom Edwards
Assistant State Highway Engineer

cc Mr. R. E. Simpson
Division Engineer
Bureau of Public Roads
Box 300
Salem, Oregon 97308

bc Forrest Cooper
R. L. Porter
Victor D. Wolfe
Ivan Merchant

IDM:jf/TE:ja

the Federal Highway Administration, will assume 92 percent of the cost of this structure, we are forwarding our estimates to you through the Division Office of the Bureau of Public Roads, which will add its observations and recommendations.

Mr. Shields also asked for an additional plate showing the exact location of the structure with relation to the location of the channel and the angle point therein as shown on the U.S. Army Corps of Engineers' Drawing No. CL-110-33, dated August 7, 1969. The drawing will be forwarded through the Bureau of Public Roads with the estimates noted above.

Very truly yours,

Forrest Cooper
State Highway Engineer

By

Tom Edwards
Assistant State Highway Engineer

cc Mr. R. E. Simpson
Division Engineer
Bureau of Public Roads
Box 300
Salem, Oregon 97308

bc Forrest Cooper
R. L. Porter
Victor D. Wolfe
Ivan Merchant

IDM:jf/TE:ja

October 21, 1969

Mr. R. E. Simpson
Division Engineer
Bureau of Public Roads
Box 300
Salem, Oregon 97308

Re: Columbia River Bridge
Interstate 205

Dear Sir:

By Serial Letter 974 dated September 25, 1969, the Coast Guard furnished the State copies of five letters of protest on the proposed Columbia River Bridge on I-205. The third paragraph of this same letter requested a sketch clarifying the navigation channel limits with relation to the proposed bridge structure.

I am enclosing a copy of the letter of September 25 together with the five letters of objection received from the Coast Guard. Also enclosed is a sketch labeled Sheet 1 of 1 and dated October 20, 1969, indicating the limits of the navigation channel immediately upstream from the proposed structure. The 500-foot main span providing a minimum of 400 feet of horizontal clearance is indicated on this sketch.

Your attention is called to the bridge centerline which is a 0°30' curve left. As requested, this centerline alignment has been revised from a 0°45' curve left to the 0°30' curve left to provide better alignment for the long girder span construction. The revision from a 0°45' curve to a 0°30' curve results in a moving of the line eastward (away from the airport) approximately 44 feet at the maximum point of revision.

The sketch indicates a dimension of 1,341 feet from the bridge centerline and channel centerline intersection to an upstream angle point.

By phone call on September 30, Mr. Shields of the Seattle office of the Coast Guard requested four alternate estimates — namely, a span providing 400 feet of channel clearance at alternate elevations of 157 feet and 178 feet vertical clearance and a span providing 500 feet clearance at alternate vertical clearances of 157 feet and 178 feet.

We have made estimates for spans providing both 400 feet and 500 feet clearance horizontally normal to the channel. These estimates are $43,790,000 and $45,320,000 respectively, or a difference of $1,530,000. Inasmuch as the final configuration must be approved by the Bureau of Public Roads, we submit our reply to the Coast Guard through your office in order that you may add your comments concerning these alternates.

We have not provided the estimates for the 178-foot vertical clearance as requested by Mr. Shields. It is our contention that the vertical elevation of this bridge was a vital and controlling factor in the decision of the Federal Aviation Administration in approving the proposed airport revision and that this item had the attention and the approval of the Secretary of the Department of Transportation in his consideration and approval of the Federal Aviation Administration's recommendation. We therefore believe both the request of the Coast Guard for estimates at the 178-foot vertical clearance elevation and any further discussion of the letters from the parties requesting 178-foot vertical clearance is not germane to the problem at this time.

We would appreciate your perusal of the estimates and the forwarding to the Coast Guard of the data attached.

Very truly yours,

Forrest Cooper
State Highway Engineer

By

Tom Edwards
Assistant State Highway Engineer

Enc.

bc Forrest Cooper
R. L. Porter
Victor D. Wolfe
Ivan Merchant

IDM:jf/TE:ja

Form E-136-2M

Oregon State Highway Department
BRIDGE DESIGN SECTION

Sheet

Bridge Columbia River I 205 County Mult.

Calculations by Date Oct 9, 1969 No. 9555

		HORIZONTAL CLEARANCE	
		400'	500'
VERTICAL CLEARANCE	157	$43,790,000	$45,320,000

Estimate 1
(Use Sheets ① & ③)

OREGON STATE HIGHWAY DEPARTMENT
BRIDGE DIVISION

ESTIMATE SHEET

Bridge Name Columbia River County Mult. Bridge No. 9555
Section and Station ______ Highway I-205
Estimate Made By Wood Date 10-3-69 Checked By ______ Date ______
Description

108' Rdwy. 400' Horiz. Clear.
157' Vert. Clear.

Estimate From (Strike out the ones which do not apply)
No plans
Sketch
Completed plans; Drawing No.

Calculation Book No. ______ Loading ______

ITEMS	UNIT	QUANTITIES Substruct.	Superstruc.	Total	COST Rate	Amount
Shoring, Cribbing Etc.	All	-	-	-	-	
Structural Excavation	Cu.Yd.		-			
Excavation Below Elevation Shown	Cu.Yd.		-			
Untreated Timber Piling	Lin.Ft.		-			
Treated Timber Piling	Lin.Ft.		-			
Steel Piling	Lin.Ft.		-			
Prestr. Conc. Piling	Lin.Ft.		-			
Drive Timber Piling	Each		-			
Drive Steel Piling	Each		-			
Splice Steel Piles	Each		-			
Drive Prestressed Concrete Piling	Each		-			
Class "A" Concrete	Cu.Yd.					
Concrete	Cu.Yd.		-			
Metal Reinforcement	Lbs.					
Lumber	F.B.M.					
Structural Steel	Lbs.					
Structural Steel	Lbs.					
Prestr. Conc. Slabs	Each	-				
Prestr. Conc. Slabs	Each	-				
Prestr. Conc. Slabs	Each	-				
Prestr. Conc. Slabs	Each	-				
Type Prestr. Conc. Beams	Each	-				
Type Prestr. Conc. Beams	Each	-				
Type Prestr. Conc. Beams	Each	-				
Type Prestr. Conc. Beams	Each	-				
Type Prestr. Conc. Beams	Each	-				
Metal Parapet Rail #	Lin.Ft.	-				
Metal Parapet Rail #	Lin.Ft.	-				
Approach Spans - 6,325 x 108	Sq.Ft.			684,000	40.30	27,500,000
Main Spans - 1,250 x 108	Sq.Ft.			135,000	66.70	8,990,000
Removal of old Bridge	All	-	-	-	-	
Maintenance of Traffic	All	-	-	-	-	

Subtotal 36,490,000
Plus 20 Per Cent For Engineering & Contingencies 7,300,000
TOTAL COST $ 43,790,000

Estimate 2
(Use Sheets ② & ③)

OREGON STATE HIGHWAY DEPARTMENT
BRIDGE DIVISION

ESTIMATE SHEET

Bridge Name Columbia River County Mult. Bridge No. 9555
Section and Station Highway I-205
Estimate Made By Wood Date 10-3-69 Checked By Date
Description

108' Rdwy.

500' Horiz. Clear.
157' Vert. Clear.

Estimate From (Strike out the ones which do not apply)
- No plans
- Sketch
- Completed plans; Drawing No.

Calculation Book No. Loading

ITEMS	UNIT	QUANTITIES			COST	
		Substruct.	Superstruc.	Total	Rate	Amount
Shoring, Cribbing Etc.	All	-	-	-	-	
Structural Excavation	Cu.Yd.		-			
Excavation Below Elevation Shown	Cu.Yd.		-			
Untreated Timber Piling	Lin.Ft.		-			
Treated Timber Piling	Lin.Ft.		-			
Steel Piling	Lin.Ft.		-			
Prestr. Conc. Piling	Lin.Ft.		-			
Drive Timber Piling	Each		-			
Drive Steel Piling	Each		-			
Splice Steel Piles	Each		-			
Drive Prestressed Concrete Piling	Each		-			
Class "A" Concrete	Cu.Yd.					
Concrete	Cu.Yd.		-			
Metal Reinforcement	Lbs.					
Lumber	F.B.M.					
Structural Steel	Lbs.					
Structural Steel	Lbs.					
Prestr. Conc. Slabs	Each	-				
Prestr. Conc. Slabs	Each	-				
Prestr. Conc. Slabs	Each	-				
Prestr. Conc. Slabs	Each	-				
Type Prestr. Conc. Beams	Each	-				
Type Prestr. Conc. Beams	Each	-				
Type Prestr. Conc. Beams	Each	-				
Type Prestr. Conc. Beams	Each	-				
Type Prestr. Conc. Beams	Each	-				
Metal Parapet Rail #	Lin.Ft.	-				
Metal Parapet Rail #	Lin.Ft.	-				
Approach Spans - 6,050 x 108	Sq. Ft.			653,000	40.30	26,300,000
Main Spans - 1,525 x 108	Sq. Ft.			164,600	69.60	11,470,000
Removal of old Bridge	All	-	-	-	-	
Maintenance of Traffic	All	-	-	-	-	

Subtotal 37,770,000
Plus 20 Per Cent For Engineering & Contingencies 7,550,000
TOTAL COST $ 45,320,000

Sheet ①

OREGON STATE HIGHWAY DEPARTMENT
BRIDGE DIVISION

ESTIMATE SHEET

Bridge Name Columbia River County Mult. Bridge No. 9555
Section and Station ______ Highway I-205
Estimate Made By Wood Date 10-3-69 Checked By ______ Date ______
Description

Main Spans

Estimate From (Strike out the ones which do not apply)
- No plans
- Sketch
- Completed plans; Drawing No.

400' H.C.
157' V.C.

Calculation Book No. ______ Loading ______

ITEMS	UNIT	QUANTITIES			COST	
		Substruct.	Superstruc.	Total	Rate	Amount
Shoring, Cribbing Etc.	All	-	-	-	-	75,000
Structural Excavation	Cu. Yd.	9,250	-	9,250	7.50	69,300
Excavation Below Elevation Shown	Cu. Yd.		-			
Untreated Timber Piling	Lin. Ft.		-			
Treated Timber Piling	Lin. Ft.		-			
Steel Piling 14 BP73	Lin. Ft.	26,400	-	26,400	6.00	158,300
Prestr. Conc. Piling	Lin. Ft.		-			
Drive Timber Piling	Each		-			
Drive Steel Piling 14 BP73	Each	528	-	528	200.00	105,600
Splice Steel Piles	Each		-			
Drive Prestressed Concrete Piling	Each		-			
Class "A" Concrete	Cu. Yd.	12,500	4,950	17,450	100.00	1,745,000
Seal Concrete	Cu. Yd.	4,620	-	4,620	40.00	184,800
Metal Reinforcement	Lbs.	2,500,000	1,250,000	3,750,000	0.15	562,000
Lumber	F.B.M.					
Structural Steel	Lbs.		13,509000	13,500,000	0.45	6,070,000
Structural Steel	Lbs.					
Prestr. Conc. Slabs	Each	-				
Prestr. Conc. Slabs	Each	-				
Prestr. Conc. Slabs	Each	-				
Prestr. Conc. Slabs	Each	-				
Type Prestr. Conc. Beams	Each	-				
Type Prestr. Conc. Beams	Each	-				
Type Prestr. Conc. Beams	Each	-				
Type Prestr. Conc. Beams	Each	-				
Type Prestr. Conc. Beams	Each	-				
Metal Parapet Rail #	Lin. Ft.	-	2,500	2,500	8.00	20,000
Metal Parapet Rail #	Lin. Ft.	-				
$\frac{8,990,000}{1,250 \times 108}$ = $66.70/□'						
Removal of old Bridge	All	-	-	-	-	
Maintenance of Traffic	All	-	-	-	-	

Subtotal ______ 8,990,000
Plus ______ Per Cent For Engineering & Contingencies
TOTAL COST $ ______

Sheet ②

OREGON STATE HIGHWAY DEPARTMENT
BRIDGE DIVISION

ESTIMATE SHEET

Bridge Name Columbia River County Mult. Bridge No. 9555
Section and Station Highway I-205
Estimate Made By Wood Date 10-3-69 Checked By Date
Description

Main Spans
500' H.C.
157' V.C.

Estimate From
(Strike out the ones which do not apply)
- No plans
- Sketch
- Completed plans; Drawing No.

Calculation Book No.
Loading

ITEMS	UNIT	QUANTITIES			COST	
		Substruct.	Superstruc.	Total	Rate	Amount
Shoring, Cribbing Etc.	All	-	-	-	-	75,000
Structural Excavation	Cu.Yd.	10,630	-	10,630	7.50	79,700
Excavation Below Elevation Shown	Cu.Yd.		-			
Untreated Timber Piling	Lin.Ft.		-			
Treated Timber Piling	Lin.Ft.		-	31,200	6.00	187,200
Steel Piling 14 BP 73	Lin.Ft.	31,200	-			
Prestr. Conc. Piling	Lin.Ft.		-			
Drive Timber Piling	Each		-	624	200.00	124,800
Drive Steel Piling 14 BP 73	Each	624	-			
Splice Steel Piles	Each		-			
Drive Prestressed Concrete Piling	Each		-	19,140	100.00	1,914,000
Class "A" Concrete	Cu.Yd.	13,100	6,040	5,310	40.00	212,000
Seal Concrete	Cu.Yd.	5,310	-	4,135,000	0.15	620,000
Metal Reinforcement	lbs.	2,625,000	1,510,000			
Lumber	F.B.M.			18,300,000	0.45	8,230,000
Structural Steel	lbs.		18,300,000			
Structural Steel	lbs.					
Prestr. Conc. Slabs	Each	-				
Prestr. Conc. Slabs	Each	-				
Prestr. Conc. Slabs	Each	-				
Prestr. Conc. Slabs	Each	-				
Type Prestr. Conc. Beams	Each	-				
Type Prestr. Conc. Beams	Each	-				
Type Prestr. Conc. Beams	Each	-				
Type Prestr. Conc. Beams	Each	-				
Type Prestr. Conc. Beams	Each	-		3,050	8.00	24,400
Metal Parapet Rail #	Lin.Ft.	-	3,050			
Metal Parapet Rail #	Lin.Ft.	-				
11,467,100 / 1,525 × 108 = $69.60/01						
Removal of old Bridge	All	-	-	-	-	
Maintenance of Traffic	All	-	-	-	-	11,467,100

Subtotal
Plus ______ Per Cent For Engineering & Contingencies
TOTAL COST $

Sheet ③

OREGON STATE HIGHWAY DEPARTMENT
BRIDGE DIVISION

ESTIMATE SHEET

Bridge Name Columbia River County Mult. Bridge No. 9555
Section and Station ______ Highway I-205
Estimate Made By Wood Date 10-3-69 Checked By ______ Date ______
Description

Approach Spans
85' ave. V.C.

Estimate From
(Strike out the ones which do not apply)
- No plans
- Sketch
- Completed plans; Drawing No.

Calculation Book No. ______ Loading ______

ITEMS	UNIT	QUANTITIES			COST	
		Substruct.	Superstruc.	Total	Rate	Amount
Shoring, Cribbing Etc.	All	-	-	-	-	25,000
Structural Excavation	Cu.Yd.	1,000	-	1,000	7.50	7,500
Excavation Below Elevation Shown	Cu.Yd.		-			
Untreated Timber Piling	Lin.Ft.		-			
Treated Timber Piling	Lin.Ft.		-			
Steel Piling 14 BP73	Lin.Ft.	2,100	-	2,100	6.00	12,600
Prestr. Conc. Piling	Lin.Ft.		-			
Drive Timber Piling	Each		-			
Drive Steel Piling 14 BP73	Each	42	-	42	200.00	8,400
Splice Steel Piles	Each		-			
Drive Prestressed Concrete Piling	Each		-			
Class "A" Concrete	Cu.Yd.	1,400	832	2,232	100.00	223,200
Seal Concrete	Cu.Yd.	400	-	400	40.00	16,000
Metal Reinforcement	Lbs.	280,000	208,000	488,000	0.15	73,200
Lumber	F.B.M.					
Structural Steel	Lbs.		1,215,000	1,215,000	0.45	546,000
Structural Steel	Lbs.					
Prestr. Conc. Slabs	Each	-				
Prestr. Conc. Slabs	Each	-				
Prestr. Conc. Slabs	Each	-				
Prestr. Conc. Slabs	Each	-				
Type Prestr. Conc. Beams	Each	-				
Type Prestr. Conc. Beams	Each	-				
Type Prestr. Conc. Beams	Each	-				
Type Prestr. Conc. Beams	Each	-				
Type Prestr. Conc. Beams	Each	-				
Metal Parapet Rail #	Lin.Ft.	-	420	420	8.00	3,360
Metal Parapet Rail #	Lin.Ft.	-				
Removal of old Bridge	All	-	-	-	-	
Maintenance of Traffic	All	-	-	-	-	

$$\frac{915,260}{210 \times 108} = \$40.30/\square$$

Subtotal 915,260
Plus ______ Per Cent For Engineering & Contingencies
TOTAL COST $ ______

DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

Address reply to:
COMMANDER (o-4)
Thirteenth Coast Guard District
618 Second Ave.
Seattle, Wash. 98104

3271
25 September 1969
Serial 974

Mr. Ivan D. Merchant
Bridge Engineer
State of Oregon
Oregon State Highway Department
Salem, Oregon 97310

Dear Mr. Merchant:

Your latest plan for the I-205 bridge over the Columbia River has been covered by the Coast Guard Public Notice No. 69-19 dated 21 August 1969. To date, objections have been received from:

1. Port of The Dalles
2. Port of Camas - Washougal
3. Pacific Inland Navigation Co.
4. Tidewater Barge Lines
5. Carl A. Peterson, M. D. - Citizens Committee for the Columbia River.

I am enclosing a copy of each of these letters. Additional comments opposing the proposed bridge may be received, in which case they will likewise be forwarded to you.

It is requested that you review each letter and furnish comments relative to the questions asked. Normally, a bridge applicant is requested to meet with objectors and attempt a compromise or withdrawal of objections. As these objections concern very major modifications, it appears that your comments and rough estimate of cost involved is the appropriate course at this time.

I further note, in examining sheet 1 of 6 of the drawings submitted and included in the Public Notice, that the main channel of the Columbia River is not indicated. You have shown the Oregon-Washington state line. This does not correspond with the centerline of channel as depicted by the U. S. Army,Corps of Engineers, on their drawing No. CL-110-33, dated 7 August 1969. The angular change in the channel centerline on the Corps' drawing, just east of proposed bridge, is about 22 degrees. The state boundary line angle change on your drawing is only 6 degrees. I am, therefore, returning the original drawing for you to correct. As this item is of utmost interest to the maritime industry, I may find it necessary to republish the notice with the revised drawing.

Your early reply to the drawing problem will be appreciated. Should you

Dill 6

have any questions, please feel free to call either me or Mr. J.E. Shields at any time.

Sincerely yours,

N. G. NELSON
Lieutenant Commander, USCG
Chief, Aids to Navigation Branch
By direction of the Commander
Thirteenth Coast Guard District

Encl. (1) Ltrs of objection as noted
(2) cc Corps dwg CL-110-33
(3) Bridge appl. dwg, Sheet 1 of 6

RECEIVED
OREGON STATE HIGHWAY DEPT.
BRIDGE DIVISION
AM SEP 29 1969 PM
7,8,9,10,11,12,1,2,3,4,5,6

September 19, 1969

Commander
Thirteenth Coast Guard District
618 Second Avenue
Seattle, WA 98104

Re: Public Notice 69-19 - Proposed Bridge Across Columbia River Near Portland, Oregon

Dear Sir:

I wish to register a protest against several aspects of the proposed work with regard to the I-205 bridge as proposed. I have previously registered a complaint on Public Notice 68-10 and I find, for the most part, much of this material is still applicable. In answering that complaint, you had indicated that some changes would be made whereby the small craft channel would describe an angle less acute than 45° with the bridge; I find that the new proposal is almost identical to the old in this regard. This does constitut a navigational hazard and, in fact, possibly a greater one than indicated inasmuch as even though the channel is diagramed at a 45° angle, it might well be more acute than this, paralleling the bridge to a greater degree. At this point, it is only guesswork as to the exact course the current will take in this newly dredged area. It is further pointed out that the south channel is used for towing log rafts and I feel it will be impossible to tow through the small boat channel without wrapping the tow about the southerly pier of this channel. This statement is based upon claims that tugs are unable to clear the railroad bridge with tows if they elect to use the "hump" in the present interstate highway bridge. Here, the angulation of current to bridge would be far greater than 45° and probably on the order of 75 to 80°.

While it is admitted that the small craft channel does have vertical clearance for the majority of the sailboats using the Columbia River, even at high water, there still may be a few larger boats that would be unable to navigate this channel. This would preclude using the proposed boat basin for any large sailboat. This is important because the Port of Portland has made a point of comparing the Columbia Bay with Shilshole Bay, the former being 2-3 times larger than the latter. It is noted that Shilshole Bay is used very extensively by sailboats. While you have pointed out that the spans northerly from the small craft channel have more vertical clearance, you have overlooked the fact that extensive shoaling can be expected from the tip of the Government Island remnant, particularly on its north shore, which would probably extend well into spans 21 and 22 and possibly span 23, which would tend to lock tall sailboats in the south channel and prevent their crossing the river to the northerly spans of greater vertical height.

I am certain that these are the reasons that Rose City Yacht Club and the Sea Scouts have elected to remain outside of Columbia Bay; there are others. A second major objection is based on the bridge height at its northerly end. Prior to a FAA hearing on air space use with regard to PIA which was held on September 25-26, 1968, the FAA issued the public notice that the bridge, as proposed, technically violated the FAA regulation by extending 38 feet higher than the desired standards. (See Appendix A.) In the determination following the hearing, (see Appendix B) Mr. McKnight makes no reference to this technical violation nor does he comment on its relationship to air safety. This may well be because the bridge itself was not approved at that time and existed only as a proposal. Now that the Port of Portland has been granted permission to proceed with their airport plans, it would seem that it is the bridge that will violate this technicality rather than the location of the airport. The explanation that the terrain is already 310 feet above sea level north of the airport is not a valid excuse to permit this violation; ie: two wrongs do not make a right. In further explanation of the dangers, it must be pointed out that the ~~best~~ east end of the northerly runway which abuts the bridge is the preferential runway end for landing in westerly winds and for take-offs in easterly winds. Both "wave offs" on landing and "aborts" on taking off will be riverward because of proposed commercial development between the runways. This means that I-205 bridge will form the effective backstop for such "wave-offs" and "aborts". (I personally have been "waved-off" at O'Hare Field at near housetop heights & certainly we would not have cleared any 180 feet structures before climbing to the minimum circling elevation.).

Attention is directed to Appendix C, a news clipping with the most recent modification of Columbia Bay. Comparison of this plan with the one for which you are requesting approval as designed by the Oregon State Highway Commission, revised February 14, 1969, shows few similarities. Neither plan provides for the riverward relocation of Marine Drive, even though this was a major item of issue with both the Port of Portland and Multnomah County. Marine Drive is planned as part of the recreational complex, and therefore, presumably was at least one of the determining features whereby all federal agencies have granted approval. Nevertheless, in studying your bridge plans, I find no way whereby Marine Drive can be brought under the bridge or the bridge approaches without being subject to flooding or over it without impinging upon air space needed for air safety. Therefore, this plan should be resubmitted to make its design in accord with the recreational promises of the Port of Portland and Multnomah County.

You may have been or may yet be advised by Marvin Durning, Attorney for the Citizen's Committee for the Columbia River and the Sierra Club that a Complaint for Declaratory Judgment and Injunction has been brought against several federal officials and agencies with regard to the Corps of Engineers' dredge and fill permit. This Complaint has been filed in the Oregon District Court. Inasmuch as the southerly bridge approaches are involved in the challenged dredge and fill plan, the outcome of this litigation will, of course, affect the overall appropriateness of the bridge design and your approval thereof.

Sincerely yours,

Carl A. Petterson M.D.
CARL A. PETTERSON, M. D.
President
Citizen's Committee for the
Columbia River

RECEIVED
OREGON STATE HIGHWAY DEPT.
BRIDGE DIVISION
AM SEP 2 9 1969 PM
7,8,9,10,11,12,1,2,3,4,5,6

PORT OF THE DALLES
THE DALLES, OREGON
"An Inland Seaport Serving an Empire"

COMMISSIONERS
WILBUR F. KELLY, PRESIDENT
PAUL R. VOGT, VICE-PRESIDENT
DEL GOSS, SECRETARY
CARL R. LONG, TREASURER
JOSEPH D. KELLY
MANAGER
A. O. DEFRATE

September 19, 1969

Office of the Commander
Thirteenth Coast Guard District
618 - 2nd Avenue
Seattle, Washington 98104

Attention: Aids to Navigation Branch

Dear Sir:

RE: Proposed Bridge across Columbia River Near Portland, Oregon
PUBLIC NOTICE NO. 69-19

Port of The Dalles opposes construction of a fixed highway bridge at Columbia River Mile 112.7, near Portland, Oregon referred to in Public Notice No. 69-19, as presently planned.

Port of The Dalles is on an existing deep-draft shipping channel improvement project from Vancouver, Washington to The Dalles, Oregon as authorized by the Rivers and Harbors Act of the Congress dated August 26, 1937 and modified by the Acts of March 2, 1945 and July 24, 1946.

The Columbia River Waterway System is being increasingly used for maritime commerce of the United States, and it is credibly forecast to experience dramatic future growth. An Industrial Development District immediately adjacent to The Dalles containing six thousand plus acres, on the Federally Authorized Channel, is available for industry and Dow Chemical Company has recently acquired property in this area for construction of a Magnesium Reduction Plant. Movement of raw material to this plant in the future could very possibly be by water. Other industries are now evidencing interest in locating in this area and are also inquiring as to channel depth, waterfront availability, et cetera.

It is therefore necessary that deep-draft shipping interest of the Columbia River ports up-stream from Vancouver, Washington protect adequate access for both present and future navigable vessels.

Attention: Aids to Navigation Branch

The navigational Clearances proposed on the main channel for the bridge by the Oregon State Highway Department are substantially less than the vertical clearances for down-river bridges and power lines. Port of The Dalles is on record and requests that this bridge be compatible in all respects with bridges downriver from the proposed location so that the structure does not inhibit growth and expansion of Columbia River ports up-stream from the proposed bridge.

Port of The Dalles further requests that consideraton be given to a minimum vertical clearance of 178 feet above mean low water and a minimum horizontal clearance of 500 feet, as included in a resolution adopted by the Inland Empire Waterways Association October 17, 1966, in Walla Walla, Washington. Copy Attached) This resolution is also supported by Port of Camas-Washougal March 10, 1967. (Copy Attached)

We respectfully request your consideration of our position.

Very truly yours

PORT OF THE DALLES

A O DeFrate

A. O. DeFrate
Manager

AOD:H

Encl. 2

cc: Inland Empire Waterways Association
Walla Walla, Washington

Port of Camas-Washougal
Camas, Washington 98607

RECEIVED
OREGON STATE HIGHWAY DEPT.
BRIDGE DIVISION
AM SEP 22 1969 PM
7,8,9,10,11,12,1,2,3,4,5,6

September 19, 1969

Commander
Thirteenth Coast Guard District
618 Second Avenue
Seattle, WA 98104

RE: Public Notice 69-19 - Proposed Bridge Across Columbia River Near
Portland, Oregon

Dear Sir:

In the letter of protest dated September 19, 1969 and signed by me, please correct the following error:

Page 2, second line and the second word should read east instead of west.

In other words, it is the east end of the northerly runway which abuts the bridge that is the preferential runway end.

Sincerely yours,

CARL A. PETTERSON, M. D.
President
Citizen's Committee for the
Columbia River
2612 S.E. Ellsworth Road
Vancouver, WA 98664

RECEIVED
OREGON STATE HIGHWAY DEPT.
BRIDGE DIVISION
AM SEP 23 1969 PM
7,8,9,10,11,12,1,2,3,4,5,6

PORTLAND, ORE. (503) 281 [illegible]
VANCOUVER [illegible] 1491

TWX
(510) 770-

TIDEWATER BARGE LINES

GENERAL OFFICES
6 S. E. BEACH DRIVE
VANCOUVER, WASHINGTON 98661

Sept. 17, 1969

Commander
Thirteenth Coast Guard District
Attn: Aids to Navigation Branch
618 Second Avenue
Seattle, Washington 98104

Gentlemen:

Tidewater Barge Lines wishes to state its objections to the horizontal clearance and location of the proposed Columbia River Bridge near Portland, Oregon as described in your Public Notice No. 69-19.

We are presently operating through the proposed bridge site multiple tows of 650 ft. in length and also a single seagoing barge 480' X 72' with two tugs, (one tug pushing and one tug towing) for a combined length of approximatley 1200 ft. The size and loaded draft of this single seagoing barge dictates the necessity of a powerful sea tug (15 ft. draft) in high water or a river tug in normal water, on a 500 ft. towline to assist the pusher tug up and down stream. The presence of the proposed bridge with restricted clearance, and a turn in the navigation channel immediately upstream would complicate each tugs duty to negotiate the turn, correct the side slipping of the tow coming out of the turn, compensate for wind conditions while at the same time align all three vessels to the bridge span. This maneuver would be difficult under the most favorable conditions and almost impossible under adverse weather and during high water.

We therefore respectfully ask that a horizontal clearance of not less than 500 ft. perpendicular to the channel and a straight sailing channel in excess of ½ mile upstream and ½ mile downstream be maintained in order to insure the operations and safety of multiple and single tows now operating through the proposed bridge site.

RECEIVED
OREGON STATE HIGHWAY DEPT.
BRIDGE DIVISION
AM SEP 29 1969 PM
7,8,9,10,11,12,1,2,3,4,5,6

Very truly yours,

Tidewater Barge Lines

Lew Russell Jr.

Lew S. Russell, Jr.
President

LSRJr:bt

pac
6305 N.W. LOWER RIVER ROAD
VANCOUVER, WASHINGTON 98660
206/693-2548   503/285-4606

Operations Headquarters

September 5, 1969

Commander, U. S. Coast Guard
Thirteenth Coast Guard District
618 Second Avenue
Seattle, Washington 98104

Subject: Public Notice No. 69-19
Proposed Bridge Across Columbia River Near Portland

Attention: Capt. R. E. Emerson

Dear Sir:

Pacific Inland Navigation Company, Inc., hereby objects to the proposed horizontal clearance of the bridge described in the subject Public Notice No. 69-19. Also we object to the location in relation to the turn in the navigation channel just above the bridge.

This company has been hopeful that since the Department of Transportation took over the responsibility for bridge clearance, and the Coast Guard being naturally cognizant of navigation problems, there would be an end to the continuous chain of obstructions which have been hampering navigation over the past years.

A glaring example is the new interstate bridge approximately six miles down stream from the proposed bridge. This bridge was built in 1958 alongside the old bridge with a lift span of only 250 ft. horizontal clearance. In other words, the mistakes built into a bridge in 1917 was repeated in 1958. An attempt was made to placate navigation interests by building, at great expense, a hump in both bridges with 500 ft. horizontal opening; however because of the angle to the rail road bridge just below, it can seldom be used by tows coming downstream.

All of our tugs and most other tugs in this area use radar during periods of poor visibility. There are plenty of records showing the frequency of poor visibility weather, high water and wind.

The proposed bridge at Mile 112.7 is located immediately below a turn in the navigation channel which means that a tow of barges 600 ft. long coming down stream would be coming out of a turn at an angle of approximately 45 degrees to the bridge, and expect to pass through an opening 400 ft. wide. This would be critical under most favorable conditions and next to impossible with wind, high water or poor visibility.

The vertical clearance proposed on this bridge is ample for barges and tugs of the present or those in the forseeable future. Vertical is not critical as long as there is room above the highest fixed point on the vessel. Horizontal clearance must be much greater than the width of a tow to take care of side slip in wind and current, crabbing in case of a long tow and pilot judgment in all cases. Each time a bridge is built, even with reasonable clearance, another hazard is added to the overall problem of navigation.

In view of the reasons stated above we respectfully ask that horizontal clearance be provided at not less than 500 ft. horizontal measured perpendicular to the channel and that the turn in the channel be not closer than ½ mile on the upstream side of the bridge.

Very truly yours,

PACIFIC INLAND NAVIGATION CO., INC.

Paul W Light
Paul W. Light
Traffic Coordinator

PWL:P

RECEIVED
OREGON STATE HIGHWAY DEPT.
BRIDGE DIVISION
AM SEP 23 1969 PM
7,8,9,10,11,12,1,2,3,4,5,6

½

PORT OF CAMAS-WASHOUGAL

PHONE AC 206 835-5646 P. O. BOX 1017 CAMAS, WASHINGTON 98607

COMMISSIONERS
D. J. McDOUGALL, M. D.
JOSEPH A. DAINES
M. L. SCHWARY

31 March 1967

District Engineer
U.S. Army Corps of Engineers
Portland District
628 Pittock Block
Portland, Oregon

Dear Sir:

References made to your Public Notice No. 67-22 of 28 February 1967 re: Columbia River Bridge.

In answer to your request for comments, basically we take the position and will continue to, unless proven otherwise, that a 178 foot clearance is consistent with future navigational requirements on the Columbia River, based on growth potential.

The Port of Camas-Washougal appears to be the furthest inland free-water port on the river and, as such, we can visualize a future terminal operation potential at Camas-Washougal. As the demand for more waterfront facilities becomes greater, we have to assume that eventually there will be a definite need for the Camas-Washougal area to build deep-water port facilities.

If, when limitations are placed on the Columbia River which would hamper deep-water shipping in the future; the industrial sites which are now available may never be filled. A restricted clearance bridge would have the effect of closing the door, thus terminating deep-draft shipping at somewhere west of the proposed I 205 bridge.

We, therefore, support Resolution No. 66 (copy enclosed) adopted at the annual convention of the Inland Empire Waterways Association on 18 October 1967 because, although we have asked the question several times of several people, at this point no one has yet adequately answered the question of why the second span of the Interstate Bridge between Vancouver and Portland was built some seven years ago to the same height as the original span if, in fact, there was no need for the additional 30 feet. This span, we understand, is 178 feet above mean low water. If there is some reason why it was necessary, seven years ago, to build the second span identical to the first; we would like to have an explanation. It follows, then, that if, in fact, this was needed; why is 148 feet above mean low water sufficient at the proposed location of I 205 bridge?

We understand that the Portland International Airport approach patterns could possibly be in conflict with a 30 foot additional vertical clearance on this bridge; however, it is

WILLIAM R. VOLPENTEST, MANAGER

our understanding that Portland International employs a left-hand approach pattern and we wonder how a bridge located northeast of the airport could possibly have any effect on a left-hand approach into the airport from the east since, in order to make a left turn to the west, you must approach from the south.

Second enclosure is a brief ships characteristics tabulation. It is not all-inclusive, but it does show that during periods of high water when the proposed vertical clearance of the bridge is 123 feet, that in the case of American President Line ships, States Line ships, and the C3 hull, as listed on the enclosure, these ships could not pass beneath the bridge when in a light ship condition.

Your consideration in determining final clearances for subject bridge is appreciated and, we are confident, will reflect sound future planning so as not to hamper the navigational requirements of the Columbia River.

Sincerely,

PORT OF CAMAS-WASHOUGAL

William R. Volpentest

WRV:dg

Enclosures

Copy to:
Inland Empire Waterways Association
Washington Public Ports Association
Port of Walla Walla
Port of Klickitat
Port of The Dalles

RECEIVED
OREGON STATE HIGHWAY DEPT.
BRIDGE DIVISION
AM SEP 29 1969 PM
7,8,9,10,11,12,1,2,3,4,5,6

Adopted by THE INLAND EMPIRE WATERWAYS ASSOCIATION at its 33rd Annual Convention October 17, 1966, in Walla Walla, Washington

RESOLUTION NO. 66

INTERSTATE 205 BRIDGE CLEARANCE, COLUMBIA RIVER

The proposed Interstate 205 Bridge across the Columbia River has a vertical clearance of 135 feet above mean low water and a horizontal clearance of 337 feet. The Inland Empire Waterways Association promotes safe and efficient navigation. The proposed clearances are considered to be a severe restriction to both ships and barges. The proposed clearance would not reflect sound future planning.

This Association strongly urges that clearances on this span be changed to a minimum vertical clearance of 178 feet above mean low water and a minimum horizontal distance of 500 feet.

RECEIVED
OREGON STATE HIGHWAY DEPT.
BRIDGE DIVISION
SEP [illegible] 1969 PM
7,8,9,10,11,12,1,2,3,4,5,6

84105

8

RECEIVED
MAY 6 1969

FOR FILING

April 30, 1969

Mr. R. E. Simpson
Division Engineer
Bureau of Public Roads
477 Cottage Street, N. E.
Salem, Oregon

Dear Sir:

We are in receipt of the Federal Aviation Administration's approval of the proposed I-205 bridge location across the Columbia River. Further processing of our application for a crossing permit by the Coast Guard will await action of the Corps of Engineers in approving the Port of Portland's airport development plan.

In the meantime, I wish to clarify the situation with respect to the Department of Interior's stance concerning the fish and wildlife aspects of Government Island, which is currently a game refuge. By a letter of July 3, 1968 the U. S. Department of Interior, over the signature of Joe D. Dwyer, approved the State's application for a navigation permit subject to the following condition:

> "...That the Oregon State Game Commission lands affected by the project be replaced with substitute lands, which are acceptable to the Game Commission..."

Since that time, actions by the Game Commission, the Port of Portland and the U. S. Department of Interior (as evidenced by copies of the attached three communications) have indicated that this matter has been satisfactorily settled. This data has been furnished to the Coast Guard, as evidenced by a letter attached.

Please advise if you wish anything further in this regard.

Very truly yours,

Forrest Cooper
State Highway Engineer

By

Tom Edwards
Assistant State Highway Engineer

TE:ja

Attachments

bc Forrest Cooper
R. L. Porter
Victor D. Wolfe
Ivan Merchant

RECEIVED
FEB 18 1969
FOR FILING

Const
R/W
E & F

Col. R. Kang
7225

Coast Guard

February 17, 1969

Commander Victor Koll
Chief, Aids to Navigation Branch
U. S. Coast Guard
13th Coast Guard District
618 Second Avenue
Seattle, Washington 98104

Re: Interstate 205
Columbia River Bridge
Navigation Permit

Dear Sir:

By letter of July 12, 1968, the U. S. Department of the Interior (Joe D. Dwyer) approved the State's application for a navigation permit subject to the following condition:

> "That the Oregon State Game Commission lands affected by the project be replaced with substitute lands, which are acceptable to the Game Commission."

The State has been advised that the Port of Portland and the Oregon State Game Commission have been in negotiation for the exchange of lands suitable to the Game Commission and that the Port of Portland has made commitments to the Game Commission to resolve this exchange of lands to the full satisfaction of the Game Commission.

The State is in receipt of a letter from the U. S. Department of the Interior stating that in view of the commitments made by the Port of Portland, they are withdrawing their objection to the Oregon State Highway Department's application for a navigation permit.

Very truly yours,

Forrest Cooper
State Highway Engineer

By

Tom Edwards
Assistant State Highway Engineer

bc Forrest Cooper
R. L. Porter
Victor D. Wolfe
Ivan Marchant

IDM:jr ja

MARCH 3, 1849

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF THE SECRETARY
PACIFIC NORTHWEST REGION
FEDERAL BUILDING, P. O. BOX 3621
PORTLAND, OREGON 97208

February 6, 1969

Mr. Forrest Cooper
State Highway Engineer
Oregon State Highway Department
Highway Building
Salem, Oregon 97310

Dear Mr. Cooper:

This replies to Mr. Edward's letter of January 15, 1969, concerning your application for a permit for construction of an I-205 bridge across the Columbia River.

We have reviewed the attachments submitted with Mr. Edward's letter and discussed this matter with the Oregon State Game Commission. In view of commitments made by the Port of Portland to the Game Commission for exchange of lands, we are withdrawing our objection to your application.

Sincerely yours,

Joe D. Dwyer

Joe D. Dwyer
Regional Coordinator

cc:
Messrs. Agee, Bowen, Burroughs,
Cleaver, Findlay, Garside, Imler,
Johnson, Overly

RECEIVED
OREGON STATE HIGHWAY DEPT.
BRIDGE DIVISION
AM FEB 10 1969 PM
7,8,9,10,11,12,1,2,3,4,5,6

✓

RECEIVED
FEB 7 1969
OFFICE OF
STATE HIGHWAY ENGINEER

Ivan
Rtd to Koth

RE[illegible]
JAN 16 1969
F[illegible]

Const

R/W
EPF

Col. R. King

January 15, 1969

Mr. Joe D. Dwyer
Office of the Secretary
U.S. Department of the Interior
Pacific Northwest Region
P. O. Box 3621
Portland, Oregon 97208

Forrest Cooper
R. L. Porter
Victor D. Wolfe
Ivan Merchant (enc.)

Dear Sir:

In presenting the Department's application to the U. S. Coast Guard for a permit for construction of an I-205 bridge across the Columbia River, the Coast Guard advised us that it would be encumbent upon us to effectively remove or satisfy the objection made by your department. If we are correct, your statement was:

"We approve this application subject to the following condition:

> That the Oregon State Game Commission lands affected by the project be replaced with substitute lands which are acceptable to the Game Commission..."

While we believe that the matter of exchange of lands between the Game Commission and the Port of Portland is not within our jurisdiction, we present for your consideration a statement from the Port of Portland and a statement presented by the Game Commission at the Federal Aviation Administration hearing on September 25, 1968.

Will you please advise if this does in effect answer the objection which you entered in the record at the hearing at which testimony was presented concerning the applicaton for the bridge construction permit.

Very truly yours,

Forrest Cooper
State Highway Engineer

By

TE:ja

Tom Edwards
Assistant State Highway Engineer

Attachments

COMMISSION
DENNIS J. LINDSAY
President
LEE E. CALDWELL
Vice President
ERLING E. JACOBSEN
Secretary
ROBERT B. WILSON
Treasurer
LEW S. RUSSELL
HOWARD B. SOMERS
DONALD G. DRAKE
HAROLD S. HIRSCH
JOHN S. BRANDIS

GEORGE M. BALDWIN
General Manager

THE PORT OF PORTLAND

BOX 3529 PORTLAND, OREGON 97208 Telephone (503) 224-4260
Lindsay Building 710 S.W. 2nd Avenue

January 8, 1969

Oregon State Highway Department
State Highway Building
Salem, Oregon 97310

Attention: Mr. Tom Edwards

Gentlemen:

As discussed with Mr. Merchant of your office this date, we are continuing negotiations for property to be exchanged for the Game Commission lands on Lemon, McGuire, and Government islands as a part of our Portland International Airport expansion program. Attached is testimony given by Mr. George Hibbard, a member of the Oregon State Game Commission, at the public hearing held by the Federal Aviation Administration on September 25, 1968, confirming this fact.

As you know, we have been in discussions with the State Game Commission from the very beginning of our planning on the expansion program since Game Commission property is affected. Several alternate parcels have been under review, and during the past summer it was resolved by the Game Commission that one general area - a part of Sauvie Island Wildlife Management Area - would best serve its needs as a replacement for the islands.

Two Commissioners from the Game Commission and two from The Port of Portland form a committee to resolve this problem, and they have met on various occasions to discuss the alternate sites being considered in the exchange. The primary item to be resolved is the price to be paid the land owners for the alternate site being negotiated for. Also involved is the possible exchange of lands at another location for one of the suitable sites.

Major Continuing Projects:
AVIATION—PORTLAND INTERNATIONAL AIRPORT, PORTLAND-HILLSBORO AIRPORT, PORTLAND-TROUTDALE AIRPORT, AND SWAN ISLAND HELIPORT
LAND DEVELOPMENT—SWAN ISLAND INDUSTRIAL PARK, RIVERGATE INDUSTRIAL DISTRICT, AND PORT CENTER
MARINE—PIPELINE DREDGE OREGON, STERNWHEEL STEAMER PORTLAND, AND SWAN ISLAND SHIP REPAIR YARD

As you can see, the transaction is complicated; however, this office has made a firm commitment to the Oregon State Game Commission to exchange lands considered suitable by the Game Commission but cannot proceed with the actual purchase until after approval of the Portland International Airport expansion program by the Federal agencies. It is our recommendation that the U. S. Coast Guard be requested to approve your permit "subject to The Port of Portland's complying with the bona fide requirements of the Department of the Interior and other affected agencies or departments."

If there are any further questions regarding this matter, please feel free to call.

Sincerely yours,

THE PORT OF PORTLAND

AJ Heineman

A. J. HEINEMAN
Assistant General Manager

AJH:mh
Enclosure

RECEIVED
JAN 9 1969
OFFICE OF
STATE HIGHWAY ENGINEER

Tape #5 taken at
FAA Hearing 9/25/68

FOR THE PIA EXPANSION

OREGON STATE GAME COMMISSION (Called to BPA office by Mr. P. W. Schneider)

Mr. Chairman:

My name is George Hibbard. I am a member of the Oregon State Game Commission. I am appearing here on behalf of the Commission in response to the public notice dated August 15, 1968.

The land owned by the Oregon State Game Commission on Government Island is a unit of the Sauvies Island Wild Life Management Area and is serving a useful purpose in our Wild Life Management Program.

Progress has decreed that these lands are necessary for the proposed airport expansion and Interstate Highway I-205 location. Fortunately, however, there are suitable replacement areas of at least equal wild life values located in comparable relationship to the Sauvies Island base.

At the request of The Port of Portland some months ago, the Commission identified after careful consideration these suitable replacement areas that we would accept in exchange for Government Island.

An exchange has been agreed upon based on the Commission's best conservation judgment that would provide the Game Commission with an area of equal wild life value. Although this exchange has not been consummated to date, its completion is anticipated in the near future.

Thank you.

/cav

Coml
R/H
GPF

Col R Br

DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

Address reply to:
COMMANDER (o-4)
Thirteenth Coast Guard District
618 Second Ave.
Seattle, Wash. 98104

3271
2 January 1969
Serial 1359

7132

Mr. Tom Edwards
Assistant State Highway Engineer
Oregon State Highway Department
Highway Building
Salem, Oregon 97310

Dear Mr. Edwards:

Your letter of 26 December 1968 concerning your application for permit to construct a bridge across the Columbia River East of Portland/Vancouver has been received. I am going to hold the application without taking any action until the Portland Airport and associated river dredging has been resolved and permit issued (or denied) by the Corps of Engineers.

After the Airport decision is resolved, I will welcome a conference with you on how to handle the objections and whether additional public notice may be necessary. I will notify you as soon as I have any new information from the Corps of Engineers. However, the best information at this time is that possibly two months may pass before the decision is made.

Sincerely yours,

Victor Koll
VICTOR KOLL
Commander, U. S. Coast Guard
Chief, Aids to Navigation Branch
By direction of the Commander
Thirteenth Coast Guard District

Discussed with Arnold & Adams Heinemann 1/8/69

NOTED
TOM EDWARDS

Tom
Ivan
Discuss complaint from Dept of Interior w/ [illegible]
E

BRIDGE SECTION
RECEIVED

Cooper
Klopfer
Nelson
Johnson
1-3-69

NOTED
IVAN D. MERCHANT

RECEIVED
JAN 16 1969
OFFICE OF
STATE HIGHWAY ENGINEER

RECEIVED
JAN 3 1969
OFFICE OF
STATE HIGHWAY ENGINEER

RECEIVED
DEC 27 1968
FOR FILING

Cust
R/W
EPF

Col. R. Br.
7045

December 26, 1968

Commander Victor Koll
Chief, Aids to Navigation Branch
United States Coast Guard
Thirteenth Coast Guard District
618 Second Avenue
Seattle, Washington 98104

Dear Sir:

Thank you for your letter of November 25 concerning our application for a bridge crossing permit on the route of I-205 across the Columbia River. Since receipt of your letter, we have conferred with the Port of Portland and have studied the complaints which you received and forwarded to us on July 12.

Referring to the 12 letters of objection, the following comments relate to the areas in which the objections appeared to be oriented. These comments reflect our interpretation of each piece of correspondence and are as follows:

1. Bridge Alignment and Location. Objectors No. 1, 5, and 6 object to the alignment of the bridge with respect to the new south channel as proposed by the Port of Portland and/or to the location of the northerly terminus of the bridge. Alignment of the bridge is covered under 2 below, "Navigational Hazards". With respect to the north shore location of the bridge, this site was selected by the Washington State Highway Department, and the Oregon State Highway Department's responsibility in this regard is the determination as to whether the bridge can be constructed to conform with the airport approach criteria and still meet the Washington State Highway Department requirements. We believe adequate consideration was given to alternate locations by the Washington State Highway Department.

2. Navigational Hazards (small boat channel). Objectors No. 1, 2, 5, and 6 based their protests on alleged inadequate clearances in the relocated south channel. The lateral clearance at right angles to the channel is the same between piers now as was previously proposed and approved. Vertical clearance has been increased in this area from some 48 feet to 69 feet above low water. Actually, during the major part of the year, currents are slow and vessels can safely use any of the spans giving unlimited clearance for small vessels.

3. Vertical Clearance. Objectors No. 4 and 7 refer specifically to main channel vertical clearance for future upriver navigational capabilities. Objector No. 11 expresses general concern for the future navigation capabilities of the river. The vertical clearance proposed in our application is the same as was originally proposed and approved. No evidence was presented at the public hearing to justify greater clearance. Facts were presented to show that all traffic which could be expected to use the channel would have adequate clearance.

4. Objection to Coast Guard Notice. Objectors No. 3 and 9 object to the notice itself, primarily because of the lack of approval of the airport expansion program. Since the Oregon State Highway Department approves of the airport expansion concept as proposed by the Port of Portland, the application for a bridge permit is justified and these objections are felt to be invalid.

5. This item includes objections to Expansion of the Airport; to The Proposed Dredge Fill in the River; to the Hydraulics Resulting from the Proposed Dredging; and to Conservation. These areas of protest by Objectors No. 2, 3, 5, 8, 10, 11, and 12 do not pertain to the I-205 Columbia River Bridge. These items are being considered by the U. S. Corps of Engineers and by the FAA, and comments by the Highway Department would be inappropriate.

It is believed that all objections relative to the proposed bridge itself have been previously voiced and properly considered. Those objections which do not apply to the bridge are outside the area of responsibility of the State Highway Department, and any response by the State

Highway Department to them would be improper. It is believed that evidence already received at the public hearings provides the justification for approval of our permit application.

All of the issues raised by the foregoing objectors were brought out in one or more of the following three public hearings:

1. I-205 bridge, May 25, 1967, by the Corps of Engineers.

2. The airport plan, August 1, 1968, by the Corps of Engineers.

3. The airport plan, September 25, 1968, by the Federal Aviation Administration.

Transcripts of these hearings are no doubt part of your files.

The present plan for the bridge is in accord with the proposed expansion of the Portland International Airport and should be considered by higher authority at the same time as the airport plan. Our application will provide for a decision on the basis of approval of the airport program.

In summary, it appears that the background and data are such that the application could be processed without further hearings.

Very truly yours,

Forrest Cooper
State Highway Engineer

By

Tom Edwards
Assistant State Highway Engineer

bc Forrest Cooper
R. L. Porter
*F. B. Klaboe
Victor D. Wolfe
Ivan Merchant
*F. D. Morgan
*A. E. Johnson
*Encl

TE:ja

bc Mr. A. J. Heineman
Assistant General Manager
The Port of Portland
Box 3529
Portland, Oregon 97208

COMMISSION
DENNIS J. LINDSAY
President
LEE E. CALDWELL
Vice President
ERLING E. JACOBSEN
Secretary
ROBERT B. WILSON
Treasurer
LEW S. RUSSELL
HOWARD B. SOMERS
DONALD G. DRAKE
HAROLD S. HIRSCH
JOHN S. BRANDIS

GEORGE M. BALDWIN
General Manager

THE PORT OF PORTLAND
BOX 3529 PORTLAND, OREGON 97208 Telephone (503) 224-4260
Lindsay Building 710 S.W. 2nd Avenue

December 17, 1968

Mr. Ivan D. Merchant
Bridge Engineer
Oregon State Highway Department
Salem, Oregon 97310

Dear Mr. Merchant:

As discussed in our office, you will find attached a proposed letter of reply to the United States Coast Guard regarding its delay in forwarding your application for the I-205 bridge to higher authority.

This office feels that the questions raised by the letters of protest to the Coast Guard were all adequately covered by testimony in the three public hearings already conducted and that further delay by the Coast Guard on forwarding its comments to higher authority is unwarranted.

We were advised that the Federal Aviation Administration and the Corps of Engineers will forward their recommendations to higher authority for final decision as soon as their studies are completed. It is suggested that the Coast Guard be urged to coordinate its comments with the other Federal agencies in order that the bridge permit which is directly related to our airport program be considered by higher authority in conjunction with the airport expansion program.

If we can be of further assistance regarding this matter, please feel free to call.

Sincerely yours,

THE PORT OF PORTLAND

A J Heineman
A. J. HEINEMAN
Assistant General Manager

RECEIVED
OREGON STATE HIGHWAY DEPT.
BRIDGE DIVISION
AM DEC 18 1968 PM
7,8,9,10,11,12,1,2,3,4,5,6

AJH:mm
Enclosure

DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

Address reply to:
COMMANDER (o-4)
Thirteenth Coast Guard District
618 Second Ave.
Seattle, Wash. 98104

Public Notice 68-10 re I-205 Br dated 6 June 68

3271
25 November 1968
Serial 1287

RECEIVED
OREGON STATE HIGHWAY DEPT.
BRIDGE DIVISION
AM NOV 29 1968 PM
7,8,9,10,11,12,1,2,3,4,5,6

Mr. Tom Edwards
Assistant State Highway Engineer
Oregon State Highway Department
Highway Building
Salem, Oregon 97310

Dear Mr. Edwards:

Your letter of 22 November 1968 concerning application for a bridge across the Columbia River, Route I-205, has been received. I have been informed that it may be another two to three months before the Corps of Engineers announces its action on the Port of Portland application.

Your last letter of 1 August 1968 stated you proposed to await the outcome of the Portland Airport issue. I had previously mailed you a list of objectors to the proposed bridge on 12 August 1968. You do not mention any effort to resolve the objections listed. It will be necessary for you to attempt to resolve the problems listed in these letters of objection prior to the Coast Guard taking any action.

If you want the Coast Guard to pursue your application further at this time, it will be necessary for you to make such a request and explain what occurred with each objection. Presently I cannot offer you any better schedule concerning the Portland Airport problem. Please let me know what further action you desire from the Coast Guard at this time.

Sincerely yours,

Victor Koll
VICTOR KOLL
Commander, U. S. Coast Guard
Chief, Aids to Navigation Branch
By direction of the Commander
Thirteenth Coast Guard District

Merchant
Pls discuss

copy - Mr Cooper
Mr Porter

NOTED
TOM EDWARDS

RECEIVED
NOV 27 1968
OFFICE OF
STATE HIGHWAY ENGINEER

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF THE SECRETARY
PACIFIC NORTHWEST REGION
FEDERAL BUILDING, P. O. BOX 3621
PORTLAND, OREGON 97208

July 5, 1968

Commander
Thirteenth Coast Guard District
618 Second Avenue
Seattle, Washington 98104

Attention: Commander Victor Koll
Chief, A/N Branch

Re: Public Notice No. 68-10

Dear Sir:

We approve this application subject to the following condition:

> That the Oregon State Game Commission lands affected by the project be replaced with substitute lands which are acceptable to the Game Commission.

The proposed bridge would cross Government Island, most of which is the property of the Oregon State Game Commission. This island plus Lemon and Macguire Islands comprise the Government Island Game Management Area.

We understand plans for a land exchange between the Port of Portland and the Oregon State Game Commission are being considered whereby the Port would obtain ownership of the aforementioned islands. However, final details of the exchange have not been agreed upon.

Other plans are being discussed concerning the land exchange in question. Enclosed is a copy of a letter dated June 20, 1968, to the Corps of Engineers on this subject.

Sincerely yours,

Joe Dwyer
Joe D. Dwyer

cc:
Messrs. Burroughs, Cleaver,
Findlay, Garside, Imler, Johnson,
Jourolmon, Overly, Poston, Rutter

RECEIVED
OREGON STATE HIGHWAY DEPT.
BRIDGE DIVISION
AM AUG 2 - 1968 PM
7 8 9 10 11 12 1 2 3 4 5 6

8405

RECEIVED
MAR 8 - 1969
FOR FILING

February 27, 1969

Commander
13th Coast Guard District
618 Second Avenue
Seattle, Washington 98104

Attention Comdr. Victor Koll
Chief, Aids to Navigation Branch

Re: Columbia River Bridge
Interstate 205
Navigation Permit

Dear Sir:

By letter of January 14, your Serial 49, three sheets of original tracings for the proposed Columbia River Bridge on Interstate 205 were returned to the Highway Department with a print of an aerial view of the proposed airport expansion by the Port of Portland. This letter requested that the drawings be revised to reflect the physical conditions after the completion of the Port of Portland's dredging and airport expansion. Also, that the drawings be amplified to indicate horizontal and vertical clearances on all spans southerly of the main navigation channel.

The above requests have been completed and I am enclosing the original tracings of six drawings with four prints of each drawing and the print of the aerial view prepared by the Port of Portland. It was necessary to amplify the original three drawings by the addition of Sheets 4, 5 and 6 to comply with the requests in your letter of January 14.

Also enclosed are four prints each of three drawings prepared by the Port of Portland, as submitted to the Corps of Engineers for a dredging permit. These drawings are designated PA 68-10, Sheets 1, 2, and 3, and are included for your information.

The original tracings were submitted to the Portland District of the Corps of Engineers in 1967 and were the subject of a public hearing on May 25, 1967. At this public hearing, a small craft channel with a horizontal clearance of 120 feet and a minimum vertical clearance of 69 feet was requested by pleasure boat operators. To comply with this request, Span No. 25, as indicated on Sheet 3 and Sheet 5 of the enclosed drawings was chosen for the small craft channel. It should be pointed out that the spans northerly from the selected small craft channel will have more vertical and horizontal clearance than the selected channel and would be available for crossing under the bridge structure.

In the design and construction of this project, the State Highway Department proposes to engage a consulting engineer for the design and preparation of plans. A requirement of this engineering contract will be for the consultant to make a study of the most economical span lengths versus pier costs to determine the final structure layout. For this reason, the vertical and horizontal clearances of all spans, except the main channel span and the selected small craft channel span, are subject to change. However, we believe any change will be within very narrow limits. At such time as the final geometry of the entire structure is finalized, revised drawings will be sent you.

Falsework construction requirements cannot be determined at this time. It is the Highway Department's policy to require the contractor to obtain permits for construction falsework to suit his steel erection program and the structure as finally designed.

At such time as the Port of Portland receives a permit for dredging and the airport expansion, the State requests that this permit for the bridge construction be processed to completion.

It is believed that all of the requests in your letter of January 14 have been complied with. Please advise if there is anything further that we can do in this matter to assist you.

Very truly yours,

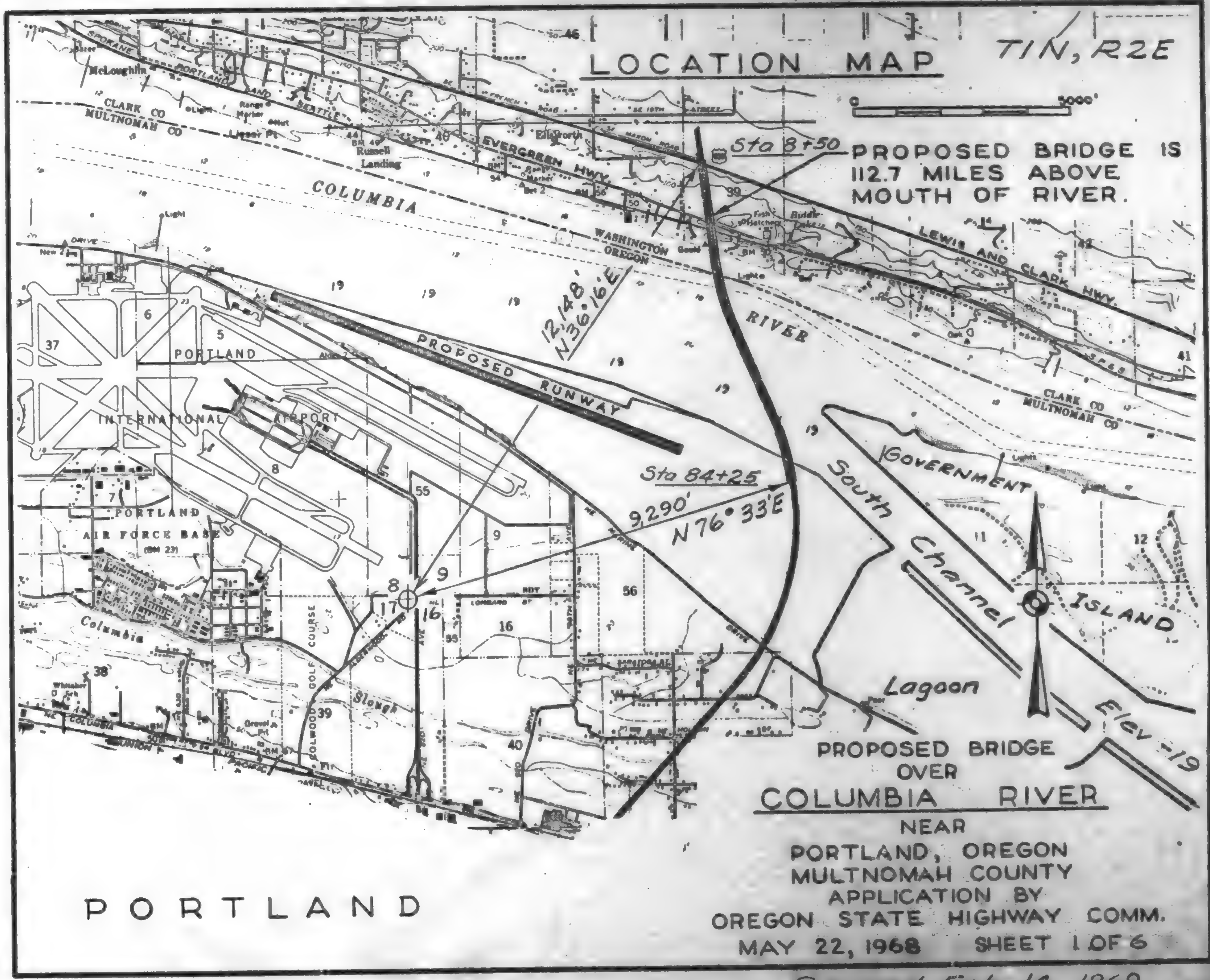
Forrest Cooper
State Highway Engineer

By

Tom Edwards
Assistant State Highway Engineer

bc Forrest Cooper
R. L. Porter
F. B. Klaboe
Victor D. Wolfe
Ivan Merchant

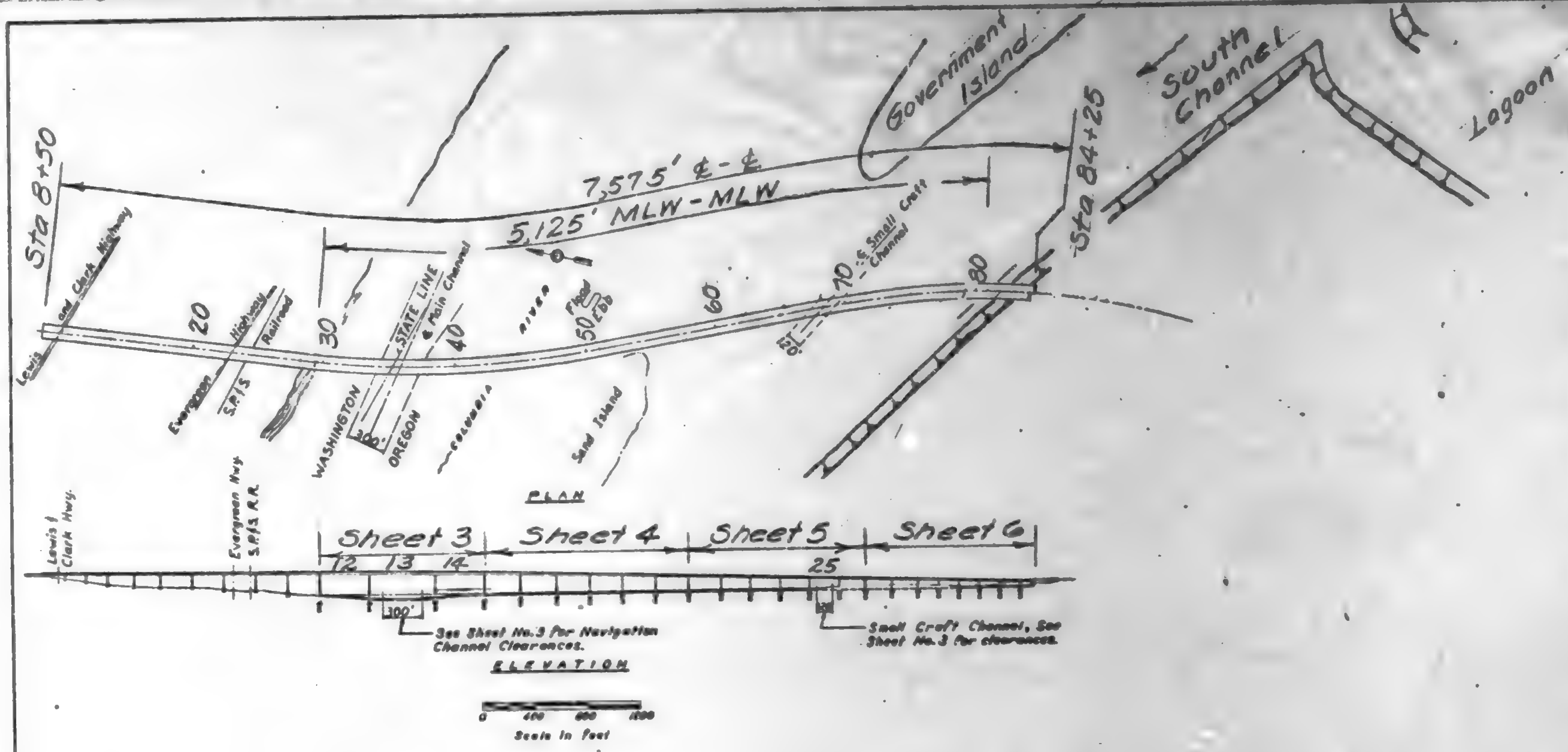
IDM:jr ja
Attachments



LOCATION MAP
T1N, R2E
0
5000'
Sta 8+50
PROPOSED BRIDGE IS 112.7 MILES ABOVE MOUTH OF RIVER.
McLoughlin
SPOKANE PORTLAND AND SEATTLE
CLARK CO
MULTNOMAH CO
Russell Landing
EVERGREEN HWY.
Ellsworth
COLUMBIA
RIVER
WASHINGTON
OREGON
LEWIS AND CLARK HWY.
12,148'
N36°16'E
PROPOSED RUNWAY
PORTLAND
INTERNATIONAL AIRPORT
PORTLAND AIR FORCE BASE
Sta 84+25
9,290'
N76° 33'E
South Channel
GOVERNMENT
ISLAND
Lagoon
Elev -19
Columbia
Slough
COLWOOD GOLF COURSE
PORTLAND

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY COMM.
MAY 22, 1968 SHEET 1 OF 6

Revised Feb 14, 1969

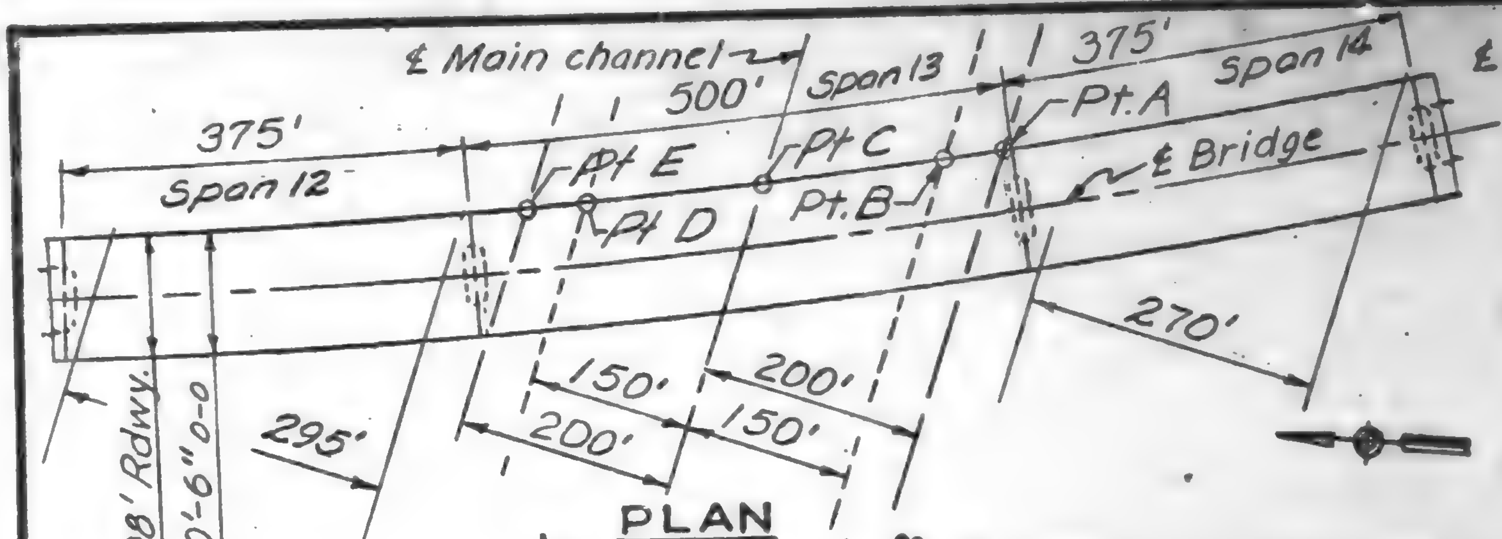

Sta 8+50
7,575' ℄-℄
5,125' MLW-MLW
Government Island
South Channel
Lagoon
Sta 84+25
Lewis and Clark Highway
20
Evergreen Highway
S.P.&S. Railroad
30
WASHINGTON
STATE LINE
℄ Main Channel
300'
OREGON
40
COLUMBIA
RIVER
Flood
50
Ebb
Sand Island
60
70
℄ Small Craft Channel
80
PLAN
Lewis & Clark Hwy.
Evergreen Hwy
S.P.&S. R.R.
Sheet 3
Sheet 4
Sheet 5
Sheet 6
12
13
14
25
300'
See Sheet No. 3 for Navigation Channel Clearances.
Small Craft Channel, See Sheet No. 3 for clearances.
ELEVATION
0
400
800
1200
Scale in feet

Note:
See sheets 3, 4, 5 and 6 for all horizontal and vertical clearances in water spans.

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY COMMISSION
MAY 22, 1968 SHEET 2 OF 6

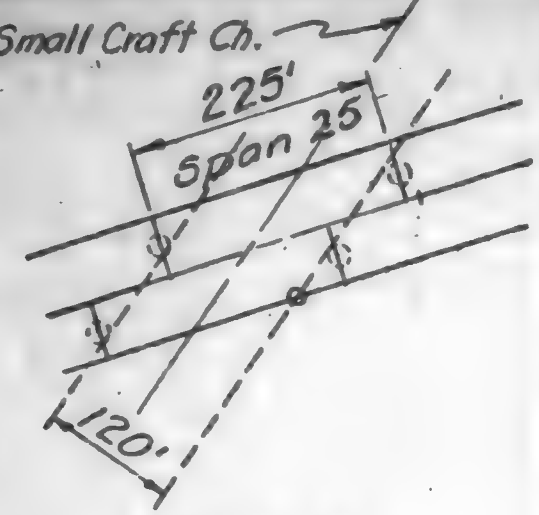
(Revised Line)

Revised Feb. 14, 1969



℄ Main channel
500'
Span 13
375'
Span 14
375'
Span 12
Pt E
Pt C
Pt.A
Pt D
Pt.B
℄ Bridge
270'
150'
200'
200'
150'
295'
108' Rdwy.
110'-6" o-o

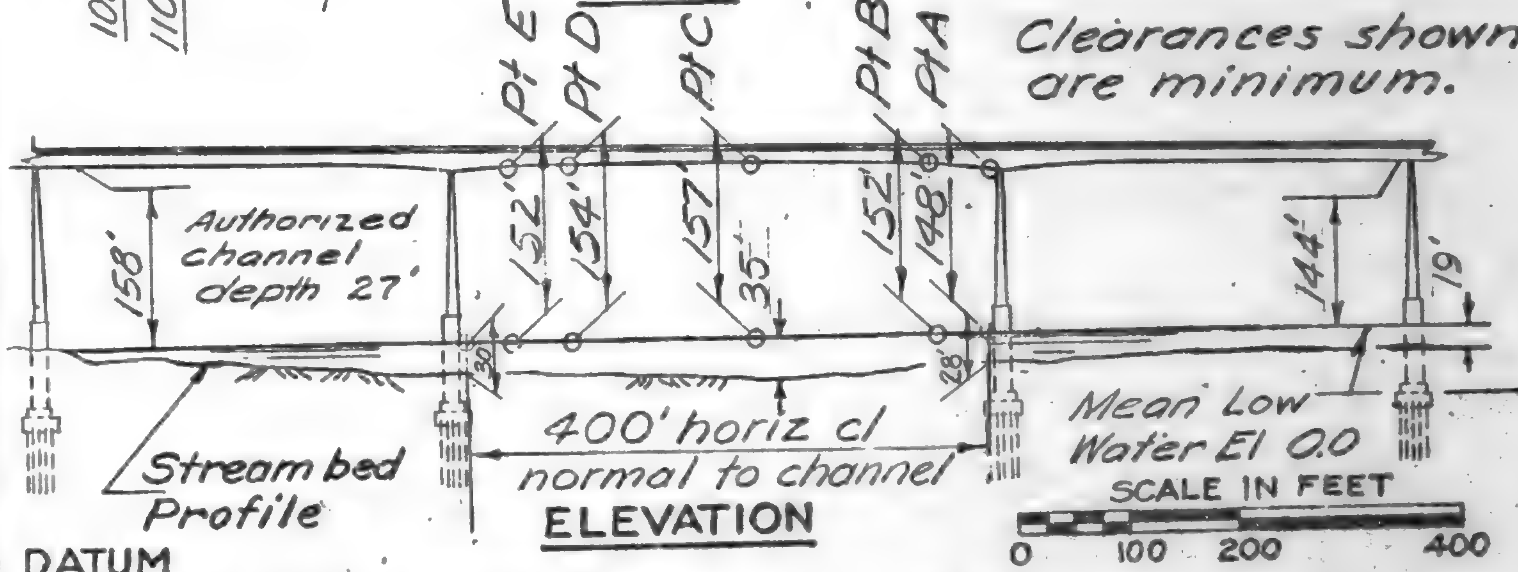
PLAN



℄ Small Craft Ch.
225'
Span 25
120'

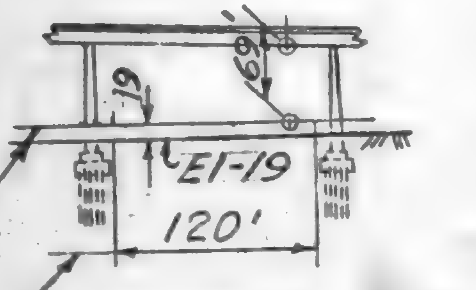
PLAN

Clearances shown are minimum.



Pt E
Pt D
Pt C
Pt B
Pt A
Authorized channel depth 27'
158'
152'
154'
157'
35'
152'
148'
144'
19'
30
28
400' horiz cl normal to channel
Stream bed Profile
Mean Low Water El 0.0
SCALE IN FEET
0
100
200
400

ELEVATION



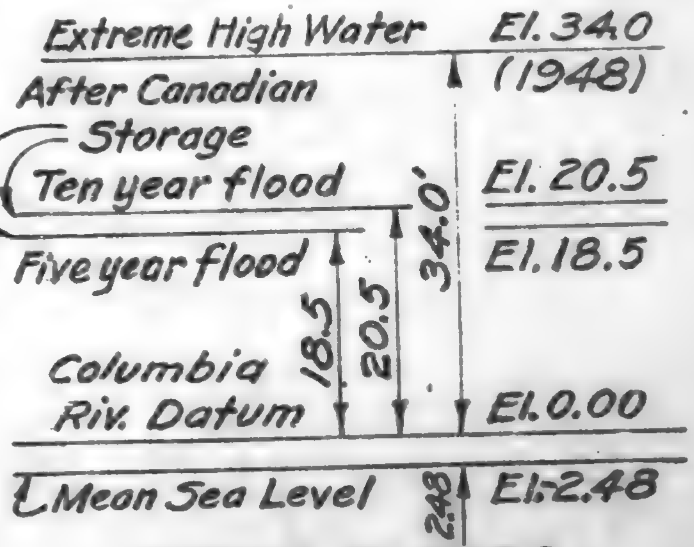
19
69
El-19
120'

Normal to ℄ of Small Craft Channel

ELEVATION

DATUM

Mean Low Water Columbia River Datum, corresponds to an Elev. of 2.48 feet above mean sea level. Soundings are in feet and refer to mean low water, Columbia River Datum.

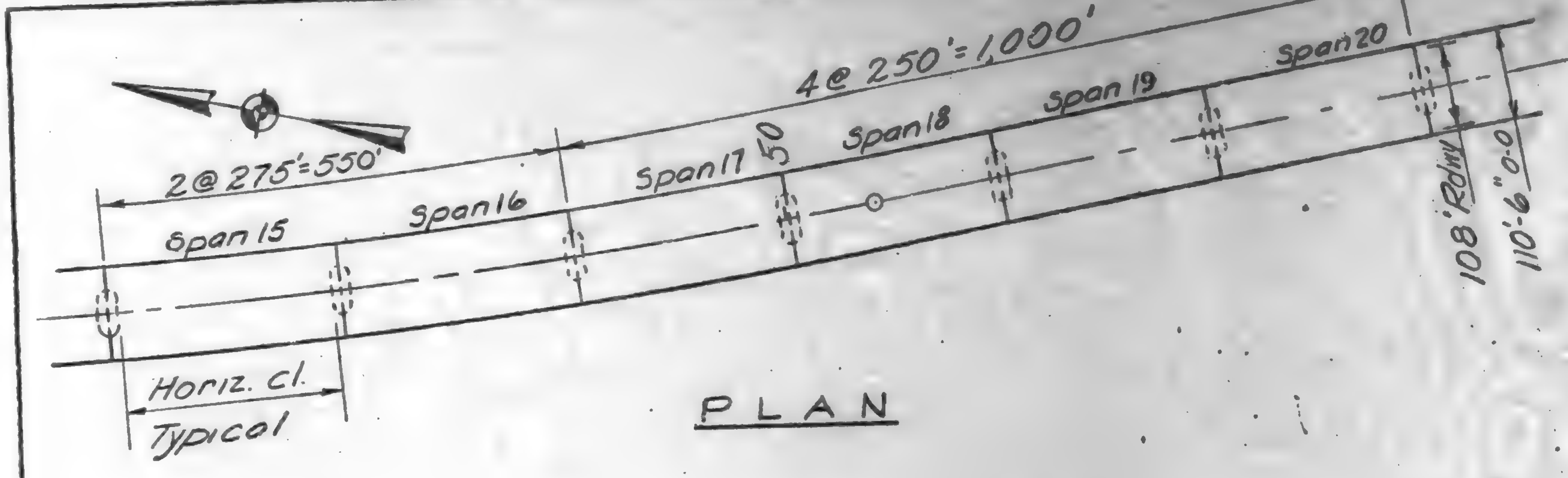


Extreme High Water
El. 34.0
(1948)
After Canadian Storage
Ten year flood
El. 20.5
Five year flood
El. 18.5
34.0'
20.5
18.5
Columbia Riv. Datum
El. 0.00
Mean Sea Level
2.48
El.-2.48

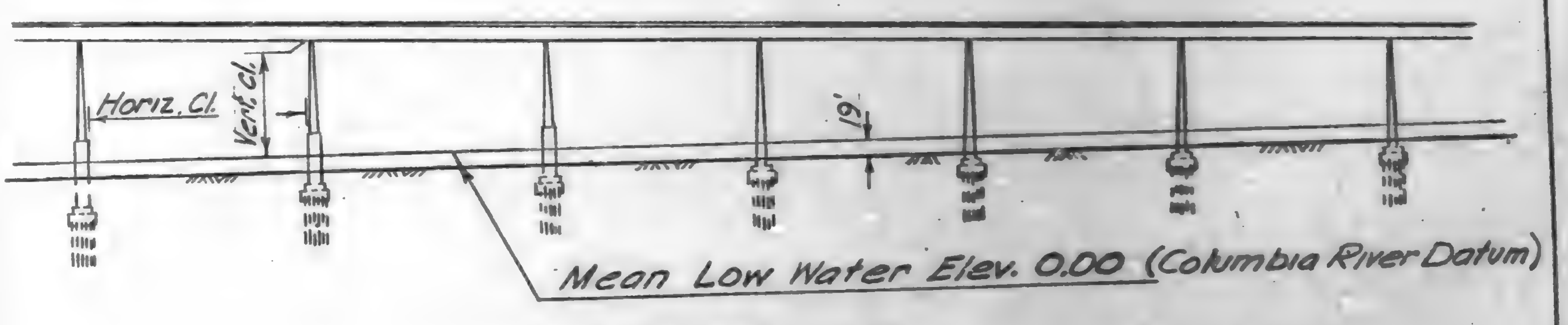
DATUM PLANES

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY COMMISSION
MAY 22, 1968 SHEET 3 OF 6

(Revised Line) Feb 14, 1969


2@ 275'=550'
4@ 250'=1,000'
Span 15
Span 16
Span 17
50
Span 18
Span 19
Span 20
108' Rdwy
110'-6" 0-0
Horiz. cl.
Typical

PLAN


Horiz. Cl.
Vert. Cl.
19'
Mean Low Water Elev. 0.00 (Columbia River Datum)

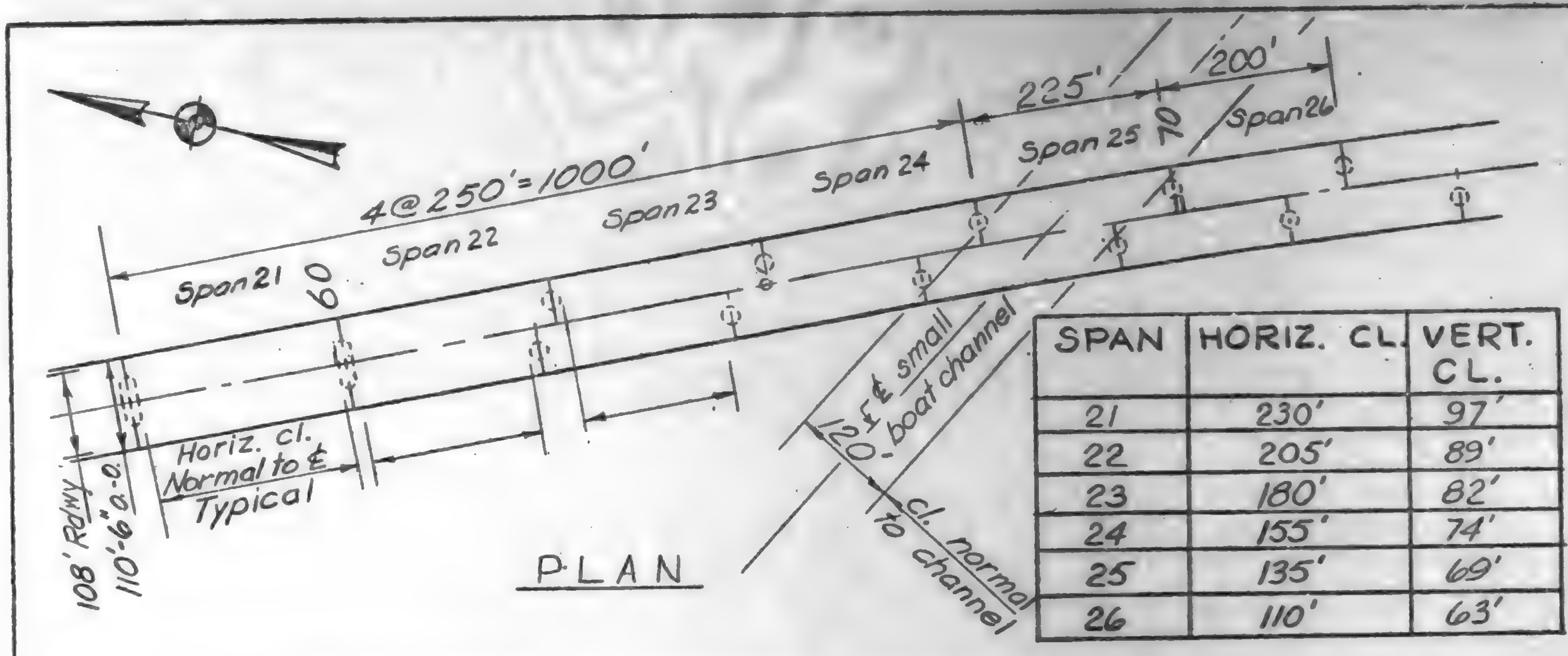
ELEVATION

SPAN	HORIZ. CL.	VERT. CL.
15	255'	138'
16	255'	129'
17	230'	124'
18	230'	118'
19	230'	112'
20	230'	104'

0 100 200 300
Scale in Feet

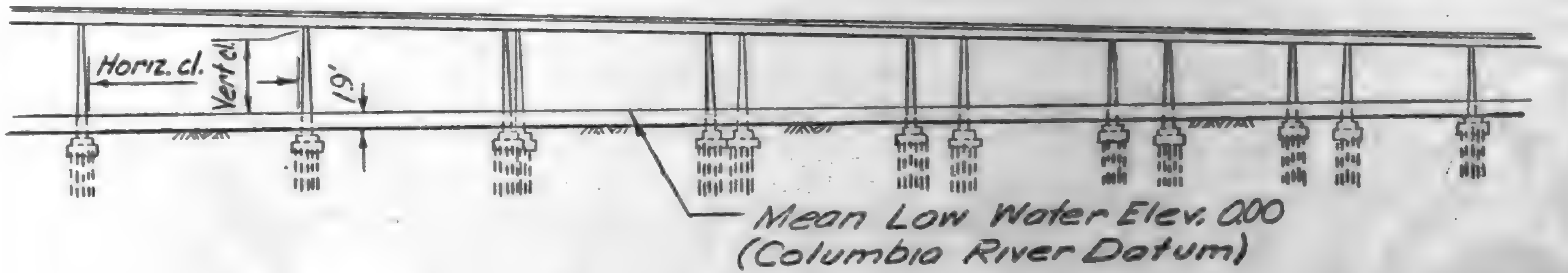
PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY

OREGON STATE HIGHWAY COMM.
FEB. 14, 1969 SHEET 4 OF 6


4@250'=1000'
225'
200'
Span 21
Span 22
Span 23
Span 24
Span 25
Span 26
60
70
108' Rdwy
110'-6" o.-o.
Horiz. cl.
Normal to ℄
Typical
℄ small boat channel
120'
cl. normal to channel

PLAN

SPAN	HORIZ. CL.	VERT. CL.
21	230'	97'
22	205'	89'
23	180'	82'
24	155'	74'
25	135'	69'
26	110'	63'

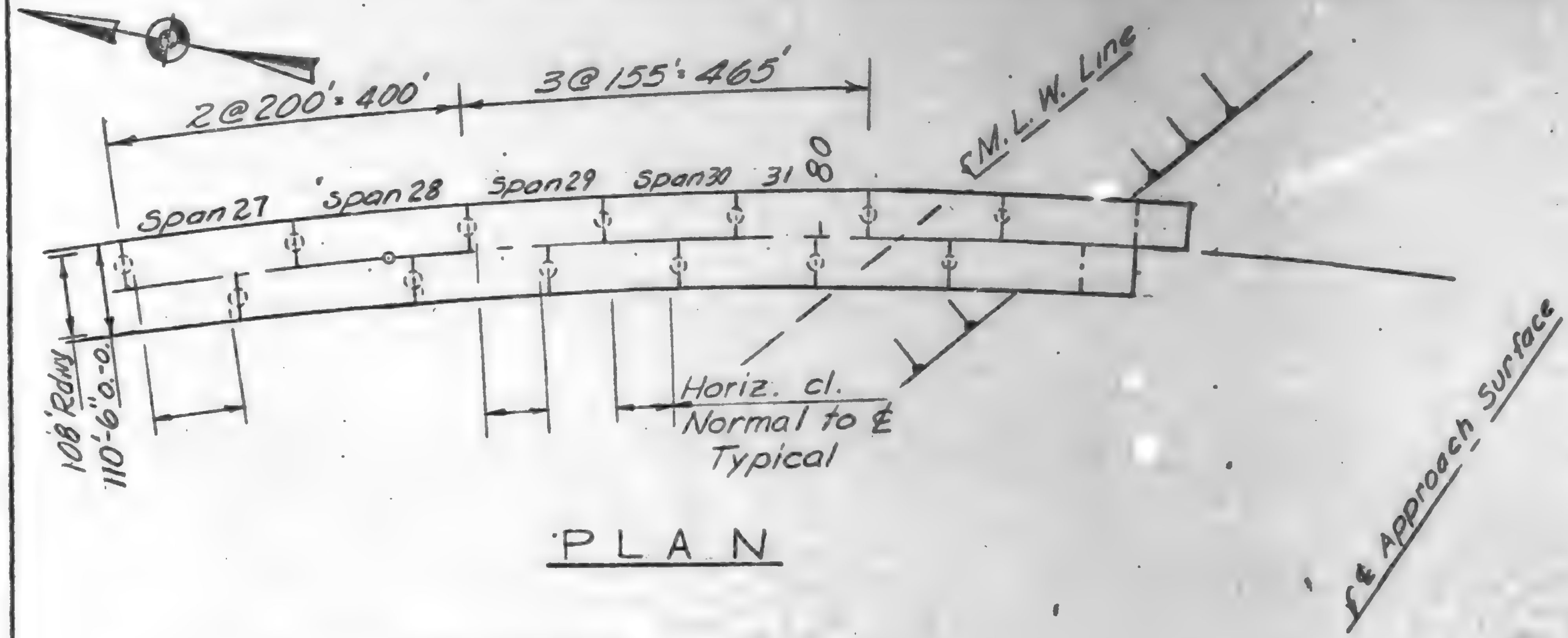

Horiz. cl.
Vert cl.
19'
Mean Low Water Elev. 0.00
(Columbia River Datum)

ELEVATION

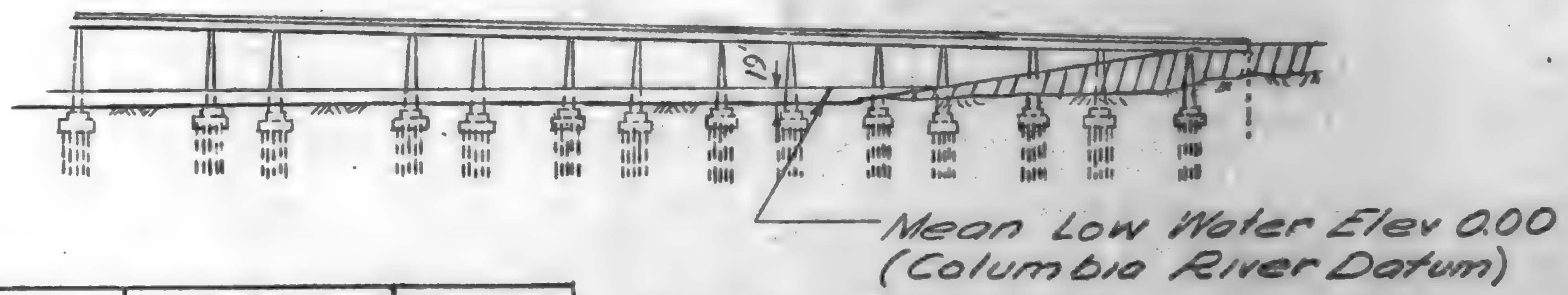
0 100 200 300
Scale in Feet

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY

OREGON STATE HIGHWAY COMM.
FEB. 14, 1969 SHEET 5 OF 6


2@200'=400'
3@155'=465'
Span 27
Span 28
Span 29
Span 30
31
80
℄ M.L.W. Line
108' Rdwy
110'-6" o.-o.
Horiz. cl.
Normal to ℄
Typical
℄ Approach Surface

PLAN


19'
Mean Low Water Elev 0.00
(Columbia River Datum)

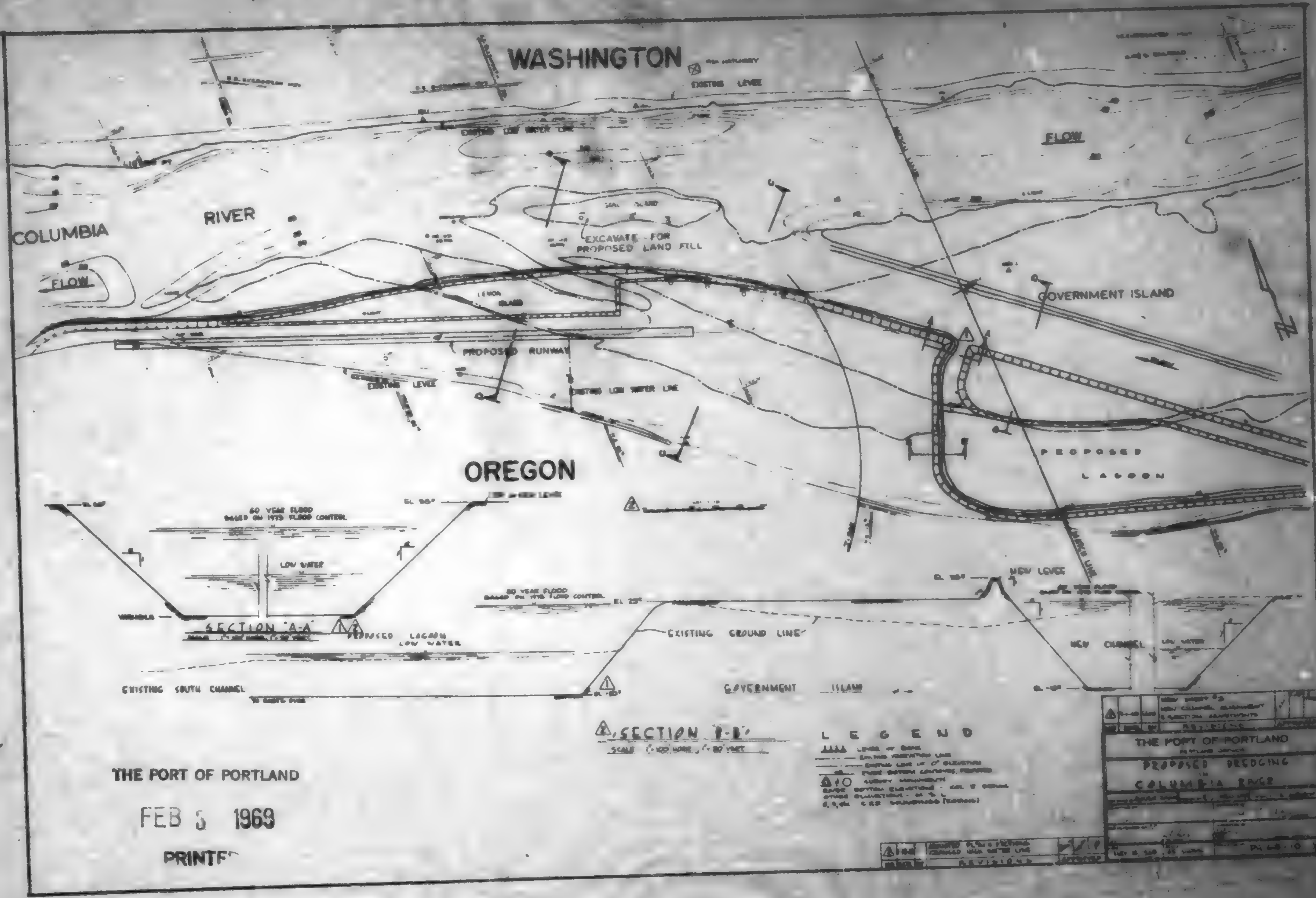
ELEVATION

0 100 200 300
Scale in Feet

SPAN	HORIZ. CL.	VERT. CL.
27	105'	58'
28	110'	52'
29	70'	47'
30	65'	42'
31	70'	37'

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH, COUNTY

OREGON STATE HIGHWAY COMM.
FEB. 14, 1969 SHEET 6 OF 6

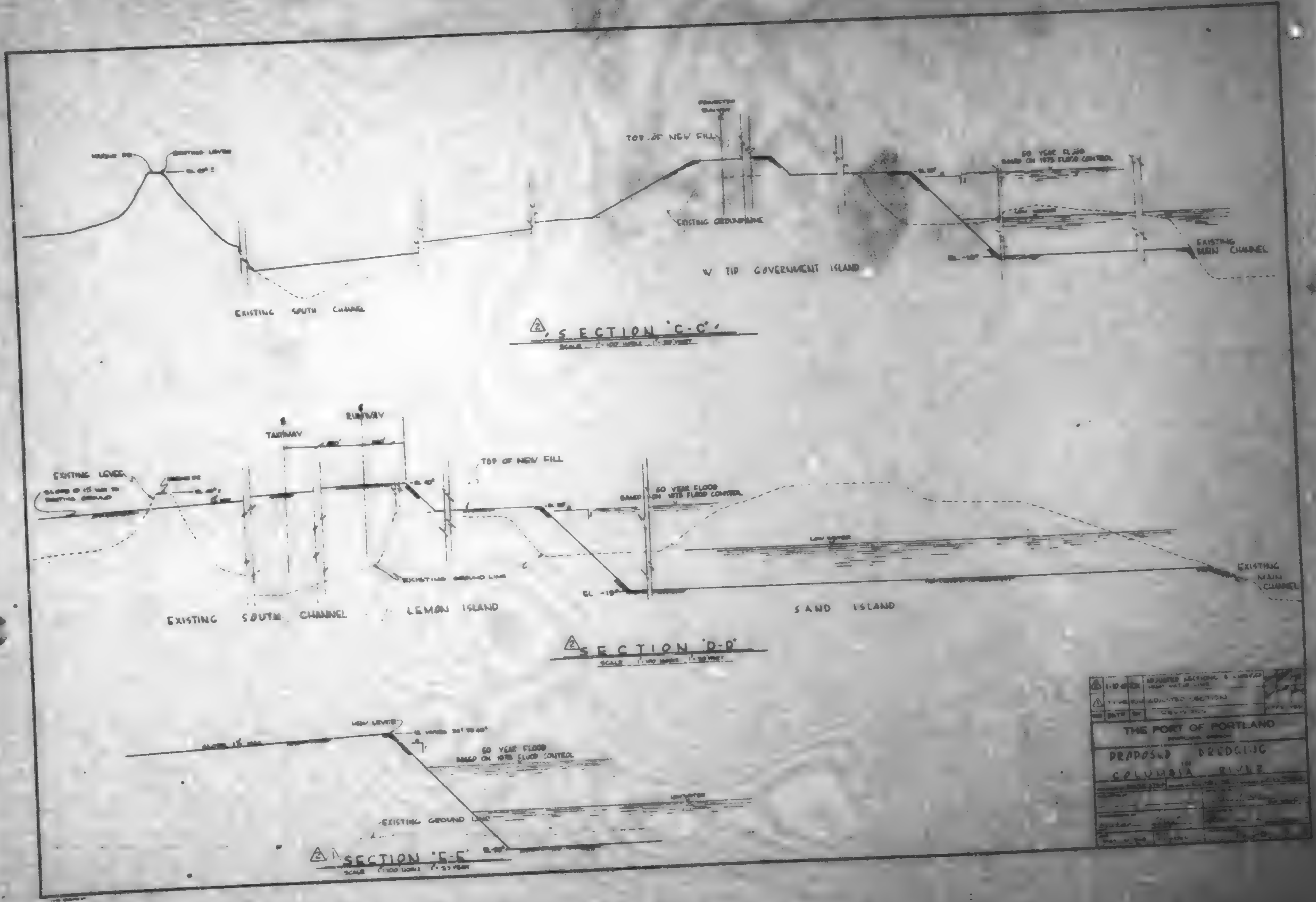

WASHINGTON
EXISTING LEVEE
EXISTING LOW WATER LINE
FLOW
COLUMBIA
RIVER
FLOW
EXCAVATE FOR
PROPOSED LAND FILL
LEMON ISLAND
GOVERNMENT ISLAND
PROPOSED RUNWAY
EXISTING LEVEE
EXISTING LOW WATER LINE
OREGON
PROPOSED
LAGOON
50 YEAR FLOOD
BASED ON 1973 FLOOD CONTROL
LOW WATER
SECTION 'A-A'
PROPOSED LAGOON
LOW WATER
EXISTING SOUTH CHANNEL
50 YEAR FLOOD
BASED ON 1973 FLOOD CONTROL
EL 25'
EXISTING GROUND LINE
NEW LEVEE
NEW CHANNEL
LOW WATER
GOVERNMENT ISLAND
SECTION 'B-B'
L E G E N D
REVISIONS
THE PORT OF PORTLAND
PROPOSED DREDGING
COLUMBIA RIVER
DL 68-10

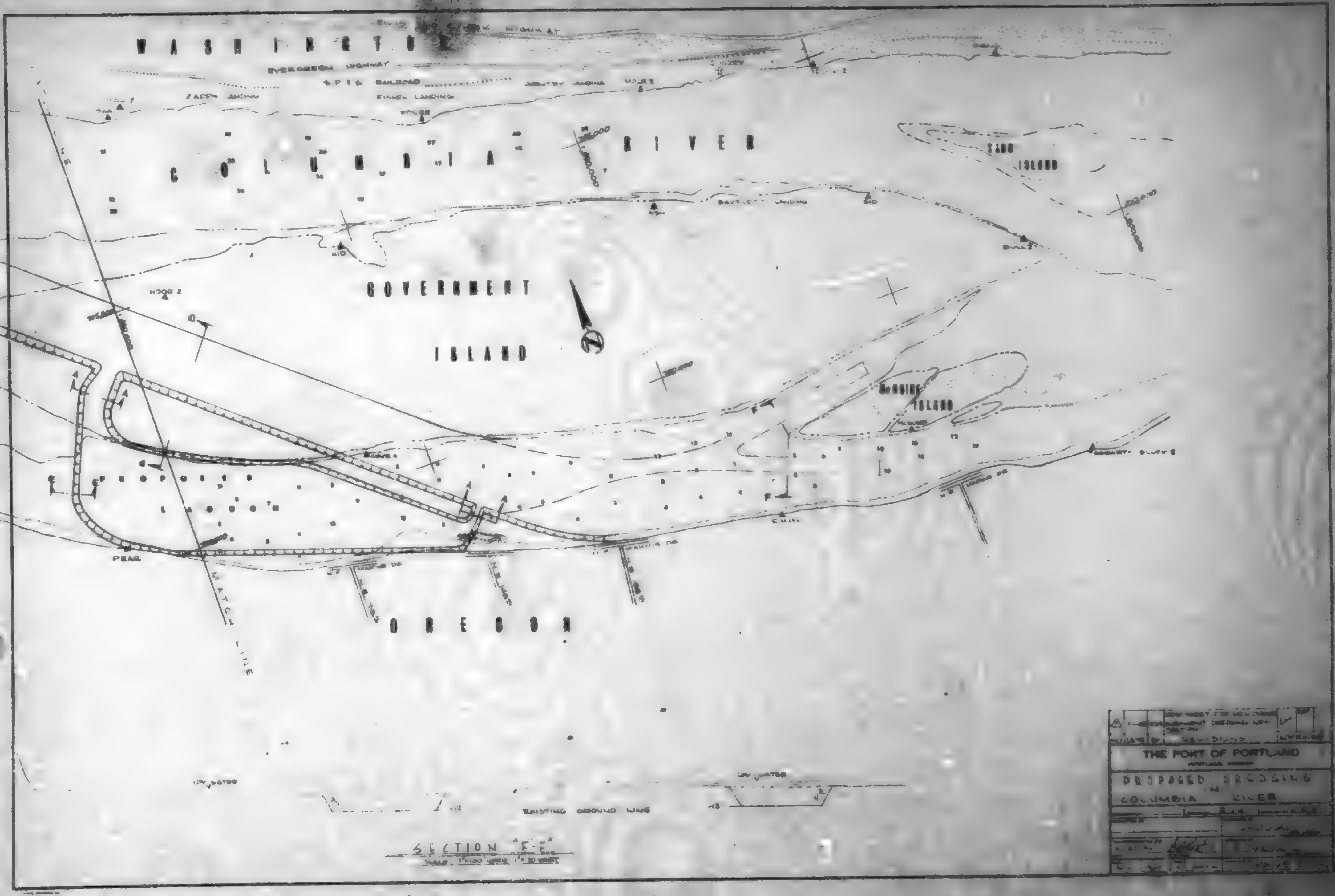
THE PORT OF PORTLAND

FEB 5 1969

PRINTE

Be 9555


TOP OF NEW FILL
EXISTING LEVEE
EXISTING GROUNDLINE
60 YEAR FLOOD BASED ON 1975 FLOOD CONTROL
EXISTING MAIN CHANNEL
W TIP GOVERNMENT ISLAND
EXISTING SOUTH CHANNEL
SECTION 'C-C'
TAXIWAY
RUNWAY
TOP OF NEW FILL
EXISTING LEVEE
60 YEAR FLOOD BASED ON 1975 FLOOD CONTROL
EXISTING GROUND LINE
LOW WATER
EL -19
EXISTING MAIN CHANNEL
EXISTING SOUTH CHANNEL
LEMON ISLAND
SAND ISLAND
SECTION 'D-D'
NEW LEVEE
60 YEAR FLOOD BASED ON 1975 FLOOD CONTROL
EXISTING GROUND LINE
LOW WATER
SECTION 'E-E'
ADJUSTED SECTIONS
ADJUSTED SECTION
DATE
THE PORT OF PORTLAND
PORTLAND, OREGON
PROPOSED DREDGING
COLUMBIA RIVER


WASHINGTON
EVERGREEN HIGHWAY
S.P.&S. RAILROAD
FISHER LANDING
COLUMBIA RIVER
SAND ISLAND
GOVERNMENT ISLAND
MCGUIRE ISLAND
PROPOSED LAGOON
MATCH LINE
OREGON
LOW WATER
EXISTING GROUND LINE
SECTION "E-E"

REVISIONS

THE PORT OF PORTLAND

PORTLAND, OREGON

PROPOSED DREDGING IN COLUMBIA RIVER

DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

Address reply to:
COMMANDER
Thirteenth Coast Guard District
618 Second Ave.
Seattle, Wash. 98104

2371
14 January 1969
Serial 49

Mr. Tom Edwards
Oregon State Highway Department
Salem, Oregon 97310

Dear Mr. Edwards:

I am enclosing herewith a drawing I received today from the Port of Portland showing the proposed expansion plan for the Portland International Airport. In making a review of the drawings you submitted for the I-205 crossing of the Columbia River with the Port of Portland drawing, I find the two are not in sufficient agreement for me to process your application as presented. The following alternatives are suggested so your drawings will correspond with the physical conditions of the river after the airport fill work has been completed.

1. The plan view - sheet 1 of 3 - must be revised to depict the changes to the river and to show the length of the bridge portion of your project. Your drawing shows the bridge has an S curve where the Port of Portland shows it straight. Each end of the bridge should have a geographical tie to a section corner or some other land subdivision as a grid coordinate.

2. Sheet 2 of 3 should show the overall length of the bridge from dry land to dry land. The overall length should appear. The cross section of the channel should show water depths. The plan view of this sheet shows an S curve for the bridge as noted also on sheet 1. The South Channel is not properly depicted as the Port of Portland drawing does not show a separate south channel at the bridge site. The edge of the fill line does not correspond with Port of Portland Plan. In revising this sheet, you may find it advisable to enlarge the scale and show only part of the bridge on each of 2 or more sheets.

3. Sheet 3 of 3 gives a good illustration of the main ship channel principal span in elevation view. The similar view of south channel is questioned as there is no south channel on the Port of Portland drawing. This sheet should be revised to show the clearance, both horizontal and vertical, for each span of the bridge from bank to bank. Use additional sheets if necessary. You might find it easier to show a typical span and then the dimensions of all other spans on right, left and center could be tabulated.

NOTED
IVAN D. MERCHANT

The Coast Guard can only issue a permit for that portion of the bridge which is over navigable waters. The portion of your highway which will pass over the new land fill by the Port of Portland will not be covered by the final Coast Guard permit. The present south channel at the bridge site will be land fill as shown by Port of Portland and their permit, if issued, will cover that work. Should you desire to construct a work bridge prior to completion of the fill, a permit for said work bridge would be required. On the main river crossing there is no indication on your drawing of falsework. It is, therefore, assumed your contractor or yourself will make a separate application for this work prior to start of the bridge. No special permit is required for construction of cofferdams for the main pier footings provided navigation clearances between bridge piers are not unduly encroached upon.

Should you require any assistance in completing these changes, please feel free to contact Mr. J. E. Shields of my staff at any time. After return of the drawings and after the Corps of Engineers grants approval for the channel changes, I will re-advertise your proposed bridge for Route I-205. I find the drawings differ so far from the plan of the Port of Portland that I cannot suggest approval of the drawings as submitted. Therefore, I am returning your drawings, together with the Plan of the Port of Portland. It is requested that you return the Port of Portland Plan as soon as you can make a copy.

Sincerely yours,

VICTOR KOLL
Commander, U. S. Coast Guard
Chief, Aids to Navigation Branch
By direction of the Commander
Thirteenth Coast Guard District

Encl. (1) Sheets 1,2 and 3 of your application drawings.
(2) Port of Portland proposed airport plan

RECEIVED
JAN 15 1969
OFFICE OF
STATE HIGHWAY ENGINEER

8105

RECEIVED
DEC 6 - 1968
FOR FILING

OREGON STATE HIGHWAY DEPARTMENT
INTER-DEPARTMENT CORRESPONDENCE

Salem, Oregon
December 4, 1968

To: MEMORANDUM TO THE FILES

SUBJECT: Navigation Permit for Bridge over the Columbia River and Port of Portland Airport expansion.

Sgl Koll

By letter of July 12, 1968, Victor Cole, Commander U. S. Coast Guard, 13th Coast Guard District, Seattle, furnished the State copies of letters and telegrams from twelve objectors to the location of, vertical and horizontal clearances of the proposed bridge and the Port of Portland's proposed airport expansion.

By letter dated November 25, 1968, Commander Cole made the statement - "It will be necessary for us to attempt to resolve the problems listed in these letters of objections prior to the Coast Guard taking any action".

Inasmuch as the majority of the objections were to the Port of Portland's airport expansion, I met with Adam Heineman, Assistant General Manager, and E. R. Arnold, Airport Development Manager, in their office the afternoon of December 3. In looking over the list of the twelve objection letters and telegrams, Mr. Heineman and Mr. Arnold recognized most of the names from previous objections to the Port's project. Mr. Heineman offered to rough draft a letter, after a thorough search of their files, to cover each one of the twelve letters of objections. This letter should be in our hands by approximately December 10.

A general discussion of the Port's proposed airport expansion indicates that they intend to award 4 dredging contracts - with the first contract being awarded approximately the middle of April 1969, contingent upon favorable action of their application to the Engineer Corps and the FAA. It is their belief that they should have favorable action on their application from the Corps and the FAA by the end of December.

In connection with the approximately 2,000,000 yds. of dredged embankment material to be furnished the State by the Port for fill construction south of Marine Drive, the Port will desire

NOTED
TOM EDWARDS

to know in the near future the placement of the dredged material. Also, they may request the State to furnish compaction tests, etc. on portions of their dredged fill.

I requested that they discuss these last two items with Mr. Klaboe.

Ivan D. Merchant
Bridge Engineer

IDM:jr

cc: Tom Edwards
Fred Klaboe

RECEIVED
DEC 5 1968
OFFICE OF
STATE HIGHWAY ENGINEER

RECEIVED
NOV 29 1968
FOR FILING

Coast
R/W
EPF

Col. R. Be

OF TRANSPORTATION
UNITED STATES COAST GUARD

Address reply to:
COMMANDER (o-4)
Thirteenth Coast Guard District
618 Second Ave.
Seattle, Wash. 98104

3271
25 November 1968
Serial 1287

Mr. Tom Edwards
Assistant State Highway Engineer
Oregon State Highway Department
Highway Building
Salem, Oregon 97310

Dear Mr. Edwards:

Your letter of 22 November 1968 concerning application for a bridge across the Columbia River, Route I-205, has been received. I have been informed that it may be another two to three months before the Corps of Engineers announces its action on the Port of Portland application.

Your last letter of 1 August 1968 stated you proposed to await the outcome of the Portland Airport issue. I had previously mailed you a list of objectors to the proposed bridge on 12 August 1968. You do not mention any effort to resolve the objections listed. It will be necessary for you to attempt to resolve the problems listed in these letters of objection prior to the Coast Guard taking any action.

If you want the Coast Guard to pursue your application further at this time, it will be necessary for you to make such a request and explain what occurred with each objection. Presently I cannot offer you any better schedule concerning the Portland Airport problem. Please let me know what further action you desire from the Coast Guard at this time.

Sincerely yours,

VICTOR KOLL
Commander, U. S. Coast Guard
Chief, Aids to Navigation Branch
By direction of the Commander
Thirteenth Coast Guard District

NOTED
R. L PORTER

Merchant
Pls. discuss

copy - Mr Cooper
Mr Porter ✓

RECEIVED
NOV 27 1968
OFFICE OF
STATE HIGHWAY ENGINEER

8905

RECEIVED
NOV 22 1968

FOR FILING

November 22, 1968

Commander Victor Koll
Chief, Aids to Navigation Branch
13th Coast Guard District
618 Second Avenue
Seattle, Washington 98104

Your File: 3271

Dear Commander Koll:

It has been some time since we have had contact with your office concerning our application for a crossing permit for a bridge on I-205 over the Columbia River easterly of the Portland International Airport, River Mile 112.7.

We realize there has been some delay brought about by the proposed revision of the Airport, but we believe the plan per se is now firm and are looking forward to doing some preliminary design and, particularly, foundation exploration in this area.

For these reasons, we are wondering if you can advise us as to any concrete developments concerning the issuance of a crossing permit.

Very truly yours,

Forrest Cooper
State Highway Engineer

By

Tom Edwards
Assistant State Highway Engineer

TE:ja

bc Forrest Cooper
R. L. Porter
Victor D. Wolfe
F. B. Klaboe
Ivan Merchant
F. D. Morgan
A. E. Johnson

RECEIVED
AUG 1 - 1968

FOR FILING

August 1, 1968

Commander Victor Koll
Chief, Aids to Navigation Branch
13th Coast Guard District
618 Second Avenue
Seattle, Washington 98104

Your File: 3271

Dear Commander Koll:

Receipt is acknowledged of your letter of July 12 concerning the application for approval of location and plans of highway I-205 bridge across the Columbia River.

We will await the outcome of the Port of Portland's application to the Corps of Engineers for a permit for the river channel revision before proceeding further with our application. It is assumed that if the Corps' decision is favorable to the Port of Portland, we will immediately request your office to proceed to process our application in the normal manner.

Very truly yours,

Forrest Cooper
State Highway Engineer

By ORIGINAL SIGNED
TOM EDWARDS

Tom Edwards ja
Assistant State Highway Engineer

TE:ja

bc Forrest Cooper
R. L. Porter
F. B. Klaboe
Victor D. Wolfe
Ivan Merchant (enc.)
F. D. Morgan
A. E. Johnson (enc.)

DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

Address reply to:
COMMANDER (o-4)
Thirteenth Coast Guard District
618 Second Ave.
Seattle, Wash. 98104

3271
12 July 1968
Serial: 809

Mr. Tom Edwards, Ast State Highway Engineer
State of Oregon
State Highway Department
Salem, Oregon 97310

Dear Mr. Edwards:

Reference: Application for approval of location and plans of highway I-205 bridge, Columbia River

A public notice was issued by this office concerning your application for approval of location and plans of highway I-205 bridge over the Columbia River between Portland, Oregon, and Vancouver, Washington. Objections were received from several individuals and organizations as follows:

Mr. and Mrs. J. W. Kline
Paul C. Somers
North Bank Suburban Club, Vancouver, Washington
Pacific American Steamship Association
Carl A. Petterson, M.D.
The Vancouver Clinic, Hayes Peterson, M.D.
Port of The Dalles
Mr. and Mrs. Paul W. Ransom
G. Campbell Dowd, M.D.
U.S. Department of Interior (Joe W. Dwyer)
Hazel-Dell Lake Shore Community Committee
The Vancouver Clinic, John C. Brougher, M.D.

Several others have indicated by telephone that they will submit objections within the next few days.

The objection of the Pacific American Steamboat Association was answered by this office asking for more specific details to support the objection. A copy of our letter is attached.

All of the other objectors were answered acknowledging their letter or telegram. A typical answer to Dr. Hayes Peterson is attached. Any additional letters of objection will likewise be forwarded to you when and if received.

Normally the Coast Guard requests the bridge applicant to contact each objector and attempt to resolve the problem. In this instance you may desire to wait for the outcome of the Port of Portland application to Corps of Engineers in Portland covering dredging and fill for the airport before you proceed further.

CCGD13(o-4) ltr 3271 dtd 12 July 1968

Mr. J. E. Shields of my staff is handling this application. Please feel free to contact him at any time. No other action will be taken on your application until such time as you desire to proceed.

Sincerely yours,

VICTOR KOLL
Commander, U.S. Coast Guard
Chief, Aids to Navigation Branch
By direction of the Commander,
Thirteenth Coast Guard District

Encl: (1) Telegram from Mr. and Mrs. J. W. Kline, 8 Jul 1968
(2) Telegram from Paul C. Somers, 9 Jul 1968
(3) Telegram from North Bank Suburban Club, 7 Jul 1968
(4) Pacific Am Steamship Assoc ltr, 20 Jun 1968, with CCGD13 ltr, 26 Jun 1968
(5) Ltr from Carl A. Petterson, M.D., 3 Jul 1968
(6) Vancouver Clinic ltr (Heyes Peterson, M.D.), 2 Jul 1968, with CCGD13 ltr, 8 Jul 1968
(7) Port of The Dalles ltr, 6 Jul 1968
(8) Ltr from Mr. and Mrs. Paul W. Ransom, 8 Jul 1968
(9) Ltr from G. Campbell Dowd, M.D., 8 Jul 1968
(10) Dept of the Interior (Joe D. Dwyer) ltr, 5 Jul 1968
(11) Hazel Dell-Lake Shore Community Committee ltr, 18 Jun 1968
(12) Vancouver Clinic ltr (John C. Brougher, M.D.), 7 Jul 1968

RECEIVED
JUL 16 1968
OFFICE OF
STATE HIGHWAY ENGINEER

8905

RECEIVED
AUG 1 1968

FOR [illegible]

OREGON STATE HIGHWAY DEPARTMENT

INTER-DEPARTMENT CORRESPONDENCE

Salem, Oregon
July 31, 1968

SUBJECT:

To:

MEMO TO THE FILE

On Tuesday, July 30, I discussed by phone with Mr. J. E. Shields, Assistant Chief, Aids to Navigation Branch, 13th Coast Guard District, the procedure concerning the Department's application to the Coast Guard for a permit to construct the I-205 Bridge across the Columbia River.

I advised Mr. Shields that we would be represented at the hearing by Mr. D. J. Barbee; that we were in accord with the Port of Portland's plan; and were awaiting the Corps of Engineers' decision with respect to the Port of Portland's application for the channel revision at the airport improvement. Mr. Shields was advised that at such time as a decision became final we would then press for a permit provided, of course, the Corps' decision is in favor of the Port of Portland.

Mr. Shields advised that due to the magnitude of this project they would probably call a hearing prior to processing our application for a crossing permit.

Tom Edwards

Tom Edwards
Assistant State Highway Engineer

TE:ja

cc Forrest Cooper
R. L. Porter
Victor D. Wolfe
F. B. Klaboe
F. D. Morgan
Ivan Merchant
A. E. Johnson

8905

MARCH 3, 1849

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF THE SECRETARY
PACIFIC NORTHWEST REGION
FEDERAL BUILDING, P. O. BOX 3621
PORTLAND, OREGON 97208

Exhibit 1

July 5, 1968

Commander
Thirteenth Coast Guard District
618 Second Avenue
Seattle, Washington 98104

Attention: Commander Victor Koll
Chief, A/N Branch

Re: Public Notice No. 68-10

Dear Sir:

We approve this application subject to the following condition:

> That the Oregon State Game Commission lands affected by the project be replaced with substitute lands which are acceptable to the Game Commission.

The proposed bridge would cross Government Island, most of which is the property of the Oregon State Game Commission. This island plus Lemon and Macguire Islands comprise the Government Island Game Management Area.

We understand plans for a land exchange between the Port of Portland and the Oregon State Game Commission are being considered whereby the Port would obtain ownership of the aforementioned islands. However, final details of the exchange have not been agreed upon.

Other plans are being discussed concerning the land exchange in question. Enclosed is a copy of a letter dated June 20, 1968, to the Corps of Engineers on this subject.

Sincerely yours,

Joe Dwyer

Joe D. Dwyer

cc:
Messrs. Burroughs, Cleaver,
Findlay, Garside, Imler, Johnson,
Jourolmon, Overly, Poston, Rutter

RECEIVED
OREGON STATE HIGHWAY DEPT.
BRIDGE DIVISION
AM AUG 2 - 1968 PM
7,8,9,10,11,12,1,2,3,4,5,6

8905

RECEIVED
JUL 15 1968

REFERRED TO
PORTER
BY ASST STATE HWY. ENGR
Info

RECEIVED
JUL 11 1968
OFFICE OF
STATE HIGHWAY ENGINEER

NOTED
R. L. PORTER

NOTED
F. B. KLABOE

July 3, 1968

Commander, Thirteenth Coast Guard District
Attention: Aids to Navigation Branch
618 - 2nd Avenue
Seattle, Washington 98104

Re: Public Notice No. 68-10 (Bridges)

Dear Sir:

I object to the proposed bridge over the Columbia River with regard to the small craft channel. In your diagram on sheet #2, you have sketched this channel as being approximately 45° with the bridge. This in itself would be a navigational hazard to small craft, however, I am in disagreement with the Port of Portland's hydrologist in regard to the anticipated hydraulic effects of the proposed fill on the south shore. If a line is projected parallel to the shores of the proposed cut through Government Island, this small craft channel will be more nearly parallel to the bridge itself. This definitely would be a navigational hazard. In fact, it is a most peculiar way to build a bridge.

I also disagree with the Port of Portland's hydrologist with regard to the location of the naturally occurring thalweg on the north shore. It is his belief that removing Sand Island will cause the channel to shift away from the north shore. (Sand Island has been built up as the result of the course of the present channel; it seems to be the Port's opinion that the channel has been pushed over by the presence of the island.) It is my belief that the union of the new south channel with the existing north channel will cause a more northerly course of the presently existing thalweg (as opposed to the dredged and designated shipping channel). Sand Island will reappear as a shoal downstream of the Port's fill. For this reason, we have been requesting that the Army Corps of Engineers do a hydraulic model study at the Bonneville laboratory prior to issuing a dredge permit and have enlisted considerable support in this request.

I object to the inappropriateness of this notice at this time inasmuch as there is to be a hearing on the Port of Portland's dredge and fill request on August 1, 1968. While the outcome of this hearing is unknown, please be assured that there will be considerable protest from the State of Washington, Clark County, the City of Vancouver, civic groups and individuals. In event the dredge and fill request is denied, the Oregon Highway Department has advised me that they will be required to redesign the bridge.

I further object to the inappropriateness of this notice inasmuch as the Port of Portland has now modified its plan and if the Port's request for a fill is granted, again the bridge will need to be designed to conform to the new channels. Therefore, how can we either approve or oppose a proposal of such an unsettled nature?

Sincerely yours,

CARL A. PETTERSON, M. D.
2612 S.E. Ellsworth Road
Vancouver, Washington 98664

cc: Oregon State Highway Department
Corps of Engineers

INFORMATION COPY

METROPOLITAN ENGINEER
RECEIVED
JUL 16 1968

F. B. KLABOE

Dear Sir:

I object to the proposed bridge over the Columbia River with regard to the small craft channel. In your diagram on sheet 2, you have sketched this channel as being approximately 45° with the bridge. This in itself would be a navigational hazard to small craft, however, I am in disagreement with the Port of Portland's hydrologist in regard to the anticipated hydraulic effects of the proposed fill on the south shore. If a line is projected parallel to the shores of the proposed cut through Government Island, this small craft channel will be more nearly parallel to the bridge itself. This definitely would be a navigational hazard. In fact, it is a most peculiar way to build a bridge.

I also disagree with the Port of Portland's hydrologist with regard to the location of the naturally occurring thalweg on the north shore. It is his belief that removing Sand Island will cause the channel to shift away from the north shore. (Sand Island has been built up as the result of the course of the present channel; it seems to be the Port's opinion that the channel has been pushed over by the presence of the island.) It is my belief that the union of the new south channel with the existing north channel will cause a more northerly course of the presently existing thalweg (as opposed to the dredged and designated shipping channel). Sand Island will reappear as a shoal downstream of the Port's fill. For this reason, we have been requesting that the Army Corps of Engineers do a hydraulic model study at the Bonneville laboratory prior to issuing a dredge permit and have enlisted considerable support in this request.

I object to the inappropriateness of this notice at this time inasmuch as there is to be a hearing on the Port of Portland's dredge and fill request on August 1, 1968. While the outcome of this hearing is unknown, please be assured that there will be considerable protest from the State of Washington, Clark County, the City of Vancouver, civic groups and individuals. In event the dredge and fill request is denied, the Oregon Highway Department has advised me that they will be required to redesign the bridge.

I further object to the inappropriateness of this notice inasmuch as the Port of Portland has now modified its plan and if the Port's request for a fill is granted, again the bridge will need to be designed to conform to the new channels. Therefore, how can we either approve or oppose a proposal of such an unsettled nature?

Sincerely yours,

CARL A. PETTERSON, M. D.
2612 S.E. Ellsworth Road
Vancouver, Washington 98664

cc: Oregon State Highway Department
Corps of Engineers

INFORMATION COPY

METROPOLITAN ENGINEER
RECEIVED
JUL 16 1968
AME MOE MDE MTE

8905

RECEIVED
JUN 24 1968
FOR FILE

6-24-68

NOTED
F. B. KLABOE

REFERRED TO
Oregon - Porter - Edw
By Asst State Hwy. Engr.

June 20, 1968

Commander
13th Coast Guard District
618 Second Avenue
Seattle, Washington 98104

RE: Columbia River Highway - I-205 Bridge

Gentlemen:

The Port of Portland has been working with the Oregon State Highway Department to assure that their proposed bridge is compatible with our proposed airport expansion, and also with the requirements of commercial and recreational navigation.

The Oregon State Highway Department has given us excellent cooperation, and we believe that, insofar as it affects navigation, their proposed bridge is equal to or better than the bridge proposed last year. We note that horizontal and vertical clearances are in each case at least equal to the earlier proposal, and that the South Channel vertical clearance has been increased as requested by certain parties last year.

It is recommended that location and plans for this bridge be approved.

Very truly yours,

THE PORT OF PORTLAND

Original signed by
GEORGE M. BALDWIN

GEORGE M. BALDWIN
General Manager

cc: Oregon State Highway Department

RECEIVED
JUN 24 1968
OFFICE OF
STATE HIGHWAY ENGINEER

8905

RECEIVED
JUN [illegible] 1968

DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

Address reply to:
COMMANDER (o-4)
Thirteenth Coast Guard District
618 Second Ave.
Seattle, Wash. 98104

6 June 1968
1015

Edwards

In reply refer to
Columbia River Highway
I-205 Bridge

PUBLIC NOTICE NO. 68-10

BRIDGES

All interested parties are notified that an application dated 24 May 1968 has been received by the Commander, Thirteenth Coast Guard District, from the State of Oregon, Department of Highways, for approval and location of plans for a highway bridge over the Columbia River, as follows:

Porter

WATERWAY AND LOCATION

Columbia River between Vancouver, Washington and Portland, Oregon, approximately 112.7 miles above the mouth of the Columbia River.

NOTED
F.B. KLABOE

CHARACTER OF WORK

This application is for approval of location and plans of a fixed highway bridge approximately 5-1/2 miles upriver from the present Vancouver-Portland twin bridge referred to as the Interstate Bridge. The proposed bridge will cross two channels, as follows:

Main Channel

The proposed bridge will provide horizontal clearance of 400 feet between piers measured normal to the channel. The vertical clearance will be a minimum of 148 feet adjacent to the south pier of the opening, and a minimum of 152 feet over the Central 300 feet of the opening. The above vertical clearances are measured from a mean low water elevation (Columbia River datum elevation 0.0)

Small Craft Channel

The proposed bridge will provide horizontal clearance of 120 feet between piers measured normal to the channel. The vertical clearance will be a minimum of 69 feet measured from a mean low water elevation (Columbia River datum elevation 0.0).

Water datums for vertical clearances

The vertical clearances listed above are from a water surface corresponding to Columbia River datum elevation 0.0. Clearances at various flood stages of the river and at other times are noted on the attached drawings.

NOTED
TOM EDWARDS

Copy - Merchant
6-18-68

6-19-68

NOTED
L. PORTER

The five-year frequency flood after completion of the Canadian flood water storage projects will reduce the vertical clearances of both channels by 18.5 feet.

ASSOCIATED WORK IN THE COLUMBIA RIVER

The Port of Portland has made application to the Portland District Corps of Engineers for a permit to accomplish dredging and filling on the South side of the Columbia River in the vicinity of the bridge. The details are shown on Public Notice No. 68-47 dated 10 May 1968, by the Corps of Engineers, which notice should be reviewed along with this bridge permit application.

BASIS FOR DECISION

The decision as to whether or not approval of the location and plans for the proposed bridge will be granted must rest primarily upon the affect of the bridge on navigation. However, other pertinent factors will be accepted and made part of the record and will be considered in determining whether or not it would be in the best public interest to grant approval.

Interested parties are requested to express their views in writing, upon the suitability of the location and adequacy of the navigational clearances, giving sufficient details to establish a clear understanding of the reason for support or opposition. Protests and comments will be received until July 8, 1968. All correspondence should be addressed to:

Commander, Thirteenth Coast Guard District
Attention: Aids to Navigation Branch
618 - 2nd Avenue
Seattle, Washington 98104

This notice consists of 2 sheets, plus three prints.

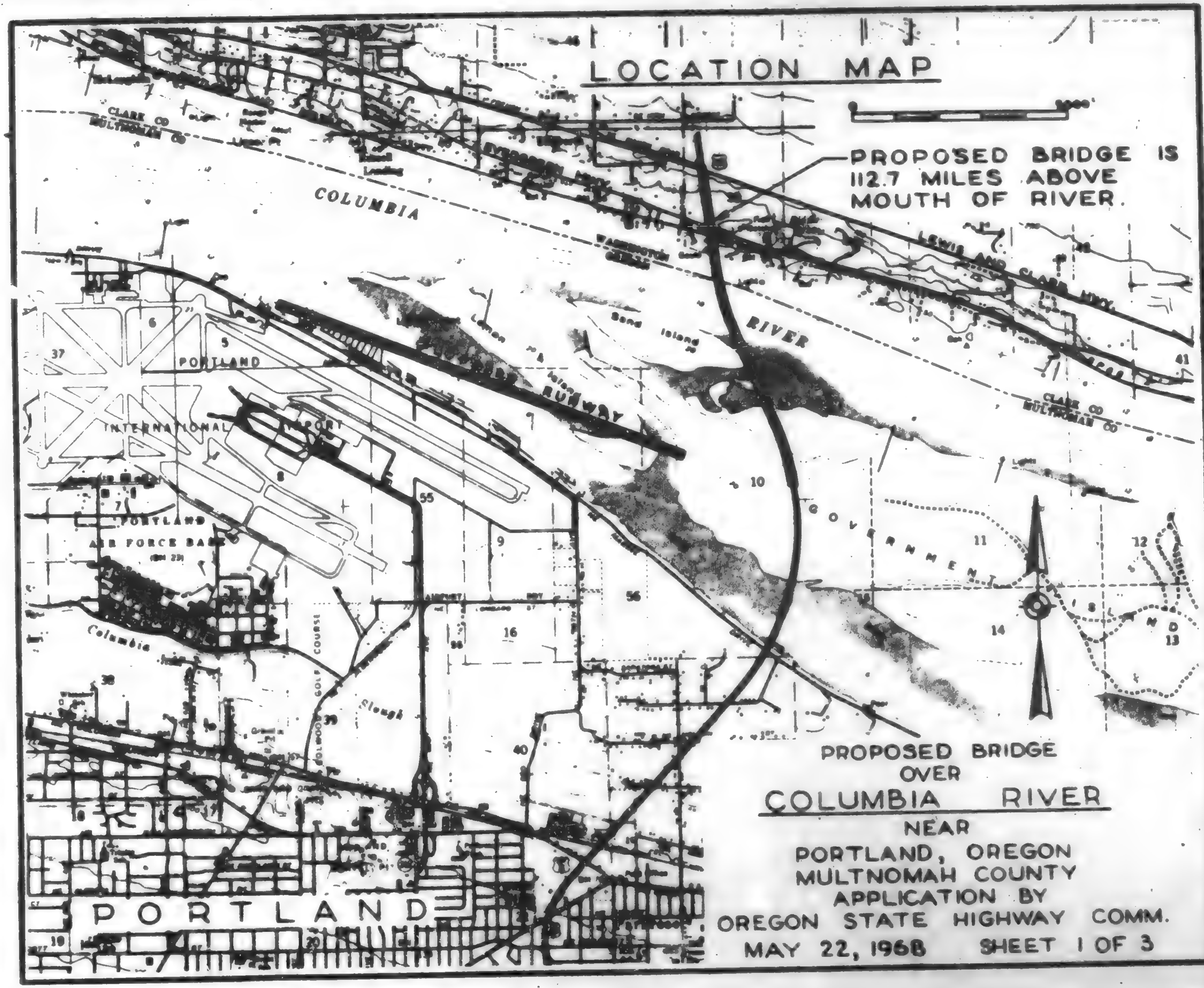
J. B. SPEAKER, JR.
Captain, U. S. Coast Guard
Chief, Operations Division
By direction of the District Commander

Encl (1) prints-3

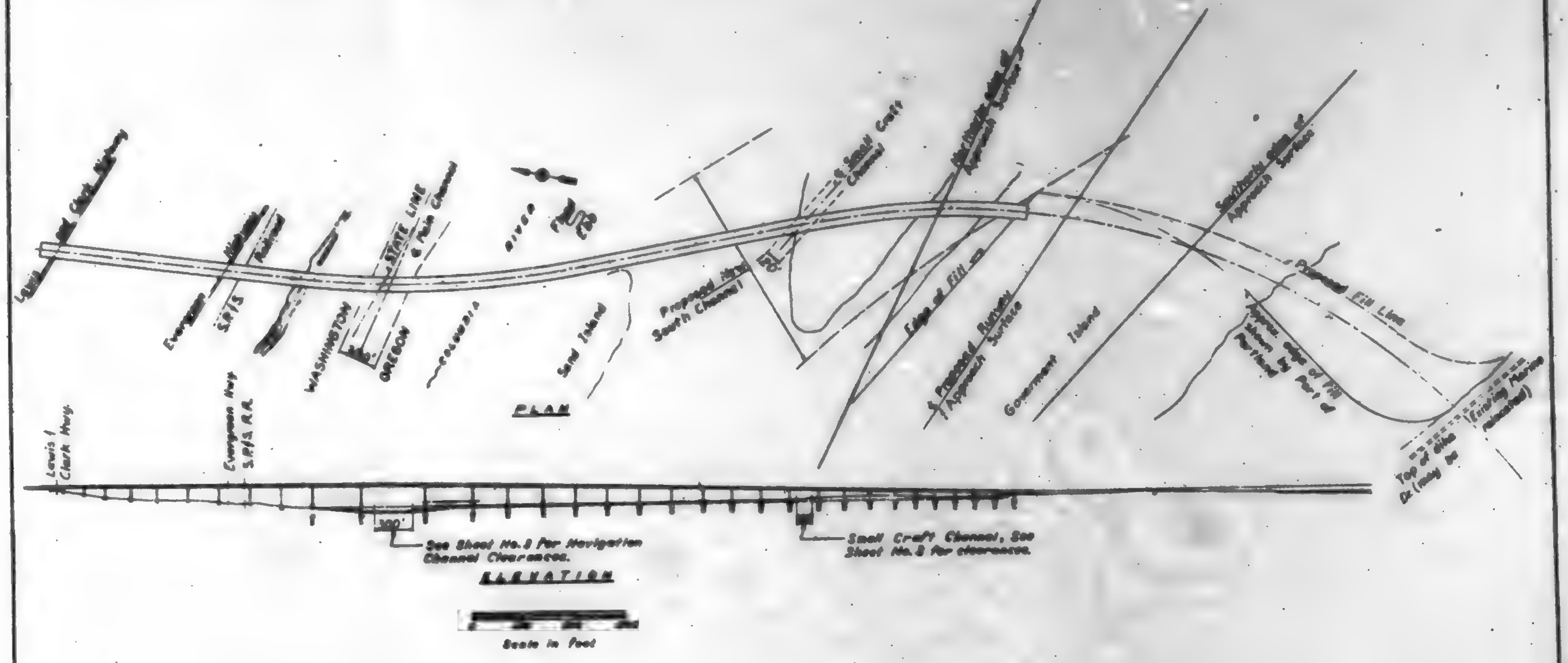
RECEIVED
JUN 12 1968
OFFICE OF
STATE HIGHWAY ENGINEER

LOCATION MAP

PROPOSED BRIDGE IS
112.7 MILES ABOVE
MOUTH OF RIVER.

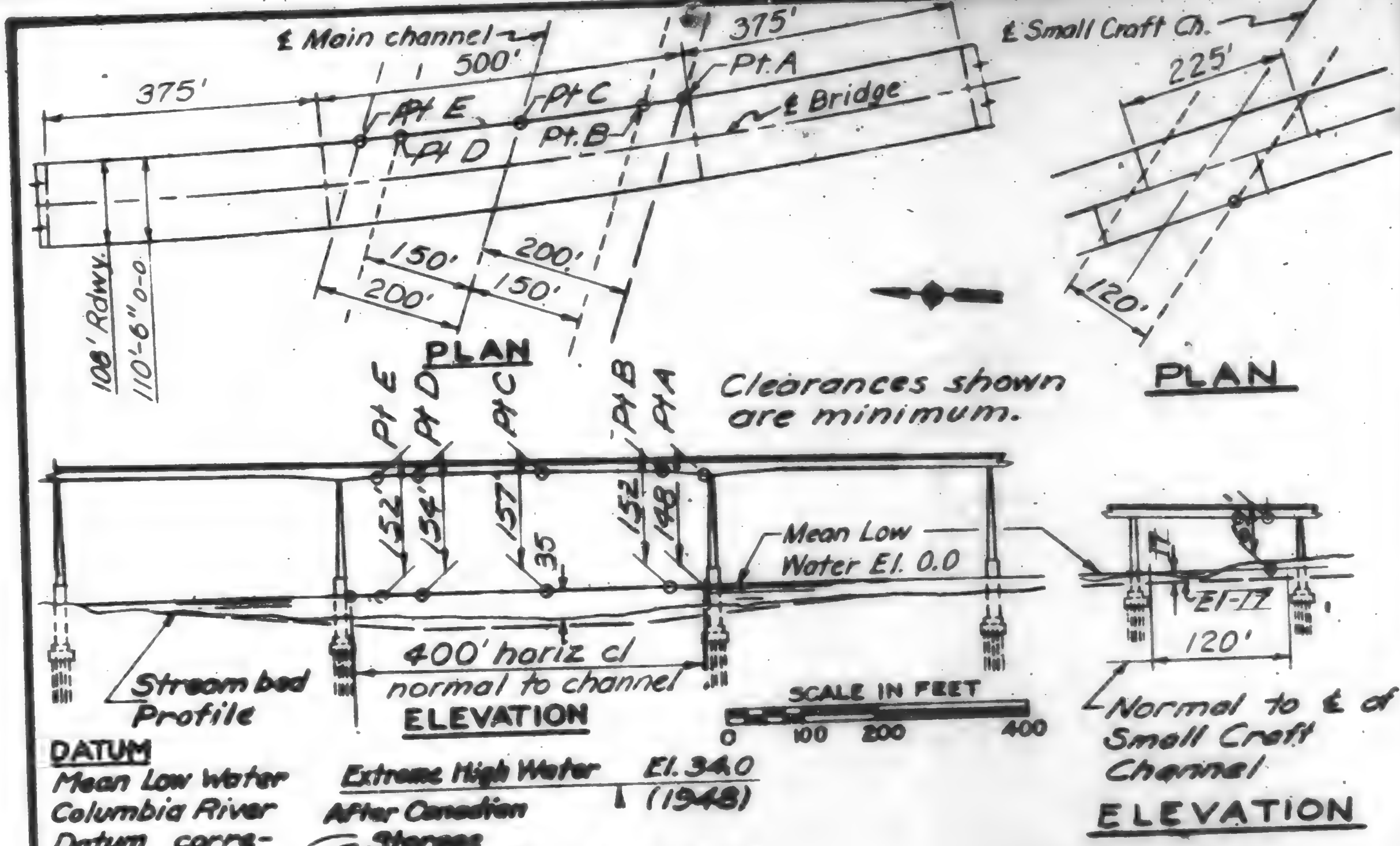

CLARK CO
MULTNOMAH CO
COLUMBIA
RIVER
LEWIS AND CLARK HWY.
PORTLAND
INTERNATIONAL AIRPORT
RUNWAY
PORTLAND
AIR FORCE BASE
Columbia
COLWOOD GOLF COURSE
Slough
GOVERNMENT ISLAND
PORTLAND
37
6
5
8
7
9
10
11
12
13
14
16
38
39
40
41
55
56

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY COMM.
MAY 22, 1968 SHEET 1 OF 3

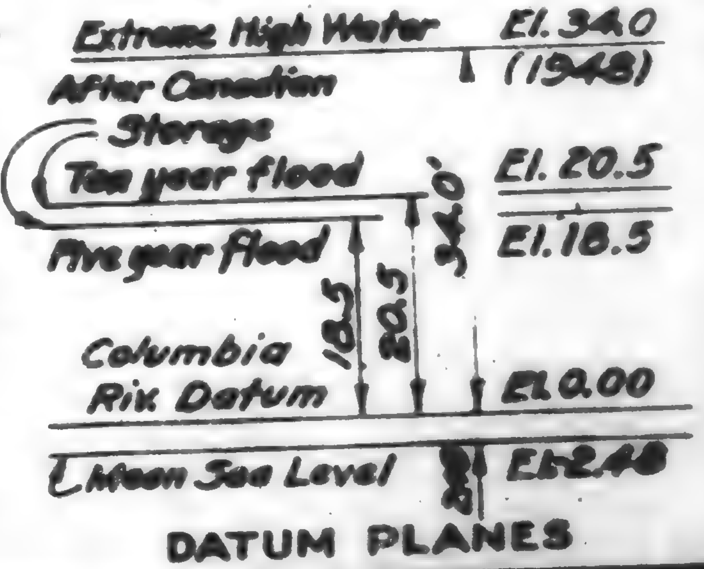

Lewis and Clark Highway
Evergreen Highway
S.P.&S. Railroad
WASHINGTON
STATE LINE
OREGON
℄ Main Channel
COLUMBIA
RIVER
Sand Island
PLAN
Proposed Hwy. South Channel
℄ Small Craft Channel
Northerly edge of Approach Surface
Edge of Fill
℄ Proposed Runway Approach Surface
Government Island
Southerly edge of Approach Surface
Proposed Fill Line
Approx. edge of Fill
Top of dike
Existing Marine
Lewis & Clark Hwy.
Evergreen Hwy S.P.&S. R.R.
300'
See Sheet No. 3 For Navigation Channel Clearances.
ELEVATION
Small Craft Channel, See Sheet No. 3 for clearances.
Scale in Feet

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY COMMISSION
MAY 22, 1968 SHEET 2 OF 3

(Revised Line)


℄ Main channel
500'
375'
375'
Pt. E
Pt. D
Pt. C
Pt. B
Pt. A
℄ Bridge
150'
200'
200'
150'
108' Rdwy.
110'-6" o-o
PLAN
℄ Small Craft Ch.
225'
120'
PLAN
Clearances shown are minimum.
Pt E
Pt D
Pt C
Pt B
Pt A
152'
154'
157'
35
152
148
Mean Low Water El. 0.0
400' horiz cl normal to channel
Stream bed Profile
ELEVATION
SCALE IN FEET
0
100
200
400
El-17
120'
Normal to ℄ of Small Craft Channel
ELEVATION

DATUM
Mean Low Water Columbia River Datum, corresponds to an Elev. of 2.48 feet above mean sea level. Soundings are in feet and refer to mean low water, Columbia River Datum.


Extreme High Water
El. 34.0
(1948)
After Canadian Storage
Ten year flood
El. 20.5
Five year flood
El. 18.5
34.0'
20.5
18.5
Columbia Riv. Datum
El. 0.00
Mean Sea Level
2.48
El. 2.48

DATUM PLANES

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY COMMISSION
MAY 22, 1968 SHEET 3 OF 3

(Revised Line)

8905

RECEIVED
MAY 7 - 1968

FOR FILING

COMMISSIONERS
GL [illegible] MAN
KENNETH N. FRIDLEY, MEMBER
WASCO
DAVID B. SIMPSON, MEMBER
PORTLAND

STATE OF OREGON
STATE HIGHWAY DEPARTMENT
SALEM 97310

April 25, 1968

District Commander
13th Coast Guard District
2400 11th Street S. W.
Seattle, Washington 98134

Attention: J. E. Shields, Asst. Chief
of Aids to Navigation

Subject: Columbia River Bridge
East Portland Freeway - I-205
Multnomah County
Bridge No. 9555

Dear Sir:

Pursuant to your telephone request, we are attaching sheets number 1 through 3, which show the proposed location, alignment and clearances for the subject bridge.

These prints are preliminary and are sent to you as information relative to the proposed channel clearance.

If we can be of further help to you, please advise.

Very truly yours,

Ivan D. Merchant
Bridge Engineer
ORIGINAL SIGNED
By T. C. ROAKE
Theo. C. Roake
Asst. Bridge Engineer

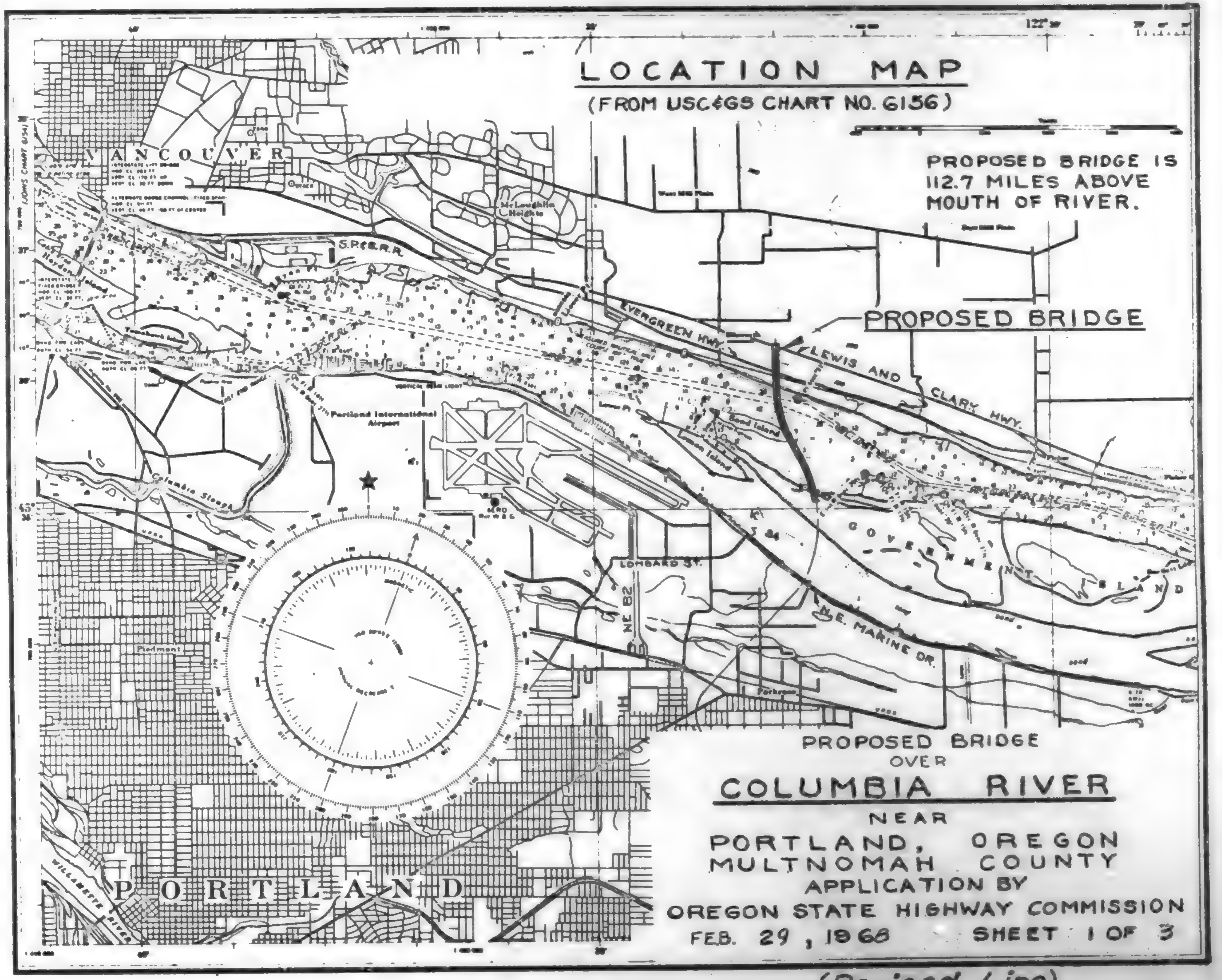
TCR:jr
Attachments

cc: Tom Edwards

NOTED
TOM EDWARDS

RECEIVED
APR 25 1968
OFFICE OF
STATE HIGHWAY ENGINEER

DR. 5555 FILE COPY


VANCOUVER
McLoughlin Heights
S.P.&S.R.R.
EVERGREEN HWY.
LEWIS AND CLARK HWY.
Portland International Airport
Columbia Slough
LOMBARD ST.
NE 82
N.E. MARINE DR.
GOVERNMENT ISLAND
Piedmont
Parkrose
WILLAMETTE RIVER
PORTLAND
122° 30'

LOCATION MAP

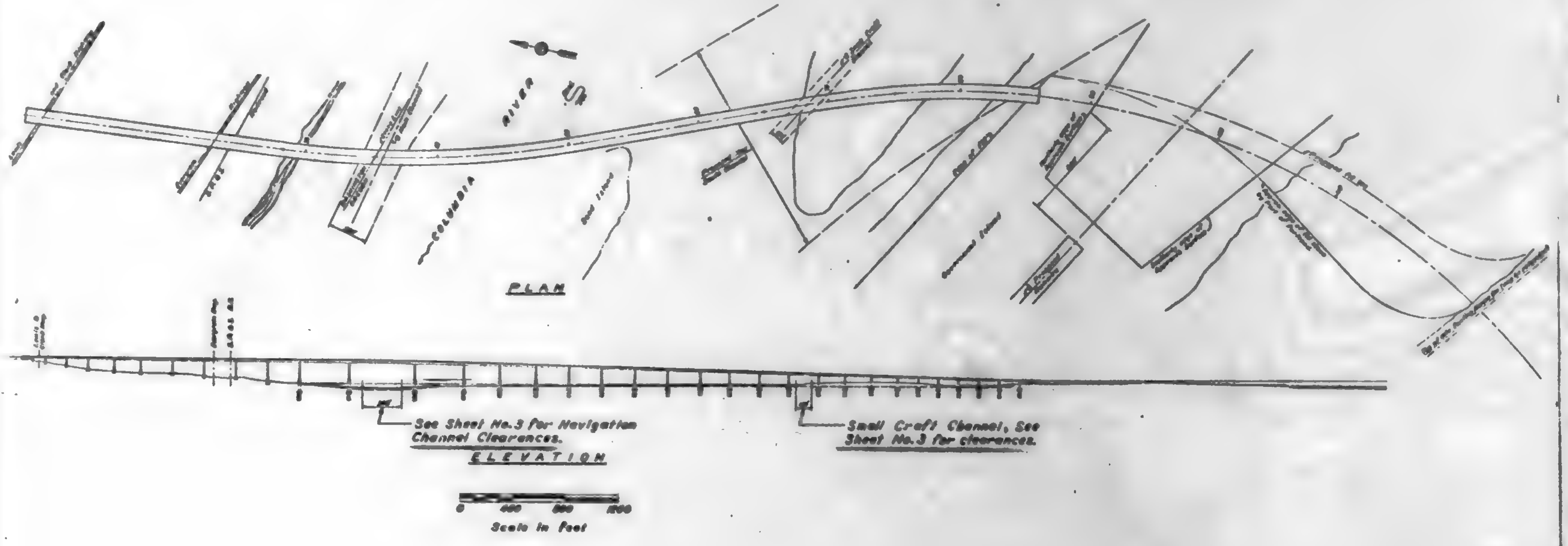
(FROM USC&GS CHART NO. 6156)

PROPOSED BRIDGE IS
112.7 MILES ABOVE
MOUTH OF RIVER.

PROPOSED BRIDGE

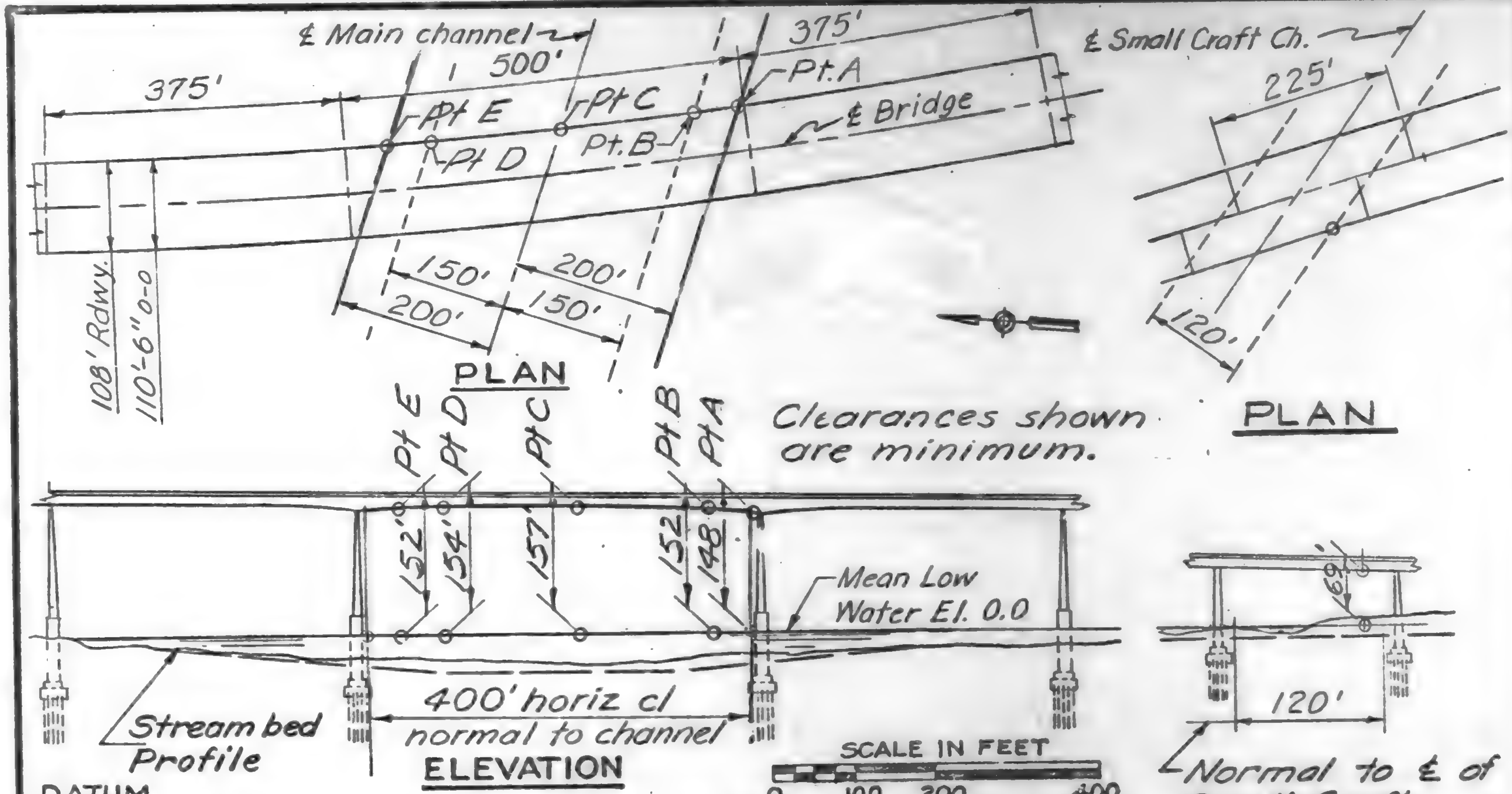
PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY COMMISSION
FEB. 29, 1968 SHEET 1 OF 3

(Revised Line)


COLUMBIA
RIVER
Sand Island
Government Island
PLAN
See Sheet No.3 for Navigation Channel Clearances.
Small Craft Channel, See Sheet No.3 for clearances.
ELEVATION
0
400
800
1200
Scale in Feet

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY COMMISSION
FEBRUARY 29, 1968 SHEET 2 OF 3

(Revised Line)



℄ Main channel
500'
375'
375'
℄ Small Craft Ch.
225'
Pt E
Pt C
Pt A
Pt D
Pt B
℄ Bridge
108' Rdwy.
110'-6" o-o
150'
200'
200'
150'
120'
PLAN
PLAN
Pt E
Pt D
Pt C
Pt B
Pt A
152'
154'
157'
152
148
69'
Mean Low Water El. 0.0
400' horiz cl normal to channel
Stream bed Profile
ELEVATION
120'
SCALE IN FEET
0
100
200
400

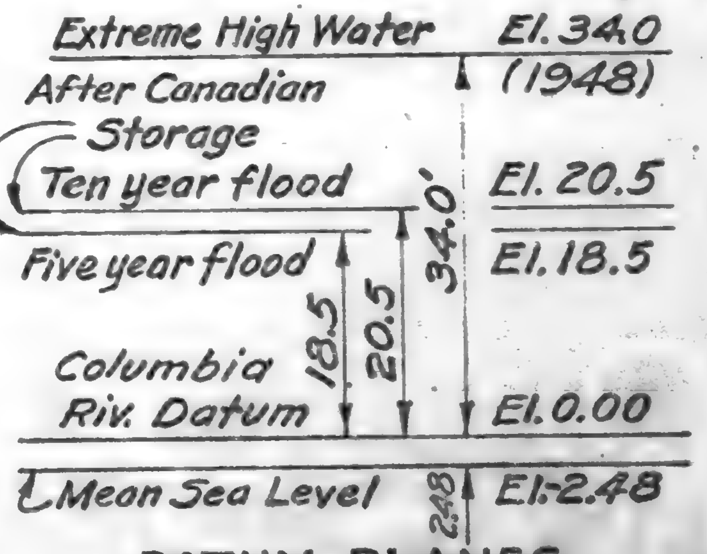
Clearances shown are minimum.

Normal to ℄ of Small Craft Channel

ELEVATION

DATUM

Mean Low Water Columbia River Datum, corresponds to an Elev. of 2.48 feet above mean sea level. Soundings are in feet and refer to mean low water, Columbia River Datum.



Extreme High Water
El. 34.0
After Canadian Storage
(1948)
Ten year flood
El. 20.5
Five year flood
El. 18.5
34.0'
18.5
20.5
Columbia Riv. Datum
El. 0.00
Mean Sea Level
2.48
El. -2.48

DATUM PLANES

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY COMMISSION
FEB. 29, 1968 SHEET 3 OF 3

(Revised Line)

8706

8 P

RECEIVED
JAN 24 1968

SP*23401-734

OREGON STATE HIGHWAY DEPARTMENT

INTER-DEPARTMENT CORRESPONDENCE

Salem, Oregon
January 22, 1968

SUBJECT: I-205 crossing of Columbia River

To: MEMO TO THE FILE

As indicated in the meeting between the Port of Portland and the Highway Department staff on Monday, January 15, Mr. Ogden Beeman contacted Commander Olson of the Coast Guard and reported by phone the following:

1. It is Commander Olson's intent to take over completely from the Corps the matter of river and harbor clearances approximately March 15, 1968. This being the case, the matter will no longer be before the Corps of Engineers. Commander Olson suggested the following procedure:

(a) We notify him by letter that we are aware of the Port of Portland's proposed improvement.

(b) That we request that our application for permit for crossing be held pending decision.

(c) That at approximately the same time as the Port of Portland petitions the Corps of Engineers for its improvement, the Department submit to the Coast Guard a new application stating that it is in compliance with the Port of Portland's proposal and that we request cancellation of the old application and substitution therefor of the new application.

2. In discussing the matter with Commander Olson, Mr. Beeman pursued persistently the matter of whether or not the Coast Guard would require a new hearing. Commander Olson was firm that it did not. He stated it was his

belief that sufficient data were available in the old application; that in case dissident groups objected, the Coast Guard would meet with them individually in an attempt to work out their problems.

3. Commander Olson stated that the northwest operations would come under the 13th Coast Guard District. Communications are to be directed to Commander Koll, 13th Coast Guard District, 2400 - 11th Street, S. W., Seattle, Washington 98134.

Tom Edwards
Assistant State Highway Engineer

TE:ja

cc Forrest Cooper
R. L. Porter
F. B. Klaboe
Victor D. Wolfe
Ivan Merchant

8805/ 8

RECEIVED
JAN 17 1968
FORM E-30 50M 10-65

FOR FILING

Cover

RLP

EPF

OREGON STATE HIGHWAY DEPARTMENT

INTER-DEPARTMENT CORRESPONDENCE

Salem, Oregon
January 15, 1968

SUBJECT:

To: Memo to File

On this date, Messrs. Baldwin, Beaman, and Arnold of the Port of Portland called at the office and discussed with Forrest Cooper, Tom Edwards, and R. L. Porter the tentative timetable (attached) for the proposed north runway fill at the Portland Airport. They stated the location of the easterly end of the proposed runway is as described at the last joint meeting and that the Port will furnish fill to an elevation of 35± and right-of-way upon which to relocate I-205.

There was some discussion relative to the State's current application for a navigational permit and Mr. Edwards is to check with the Coast Guard about an amendment.

Port of Portland

The rest of the meeting was devoted to explanation and discussion of the various items on the attached schedule. The State will check with the Bureau of Public Roads to determine if Federal-aid Interstate funds could participate in any cost of the fill which will support the Interstate route.

R. L. Porter

R. L. Porter
Deputy State Highway Engineer

Att.
RLP:ms
cc Forrest Cooper
Tom Edwards
F. B. Klaboe
Victor D. Wolfe

Copy to Young
Morgan
1-18-68

BW/
Edwards to
Revise Memo

Copy sent to A. E. Johnson
ado 1/19/68-

8918

NOV 9 - 1967

FORM E-30 50M 10-65

OREGON STATE HIGHWAY DEPARTMENT

INTER-DEPARTMENT CORRESPONDENCE

Salem, Oregon
November 8, 1967

SUBJECT:

To:

MEMO TO THE FILE

Commander Olson, Chief of the Bridge Branch, Aids to Navigation Division, Coast Guard Headquarters, 1300 "E" Street, N. W., Washington, D.C., 20591, called this date concerning the permit for the I-205 bridge across the Columbia River. He has under discussion the Port of Portland plan and asked for a two-week delay in rendering a decision thereon. I told him the following things:

1. The State could not consider any plan which required construction at a surface elevation below approximately 38.0 feet.

2. That we would require a covered section, since the operation of jets over the highway in such close proximity to the port under an open, uncovered condition could not be acceptable.

3. That we probably would require a lowering over the main channel to 135-foot clearance.

4. We were making a rough assessment of the economics involved.

5. That we were currently not in favor of the plan.

6. We would keep him advised of our position.

Tom Edwards
Assistant State Highway Engineer

TE:ja

cc Forrest Cooper
R. L. Porter
F. B. Klaboe
Victor D. Wolfe
Ivan Merchant

P.S. Commander Olson's telephone number is: Area Code 202, WO4-5350.

1979 Columbia R. Br. (N. Channel 890
Superstruc.) I-205

Army Permit

8905

9

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS

NOTICE OF AUTHORIZATION

11 November 19 77

A PERMIT TO dredge to a depth of -16 feet C.R.D. removing approximately 700,000 cubic yards of material.

XX near Portland, Oregon

HAS BEEN ISSUED TO Oregon State Highway Division **ON** 11 November 19 77
212 Transportation Bldg.
ADDRESS OF PERMITTEE Salem, Oregon 97310

PERMIT NUMBER
002714 (Columbia River-Dredging)

A. J. HEINEMAN
For the District Engineer

ENG Form 4336
Jul 70

THIS NOTICE MUST BE CONSPICUOUSLY DISPLAYED AT THE SITE OF WORK.

Orig. permit, cpy sticker: Gen. Files

Cpy permit & sticker: Keasey, Ellison, Versteeg
Terpin, Moehring, Region 1

Orig. sticker, cpy permit: Cecil Head:
Please mail sticker to Resident Engineer with signed copy of contract when let.

Application No. 071-OYA-2-002714

Name of Applicant OREGON STATE HIGHWAY DIVISION

Effective Date 11 November 1977

Expiration Date (If applicable) 30 November 1980

DEPARTMENT OF THE ARMY
PERMIT

Referring to written request dated 21 July 1977 for a permit to:

(XX) Perform work in or affecting navigable waters of the United States, upon the recommendation of the Chief of Engineers, pursuant to Section 10 of the Rivers and Harbors Act of March 3, 1899 (33 U.S.C. 403);

(XX) Discharge dredged or fill material into navigable waters upon the issuance of a permit from the Secretary of the Army acting through the Chief of Engineers pursuant to Section 404 of the Federal Water Pollution Control Act (86 Stat. 816, P.L. 92-500);

( ) Transport dredged material for the purpose of dumping it into ocean waters upon the issuance of a permit from the Secretary of the Army acting through the Chief of Engineers pursuant to Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (86 Stat. 1052; P.L. 92-532);

Oregon State Highway Division
212 Transportation Building
Salem, OR 97310

◄ (Here insert the full name and address of the permittee)

is hereby authorized by the Secretary of the Army:

to dredge to a depth of -16 feet C.R.D. removing approx. 700,000 cy of material. The work is to be accomplished by hydraulic dredge with the material being placed directly into the I-205 fill between Marine Drive and Columbia Slough, or in a stock pile site for eventual use as fill for I-205.

◄ (Here describe the proposed structure or activity, and its intended use. In the case of an application for a fill permit, describe the structures, if any, proposed to be erected on the fill. In the case of an application for the discharge of dredged or fill material into navigable waters or the transportation for discharge in ocean waters of dredged material, describe the type and quantity of material to be discharged.)

in Columbia River Mile 113.5

◄ (Here to be named the ocean, river, harbor, or waterway concerned.)

XX near Portland, Oregon

◄ (Here to be named the nearest well-known locality—preferably a town or city—and the distance in miles and tenths from some definite point in the same, stating whether above or below or giving direction by points of compass.)

in accordance with the plans and drawings attached hereto which are incorporated in and made a part of this permit (on drawings: give file number or other definite identification marks):

002714(Columbia River-Dredging)

subject to the following conditions:

I. General Conditions:

a. That all activities identified and authorized herein shall be consistent with the terms and conditions of this permit; and that any activities not specifically identified and authorized herein shall constitute a violation of the terms and conditions of this permit which may result in the modification, suspension or revocation of this permit, in whole or in part, as set forth more specifically in General Conditions j or k hereto, and in the institution of such legal proceedings as the United States Government may consider appropriate, whether or not this permit has been previously modified, suspended or revoked in whole or in part.

b. That all activities authorized herein shall, if they involve a discharge or deposit into navigable waters or ocean waters, be at all times consistent with applicable water quality standards, effluent limitations and standards of performance, prohibitions, and pretreatment standards established pursuant to Sections 301, 302, 306 and 307 of the Federal Water Pollution Control Act of 1972 (P.L. 92-500; 86 Stat. 816), or pursuant to applicable State and local law.

c. That when the activity authorized herein involves a discharge or deposit of dredged or fill material into navigable waters, the authorized activity shall, if applicable water quality standards are revised or modified during the term of this permit, be modified, if necessary, to conform with such revised or modified water quality standards within 6 months of the effective date of any revision or modification of water quality standards, or as directed by an implementation plan contained in such revised or modified standards, or within such longer period of time as the District Engineer, in consultation with the Regional Administrator of the Environmental Protection Agency, may determine to be reasonable under the circumstances.

d. That the permittee agrees to make every reasonable effort to prosecute the work authorized herein in a manner so as to minimize any adverse impact of the work on fish, wildlife and natural environmental values.

e. That the permittee agrees to prosecute the work authorized herein in a manner so as to minimize any degradation of water quality.

f. That the permittee shall permit the District Engineer or his authorized representative(s) or designee(s) to make periodic inspections at any time deemed necessary in order to assure that the activity being performed under authority of this permit is in accordance with the terms and conditions prescribed herein.

g. That the permittee shall maintain the structure or work authorized herein in good condition and in accordance with the plans and drawings attached hereto.

h. That this permit does not convey any property rights, either in real estate or material, or any exclusive privileges; and that it does not authorize any injury to property or invasion of rights or any infringement of Federal, State, or local laws or regulations, nor does it obviate the requirement to obtain State or local assent required by law for the activity authorized herein.

i. That this permit does not authorize the interference with any existing or proposed Federal project and that the permittee shall not be entitled to compensation for damage or injury to the structures or work authorized herein which may be caused by or result from existing or future operations undertaken by the United States in the public interest.

j. That this permit may be summarily suspended, in whole or in part, upon a finding by the District Engineer that immediate suspension of the activity authorized herein would be in the general public interest. Such suspension shall be effective upon receipt by the permittee of a written notice thereof which shall indicate (1) the extent of the suspension, (2) the reasons for this action, and (3) any corrective or preventative measures to be taken by the permittee which are deemed necessary by the District Engineer to abate imminent hazards to the general public interest. The permittee shall take immediate action to comply with the provisions of this notice. Within ten days following receipt of this notice of suspension, the permittee may request a hearing in order to present information relevent to a decision as to whether his permit should be reinstated, modified or revoked. If a hearing is requested, it shall be conducted pursuant to procedures prescribed by the Chief of Engineers. After completion of the hearing, or within a reasonable time after issuance of the suspension notice to the permittee if no hearing is requested, the permit will either be reinstated, modified or revoked.

k. That this permit may be either modified, suspended or revoked in whole or in part if the Secretary of the Army or his authorized representative determines that there has been a violation of any of the terms or conditions of this permit or that such action would otherwise be in the public interest. Any such modification, suspension, or revocation shall become effective 30 days after receipt by the permittee of written notice of such action which shall specify the facts or conduct warranting same unless (1) within the 30-day period the permittee is able to satisfactorily demonstrate that (a) the alleged violation of the terms and the conditions of this permit did not, in fact, occur or (b) the alleged violation was accidental, and the permittee has been operating in compliance with the terms and conditions of the permit and is able to provide satisfactory assurances that future operations shall be in full compliance with the terms and conditions of this permit; or (2) within the aforesaid 30-day period, the permittee requests that a public hearing be held to present oral and written evidence concerning the proposed modification, suspension or revocation. The conduct of this hearing and the procedures for making a final decision either to modify, suspend or revoke this permit in whole or in part shall be pursuant to procedures prescribed by the Chief of Engineers.

l. That in issuing this permit, the Government has relied on the information and data which the permittee has provided in connection with his permit application. If, subsequent to the issuance of this permit, such information and data prove to be false, incomplete or inaccurate, this permit may be modified, suspended or revoked, in whole or in part, and/or the Government may, in addition, institute appropriate legal proceedings.

m. That any modification, suspension, or revocation of this permit shall not be the basis for any claim for damages against the United States.

n. That the permittee shall notify the District Engineer at what time the activity authorized herein will be commenced, as far in advance of the time of commencement as the District Engineer may specify, and of any suspension of work, if for a period of more than one week, resumption of work and its completion.

o. That if the activity authorized herein ~~is not started on or before ________ day of ________, 19___ (one year from the date of issuance of this permit unless otherwise specified) and~~ is not completed on or before 30 day of November, 1980, (three years from the date of issuance of this permit unless otherwise specified) this permit, if not previously revoked or specifically extended, shall automatically expire.

p. That no attempt shall be made by the permittee to prevent the full and free use by the public of all navigable waters at or adjacent to the activity authorized by this permit.

q. That if the display of lights and signals on any structure or work authorized herein is not otherwise provided for by law, such lights and signals as may be prescribed by the United States Coast Guard shall be installed and maintained by and at the expense of the permittee.

r. That this permit does not authorize or approve the construction of particular structures, the authorization or approval of which may require authorization by the Congress or other agencies of the Federal Government.

s. That if and when the permittee desires to abandon the activity authorized herein, unless such abandonment is part of a transfer procedure by which the permittee is transferring his interests herein to a third party pursuant to General Condition v hereof, he must restore the area to a condition satisfactory to the District Engineer.

t. That if the recording of this permit is possible under applicable State or local law, the permittee shall take such action as may be necessary to record this permit with the Register of Deeds or other appropriate official charged with the responsibility for maintaining records of title to and interests in real property.

u. That there shall be no unreasonable interference with navigation by the existence or use of the activity authorized herein.

v. That this permit may not be transferred to a third party without prior written notice to the District Engineer, either by the transferee's written agreement to comply with all terms and condition of this permit or by the transferee subscribing to this permit in the space provided below and thereby agreeing to comply with all terms and conditions of this permit. In addition, if the permittee transfers the interests authorized herein by conveyance of realty, the deed shall reference this permit and the terms and conditions specified herein and this permit shall be recorded along with the deed with the Register of Deeds or other appropriate official.

The following Special Conditions will be applicable when appropriate:

~~**STRUCTURES FOR SMALL BOATS:** That permittee hereby recognizes the possibility that the structure permitted herein may be subject to damage by wave wash from passing vessels. The issuance of this permit does not relieve the permittee from taking all proper steps to insure the integrity of the structure permitted herein and the safety of boats moored thereto from damage by wave wash and the permittee shall not hold the United States liable for any such damage.~~

~~**DISCHARGE OF DREDGED MATERIAL INTO OCEAN WATERS:** That the permittee shall place a copy of this permit in a conspicuous place in the vessel to be used for the transportation and/or dumping of the dredged material as authorized herein.~~

~~**ERECTION OF STRUCTURE IN OR OVER NAVIGABLE WATERS:** That the permittee, upon receipt of a notice of revocation of this permit or upon its expiration before completion of the authorized structure or work, shall, without expense to the United States and in such time and manner as the Secretary of the Army or his authorized representative may direct, restore the waterway to its former conditions. If the permittee fails to comply with the direction of the Secretary of the Army or his authorized representative, the Secretary or his designee may restore the waterway to its former condition, by contract or otherwise, and recover the cost thereof from the permittee.~~

MAINTENANCE DREDGING: (1) That when the work authorized herein includes periodic maintenance dredging, it may be performed under this permit for 3 years from the date of issuance of this permit (ten years unless otherwise indicated); and (2) That the permittee will advise the District Engineer in writing at least two weeks before he intends to undertake any maintenance dredging.

II. Special Conditions (Here list conditions relating specifically to the proposed structure or work authorized by this permit):

aa. Care will be taken to prevent any petroleum products, chemicals or other deleterious materials from entering the water.

bb. Slope of the riprap, bank, or excavation, etc. will be no steeper than four foot horizontal to one foot vertical.

cc. Work in the waterway will be done so as to minimize turbidity increases in the water which tend to degrade water quality and damage aquatic life.

dd. Land disposal of dredged material will be accomplished behind adequately maintained protective berms which will prevent the materials from returning to the waterway.

ee. If a hydraulic dredge is used, the dredge is to be operated with the intake on or below the surface of the material being removed.

ff. Backwashing of the hydraulic dredge intake line is to be held to an absolute minimum and, when backwashing is necessary, the intake be raised no more than three feet above the bed material.

gg. Waste water from hydraulic dredging operations shall comply with appropriate water quality standards.

hh. The disposal area, method of disposal, or method of dredging will not be changed without the prior written approval of the District Engineer.

CONT ON PAGE 4A

This permit shall become effective on the date of the District Engineer's signature.

Permittee hereby accepts and agrees to comply with the terms and conditions of this permit.

George C. Wills — 11/9/77

PERMITTEE — DATE

For P. G. TERPIN

BY AUTHORITY OF THE SECRETARY OF THE ARMY:

11 November 1977

DATE

HARVEY L. ARNOLD, JR.
Colonel, Corps of Engineers
DISTRICT ENGINEER,
U.S. ARMY, CORPS OF ENGINEERS

By A. J. HEINEMAN
Chief, Navigation Division

Transferee hereby agrees to comply with the terms and conditions of this permit.

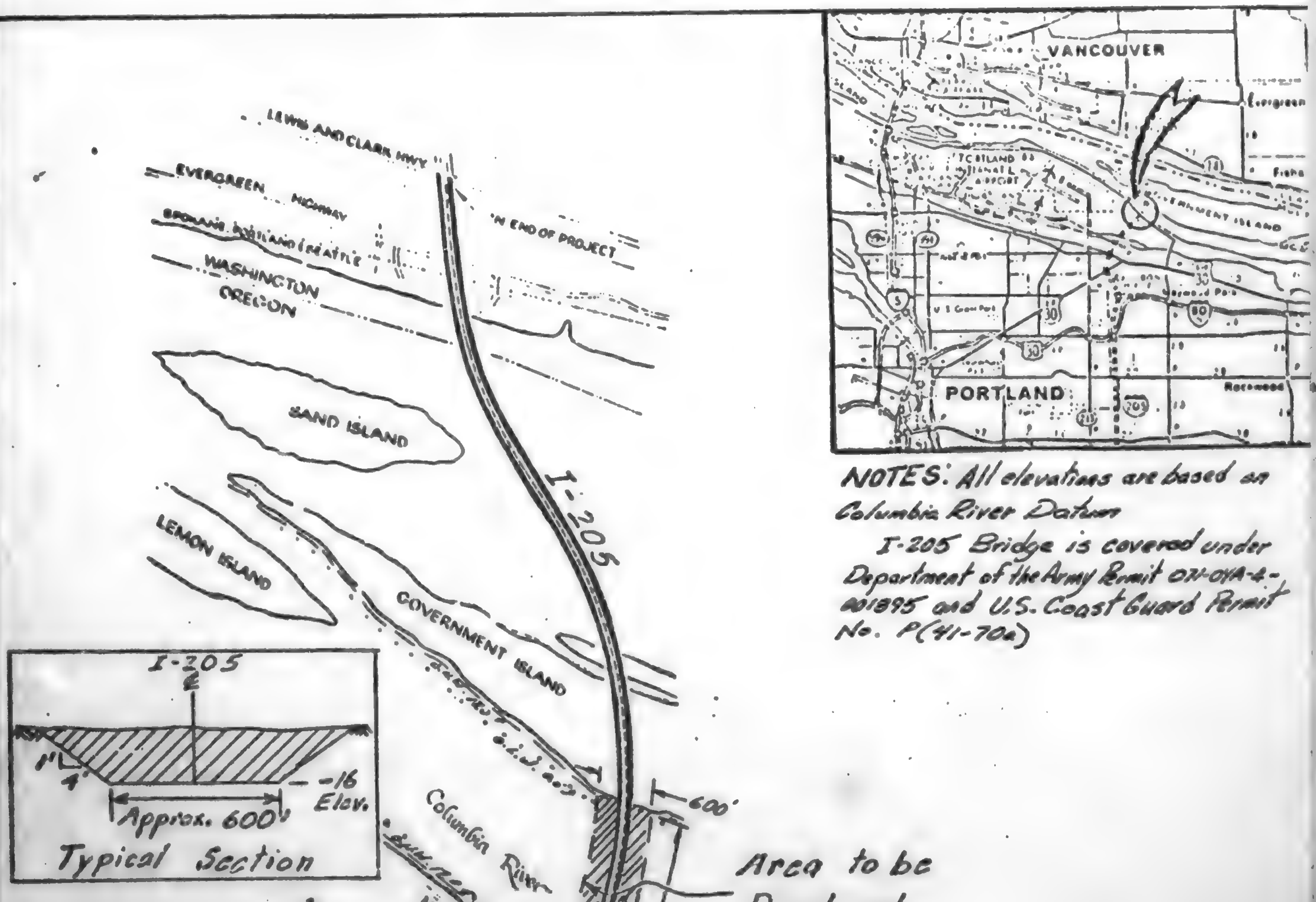
TRANSFEREE — DATE

071-OYA-2-002714
OREGON STATE HIGHWAY DIVISION
(Columbia River-Dredging)

ii. When the District Engineer has been notified by a fishery agency that a dredging or filling activity is adversely affecting fish or wildlife resources or the harvest thereof and the District Engineer subsequently directs remedial measures, the permittee will comply with such directions as may be received to suspend or modify the activity to the extent necessary to mitigate or eliminate the adverse effect as required.

jj. Work performed under this permit is further subject to such enforcement actions as may be instituted by the State of Oregon or its agencies under the provisions of Division of State Lands Material Removal Permit No. 2731.

002714 (Columbia River - Dredging)



LEWIS AND CLARK HWY
EVERGREEN HIGHWAY
SPOKANE, PORTLAND & SEATTLE
N END OF PROJECT
WASHINGTON
OREGON
SAND ISLAND
LEMON ISLAND
GOVERNMENT ISLAND
I-205
Columbia River
600'
2400'
Area to be Dredged
Steel pile Areas
MARINE DR
I-205 FWY
N.E. HOLMAN ST
Columbia Slough
FUTURE ACCESS TO EAST
N.E. MARX ST
SANDY BLVD
I-205
1'
4'
-16 Elev.
Approx. 600'
Typical Section
VANCOUVER
PORTLAND

NOTES: All elevations are based on Columbia River Datum

I-205 Bridge is covered under Department of the Army Permit 071-OYA-4-001895 and U.S. Coast Guard Permit No. P(41-70a)

PROPOSED DREDGING
IN: Columbia River (S. Channel)
NEAR: Portland River Mile 113.5
COUNTY: Multnomah
APPLICATION BY: Oregon State Hwy.
DATE: 7-15-77 SHEET 1 OF 1

8905

April 30, 1976

bc F. B. Klaboe
Walt Hart
J. H. Versteeg (enc.)
Frank Terpin

771-H

Director
Division of State Lands
1445 State Street
Salem, OR 97310

Dear Sir:

PN 071-OYA-1-00185
I-205 Bridge Project
Columbia River
Multnomah County

We were asked by the Portland District of the Corps of Engineers to inform you of our intent to comply with the conditions under which a water quality certificate will be issued for the subject project.

We believe that the project can be completed within the constraints imposed by these conditions and accept them as the basis for performance of the work.

It is noted that approval of a water quality certificate and material removal permit are prerequisites for issuance of a Section 404 permit by the Corps of Engineers.

Very truly yours,

E. S. Hunter
Deputy State Highway Engineer

cc Portland District
Corps of Engineers

State of Oregon Dept.
of Environmental Quality

WAE:mc ja

4.23

DEPARTMENT OF THE ARMY
PORTLAND DISTRICT, CORPS OF ENGINEERS
P. O. BOX 2946
PORTLAND, OREGON 97208

REPLY TO ATTENTION OF: NPPND-RF-1

19 April 1976

RECEIVED
STATE HWY ENGR
APR 22 '76
REFER TO Renzin
FOR
Info | Invs | R/D | D/R | Sign | Act | File

cy Walt Hart

Mr. E. S. Hunter, Asstnt State Highway Engineer
Highway Building
Salem, OR 97310

Dear Mr. Hunter:

Inclosed is a copy of correspondence received in response to Public Notice No. 071-OYA-1-001895 (Columbia River - Dredging, Fill).

The policy of the Portland District is to allow an applicant the opportunity to comment on objections or questions raised in connection with his permit application. As applicant, you should determine the proper approach for satisfying adverse reaction to your proposed project. Possible methods may include (1) supplying concrete and demonstrable evidence that the objection is ill-founded, (2) agreeing to observe appropriate corrective or preventive conditions, (3) redesign of contemplated work, (4) submission to this office of evidence that a covering agreement of approval from the objector has been secured, or (5) supplying the inquiring party with the information requested. Other methods, of course, for satisfying objections or questions may occur to you. Copies of all replies and of any final resolution or disposition of each problem should be furnished this office so that the nature of any solution may be fully evaluated before a permit is issued.

☒ Since the ~~objection or question~~ conditions ~~is~~ are from a Federal, state or local governmental or quasi-governmental agency, we ask that you reply directly to that agency.

☐ Since private individuals or groups are concerned, you may wish to reply directly to them in the fostering of improved public relations. If you prefer, you may respond directly to this office with appropriate views and facts.

I cannot emphasize too strongly that the better your answer or agreement satisfies the objections or questions, the sooner the processing of your application can be completed. Also, a lack of responsive action on your part may preclude issuance of the requested permit.

Sincerely yours,

F R Brockschink
F. R. BROCKSCHINK
Chief, Regulatory Functions Branch

Incl Cpy of DEQ lttr to Div of Sta Lnds
dtd 18 Mar 76

RECEIVED
APR 22 1976
LOCATION SECTION

DEPARTMENT OF ENVIRONMENTAL QUALITY

1234 S.W. MORRISON STREET • PORTLAND, ORE. 97205 • Telephone (503) 229-5358

BERT W. STRAUB
GOVERNOR

3-19

March 18, 1976

adp

Director
Division of State Lands
1445 State Street
Salem, Oregon 97310

SUBJECT: Corps of Engineers Public Notice 071-OYA-1-001895, and Division of State Lands Number 2203 for Oregon Highway Division, Dredging and Filling, Columbia River (I-205 Bridge Project)

Dear Sir:

The Oregon Department of Environmental Quality hereby certifies that the above subject project will comply with the applicable provisions of Title 33, United States Code, Sections 1311, 1312, 1316, and 1317 -- i.e., there is reasonable assurance that it will not violate applicable water quality standards, providing that the following conditions are met:

1. Between March 1 and October 1, when the river discharge is less than 300,000 cfs, the turbidity level in the turbidity plume 1,000 feet downstream from any phase of project activity shall not be greater than 10 JTU (Jackson Turbidity Units) above upstream background levels. When the river discharge is greater than 300,000 cfs, turbidity measured in the same manner shall not exceed 20% above upstream background levels.

2. Between October 1 and March 1 the best practicable construction practices shall be employed to minimize turbidity.

RECEIVED
APR 9 1976
PERMITS SECTION

RECEIVED
MAR 19 1976
DIVISION OF STATE LANDS

Contains
Recycled
Materials

3. Turbidity measurements in JTU shall be taken daily at 200 feet upstream and 1,000 feet downstream from each significant turbidity causing activity during the daily peak period of turbidity generation. Resulting turbidity data shall be submitted to the Department of Environmental Quality monthly for the project period covering in-stream construction activities.

Very truly yours,

LOREN KRAMER
Director

Glen D. Carter

Glen D. Carter, Supervisor
Water Quality Program
Development Section

GDC:elk

cc: U. S. Environmental Protection Agency (Portland)
J. Lauman, Oregon Department of Fish and Wildlife

RECEIVED
APR 9 1976
PERMITS SECTION

8905

OFFICE OF THE GOVERNOR
STATE CAPITOL
SALEM 97310

ROBERT W. STRAUB
GOVERNOR

April 7, 1976

NOTED
E. S. HUNTER

District Engineer
Corps of Engineers
U. S. Army
Portland District
P.O. Box 2946
Portland, OR 97208

Att: A. J. Heineman, Chief
Navigation Division

Ref: PN 071-OYA-1-001895 (Columbia River - Dredging and Filling)

Dear Sir:

I approve the project subject to the conditions outlined in Material Removal/Fill Permit No. 2203 to be issued by the Division of State Lands.

On March 18, 1976, the Department of Environmental Quality certified there was reasonable assurance that the project, as described, would not violate applicable water quality standards, providing certain conditions are met. These conditions are listed on the attached letter and will be included in the state removal/fill permit.

Sincerely,

Governor

K :lkp

Att. (none -)

cc: Oregon Department of Transportation
Division of State Lands
Department of Environmental Quality
Department of Fish & Wildlife
U.S. Fish & Wildlife Service

RECEIVED
STATE HWY ENGR

APR 8 '76

REFER TO
cy- Hank - Teegin
FOR

Info	Inves	R/D	D/R	Sign	Act	File

4-9-76

COPY

January 30, 1976

Insert in
Col. R. Br.
E.I.S.

Mr. G. L. Green, Division Administrator
Federal Highway Administration
Post Office Box 300
Salem, OR 97308

Dear Mr. Green:

Oregon Project I-205-7(2)303
Final EIS (Columbia River Bridge)

In response to concerns expressed by the Coast Guard, the Oregon State Highway Division will insert the paragraph below into the I-205 Final EIS.

1127-5

> "The U. S. Coast Guard and Corps of Engineers have been actively involved in preparation of the Final EIS through an extensive program of interagency coordination. The Coast Guard and Corps of Engineers worked closely with boating interests and OSHD to insure that recreation and commercial navigation would not be adversely affected by the design and location of the proposed structure. Extensive interaction between the Highway Division and both the Coast Guard and Corps of Engineers has resulted in a rapid and satisfactory resolution of all expressed concerns."

The EIS will briefly discuss the Corps of Engineers spur dike proposal as a mechanism to maintain the currently designated navigation channel because the dikes required will be placed in the vicinity of the bridge. Experts agree, however, that the proposed I-205 bridge will have neither an adverse nor beneficial impact on solving this problem. In the past, the location of the navigation channel parallel to Government Island has been continually altered by river currents. Experience has shown that the presently designated channel cannot be economically maintained by dredging.

One result of the continually fluctuating channel is that Sand Island (just downstream from the proposed I-205 bridge) has migrated 5,000 feet downstream and crossed the navigation channel during the past 30 years. The spur dikes (location undetermined) will constrict the river current causing it to maintain the channel. This program has already been successfully used on the Lower Columbia, and its use at Government Island will not affect the bridge location and design.

Very truly yours,

R. L. Schroeder
Assistant State Highway Engineer

cc Doug Myhre, HNTB
bc F. B. Klaboe
E. S. Hunter
W. J. Hart
R. N. Bothman
G. A. Potter

RWE:ag: ab

Form FHWA 121 (Rev. 5-73)

UNITED STATES GOVERNMENT

Memorandum

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
Box 300
Salem OR 97308

DATE: December 29, 1975

In reply refer to:

SUBJECT: Oregon Project I-205-7(2)303
Final EIS (Columbia River Bridge)

FROM : G. L. Green, Division Administrator

TO : Mr. F. B. Klaboe, Administrator & State Highway Engineer
ATTN: Mr. G. Potter

Here is a letter we received from the Regional Office and our answer on the State dredging permit application (Public Notice 071-OYA-1-001895) to the Corps of Engineers for the proposed I-205 Columbia River Bridge Construction. We have worked out an answer with your Bridge Section. It appears that this situation must be addressed in the EIS.

In the next few days the Corps of Engineers will put out a notice on spur dike work for the navigation channel immediately upstream from the proposed structure. We understand that this is required work to maintain the designated navigation channel. Since it has some relation to the proposed structure, the work must also be addressed in the EIS. Your Bridge Section has been working with the Corps on this matter.

The Coast Guard is concerned about their input into the EIS. We think an advanced copy of any river navigation items might be helpfull for them to comment on. Would you be able to forward preliminary drafts to them?

for G. L. Green

Attachments
letter from Regional Office
FHWA letter on State dredging permit
Public Notice 071-OYA-1-001895

RECEIVED
STATE HWY ENGR
DEC 31 '75
REFER TO
[redacted] Schroeder
FOR

Info	Inves	R/D	D/R	Sign	Act	File
			X			

RECEIVED
JAN 5 1976
Office of
Assistant State Highway Engineer

NOTED
R. L. SCHROEDER

cc Hart

RECEIVED
STATE HWY ENGR
DEC 31 '75
REFER TO
FOR

Box 300 Salem OR 97308

Mr. Don Byers
Secretary - Treasurer
Portland Yacht Club
1241 N. E. Marine Drive
Portland OR 97211

Dear Mr. Byers:

We received your letter of December 11, in reference to the Columbia River dredging work described in Corps of Engineers Public Notice 071-OYA-1-001895. The work outlined is to provide a reasonable work area for construction of the Columbia River I-205 Bridge. This structure, in order to create the least disruption to the water way, was designed with rather long spans which require massive piers for support. Economical construction requires large floation equipment.

We agree with your concern about side casting and leaving the spoils excavation adjacent to the footing areas. Such a procedure might accelerate the filling-in of the designated special anchorage location when the flood waters come. It is not the State's intention to leave this excavated side cast material in this area. It is intended to create an access channel along the bridge centerline and use this material for the proposed roadway fill on Government Island. The materials excavated from below the access channel to allow pier construction will be side cast at each pier site and will be returned upon completion of the pier. This replacement material will support the rip rap which is required at each pier. The construction procedure in this area will preclude leaving excavated material for any appreciable time and will eliminate the bridge construction contribution to the natural filling process in the anchorage site.

Your second area of concern was about the clearance over the small slough at Government Island which is more complex. The grade line at this location and the remainder of the structure across the main channel has basically remained the same since 1969. It was established through comments received at public hearings, meetings, and airport restraints. One of the restraints is the glide path of the Portland International Airport. This glide path is directly over the Government Island Slough and prevents raising the structure as you suggest. After these public hearings we received approved permits from the Federal Aviation Administration (1969) and Coast Guard(1970) for this alignment. Further restarints on the fill

height across the island have resulted from concerns of Wildlife and Conservation agencies.

We feel the physical restraints of the airport glide path, the wildlife interest, the advanced stages of design , and economics, make the modification of the vertical alignment grade not feasible at this time.

G. L. Green

cc
FHWA (Cowdery)
OEHB (Pottner)

RSSchell:sp

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION X
1200 SIXTH AVENUE
SEATTLE, WASHINGTON 98101

DEC 24 1975

REPLY TO ATTN OF: M/S 521

NOTED
E. S. HUNTE

Mr. A. J. Heineman
Chief, Navigation Division
Portland District, C/E
P. O. Box 2946
Portland, Oregon 97208

RE: 071-OYA-1-001895 - Oregon Department of Transportation

Dear Mr. Heineman:

We have reviewed the above referenced public notice concerning an application for a permit to dredge, fill, place riprap, and construct bridge piers at Columbia River Mile 113.5. This Agency will have no objection to the issuance of this permit provided the applicant complies with all State and Federal resource agency conditions that may be needed to protect the aquatic resources.

Sincerely,

Ronald A. Lee
Lloyd A. Reed
Chief, Water Compliance
and Permits Branch

cc: USFWS
NMFS
ODEQ
ODFW
ODSL
WDE
WDF
WDG
Applicant

Copy To Potter
1-5-76

RECEIVED
JAN 5 1976
Office of
Resident State Highway Engineer

NOTED
R. L. SCHROEDER
12-

RECEIVED
STATE H'WY ENGR
DEC 26 '75
REFER TO cy Hant
FOR

Info	Inves	R/D	D/R	Sign	Act	File
✓						

Form FHWA 121 (Rev. 5-73)

UNITED STATES GOVERNMENT

Memorandum

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
222 S.W. Morrison Street
Portland, Oregon 97204

DATE: December 16, 1975

In reply refer to: 10ED.3

SUBJECT: Portland Yacht Club Concern
I-205 Bridge Crossing Columbia River

FROM : Director, Office of Environment and Design

TO : Mr. Glen L. Green
Division Administrator
Salem, Oregon

Enclosed for your information and further action is a copy of a letter from the Portland Yacht Club dated December 11, expressing concern on dredging spoil, and vertical navigation clearance on the Columbia River Bridge near Government Island.

Since we do not have the day to day details on planning of this crossing, we believe you are more knowledgeable to reply to the yacht club comments.

We would appreciate receiving a copy of your response.

Richard C. Cowdery
Richard C. Cowdery

Enclosure

RECEIVED
STATE HWY ENGR
DEC 31 '75
REFER TO
FOR

Info	Inves	R/D	D/R	Sign	Act	File

RECEIVED
DEC 19 1975
8:00 am
OREGON DIVISION

PORTLAND YACHT CLUB

1241 N. E. Marine Drive
Portland, Oregon 97211

Telephone
285-1022

December 11, 1975

RECEIVED
STATE HWY ENGR
DEC 31 '75
REFER TO
FOR

Info	Inves	R/D	D/R	Sign	Act	File

FHWA Regional Office
Mohawk Building
222 S. W. Morrison St.
Portland, Oregon 97204

Ref. NPPND-RF-1
Notice No. 071-0YA-1-001895

Gentlemen:

The referenced notice has been brought to the attention of the membership of Portland Yacht Club. The proposed work affects an anchorage area which has been used by our members and many other recreational boatmen for many years. Two aspects of the work affect us very adversely.

The dredging work calls for side casting spoils which are removed from foundations, with the possibility that it will all be left where side cast is specifically mentioned. A considerable amount of these spoils will be in the river directly upstream from our anchorage and will undoubtedly be washed into the anchorage which has been gradually filli for several years. This will reduce the effective area of our anchorage at a much greater rate and we strenuously object to this potential damage to us. We request that all material be disposed above the twenty-five foot (25') elevation in such a way that it cannot wash into the anchorage. We also suggest that your dredging an access channel to the work loading dock be done from directly downstream so that it will be naturally self-scouring and will not aggravate the erosion problem we are experiencing.

The other element of the design which we object to is the clearance of the bridge over a small slough into a lagoon in Government Island. The crossing referred to is at the "loading dock" proposed on sheet 1 of 5 in the exhibits attached to the referenced notice. A profile drawing which was given us today indicates that the elevation of the deck at the south edge of this channel at low water will be forty five feet above mean low water which is shown at 2.48 feet above sea level. This area is most usefull to us during the spring and summer when water stages are at approximately twenty feet above low water. As many as 50 to 100 boats anchor here on week ends in the spring and summer.

Ref. NPPND-RF-1
Notice No. 071-0YA-1-001895

In order to allow for a seven foot deep structure and allow passage for a small sail boat with a thirty foot mast we request that the structure at this point be raised fifteen feet (15'). This will reduce the amount of vertical curve in the design and require additional fill material in the proposed fill on Government Island. This fill material is readily available by dredging as nearly as the lagoon directly downstream.

Sincerely yours,

Don Byers

Don Byers,
Secretary-Treasurer

cc: Coast Guard - Seattle
OHD - Salem
Dist. Engineer
D. E. Q.
Sen. Hatfield
Sen. Packwood
Rep. Duncal
Gov Straub
State Marine Board

State of
Washington
Department
of Ecology

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

Notice of Application for Water Quality Certification

Notice is hereby given that a request is being filed with the Department of Ecology for certification, as provided in Section 401 of the Federal Water Pollution Control Act, that a proposed discharge to navigable waters, resulting from the project described in the Corps of Engineers Public Notice No. 001895, will comply with the applicable provisions of the Federal Water Pollution Control Act.

Any person desiring to present views on the request in relation to water pollution considerations pertaining to the project may do so by providing the same in writing to the Department of Ecology, Olympia, Washington 98504, within 20 days of publication of this notice.

RECEIVED
STATE HWY ENG
DEC 31 '75
REFER TO
FOR

Info	Inves	R/D	D/R	Sign	Act	File

Daniel J. Evans, *Governor* John A. Biggs, *Director* Olympia, Washington 98504 Telephone (206) 753-2800

A-6 401

xRef File I-205-7(2) 303
Columbia River Br.

Kappus

Baker

DEPARTMENT OF THE ARMY
PORTLAND DISTRICT, CORPS OF ENGINEERS
P. O. BOX 2946
PORTLAND, OREGON 97208

RECEIVED
STATE HWY ENGR
DEC 31 '75
REFER TO
FOR
R/D
D/R
Sign
Act
File

REPLY TO
ATTENTION OF:
NPPND-RF-1

November 19, 1975

PUBLIC NOTICE
071-OYA-1-001895
DREDGING AND FILLING
COLUMBIA RIVER MILE 113.5 - AT PORTLAND, OREGON

Interested parties are hereby notified that application has been made for a Department of the Army permit for work in navigable waters of this Engineer District under Section 10 of the River and Harbor Act of March 3, 1899 (30 Stat. 1151; 33 U.S.C. 403) and under the provisions of Section 404 of the "Federal Water Pollution Control Act Amendments of 1972". This Public Notice is an adjunct to the United States Coast Guard Public Notice No. 75-N-19.

Name of Applicant: Oregon Department of Transportation, Highway Division.

Character and Purpose of Work: The applicant proposes to dredge two channels to allow access to the construction site of the I-205 Highway Bridge piers and a temporary loading dock. Access channels will require excavating approximately 300,000 cubic yards of material which will be placed on the upland and used as highway fills or side cast and replaced upon completion of the work. A small portion of the highway fill may involve possible wetland. Approximately 700,000 cubic yards of material is to be removed and side cast for the bridge piers, the 34 concrete bridge piers within the waterway constructed, the riprap placed around the piers and the dredged material replaced over the riprap. However, depending upon material suitability, construction sequence, or economic or other factors, all excavated material may be utilized as described or allowed to remain in its side cast position. If extensive erosion of side cast material occurs, additional material from the adjacent river bottom will be utilized to complete backfilling. Approximately 23,000 cubic yards of riprap will be placed around the piers for erosion control. The above described project is shown on the attached drawings marked 001895(Columbia River-Dredge and Fill).

An Environmental Impact Statement, for the highway project, which includes the bridge project as required by Section 102(2)(c) of the National Environmental Policy Act of 1969 is being prepared by Federal Highway Administration in accordance with guidelines promulgated by the Council on Environmental Quality and Department of Transportation Order No. 5610.1 (Series). The Federal Highway Administration is the lead agency within the Department of Transportation for the total highway project. Comments, if any, concerning the environmental impact statement should be directed to FHWA Regional Office, Mohawk Building, Portland, Oregon.

The draft stage of the EIS was circulated and may be examined in the Coast Guard Thirteenth District Office, Aids to Navigation Branch, 915 - Second Avenue, Room 3564, Seattle, Washington; Oregon Highway Division, Salem, Oregon; FHWA Division Engineer, Salem, Oregon; FHWA Regional Office, Mohawk Building, Portland, Oregon.

Additional Information: Additional information may be obtained from Mr. E. S. Hunter, Asst. State Highway Engineer, Highway Building, Salem, Oregon 97310, telephone (503) 378-6888.

The requested permit, if issued, will be subject in part to the following conditions:

1. All construction debris will be disposed of on land in such a manner that it cannot enter into the waterway.

2. Care will be taken to prevent any petroleum products, chemicals or other deleterious materials from entering the water.

3. Only clean, durable riprap will be used.

4. Work in the waterway will be done so as to minimize turbidity increases in the water which tend to degrade water quality and damage aquatic life.

5. When the District Engineer has been notified by a fishery agency that an activity authorized by this permit is adversely affecting fish or wildlife resources or the harvest thereof and the District Engineer subsequently directs remedial measures, the permittee will comply with such directions as may be received to suspend or modify the activity to the extent necessary to mitigate or eliminate the adverse effect as required.

The latest published version of the National Register of Historic Places has been consulted and it has been determined that the property described is not a registered property nor is it listed in the latest published version of the Register as being eligible for inclusion therein. Unknown archeological, scientific, prehistorical or historical data may be lost or destroyed by work to be accomplished under the requested permit.

Additional Requirements: A permit for the proposed work will not be issued until certification as required under Section 401 of the Federal Water Pollution Control Act Amendments of 1972 has been received from Oregon State Department of Environmental Quality and the Washington State Department of Ecology. State laws require that easements or permits be obtained for certain works or activity in the described waters. These state requirements must be met where applicable and the Department of the Army permit obtained before any work waterward of the ordinary high water line may be accomplished. Similarly, the governing counties, cities and/or other local governmental agencies may also have ordinances or requirements which must be satisfied before the work is accomplished.

Public Hearing: Any person who has an interest which may be adversely affected by the issuance of a permit for the dredging and filling work described herein may request a public hearing. The request must be submitted in writing to the District Engineer within thirty days of the date of this public notice and must clearly set forth the interest which may be adversely affected and the manner in which the proposed activity will adversely affect that interest.

NPPND-RF-1
RE: 071-OYA-1-001895
(Columbia River - Dredging and Filling)

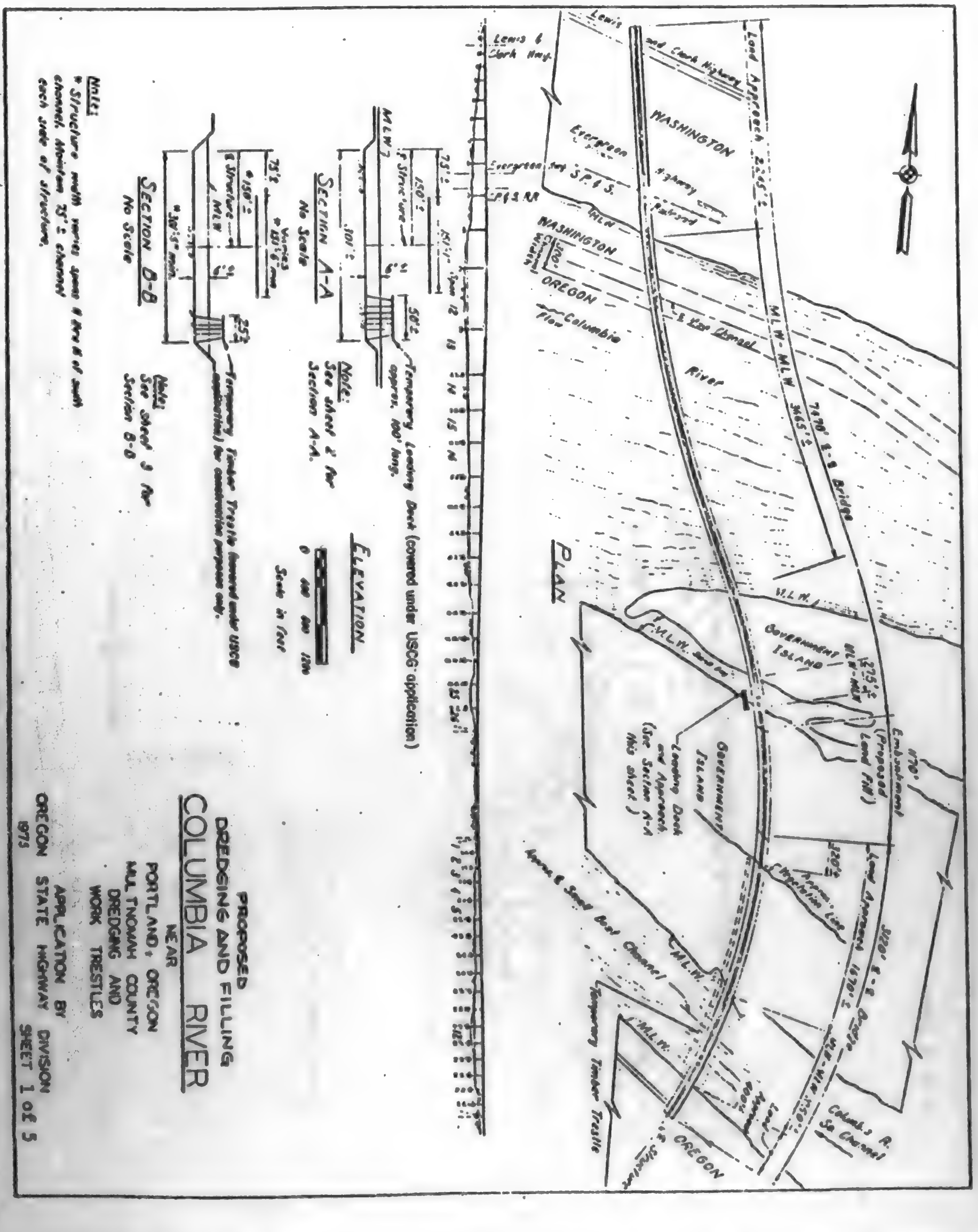
Interested parties are requested to submit in writing any comments or objections they may have to the proposed work. The decision whether to issue a permit will be based on an evaluation of the probable impact of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered; among those are conservation, economics, aesthetics, general environmental concerns, historic values, fish and wildlife values, flood damage prevention, land use classification, navigation, recreation, water supply, water quality and, in general, the needs and welfare of the people. In addition, the evaluation of the impact of the activity on the public interest will include application of the guidelines promulgated by the Administrator, EPA, under authority of Section 404(b) of the Federal Water Pollution Control Act. No permit will be granted unless its issuance is found to be in the public interest.

A preliminary determination has been made that a separate environmental impact statement is not currently required for the proposed work described herein.

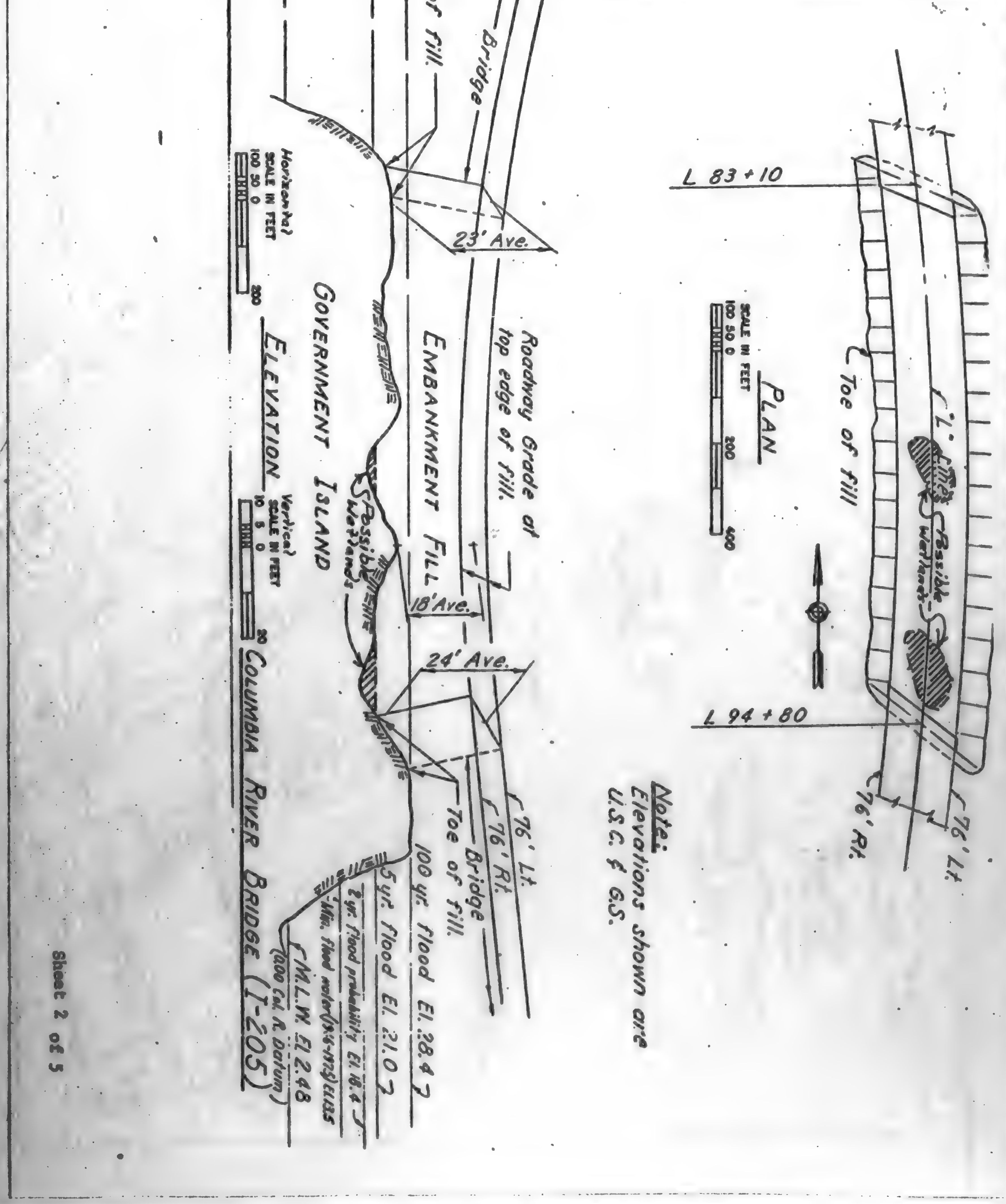
Replies to this notice should be mailed to reach this office not later than December 19, 1975.

A J Heineman
A. J. HEINEMAN
Chief, Navigation Division

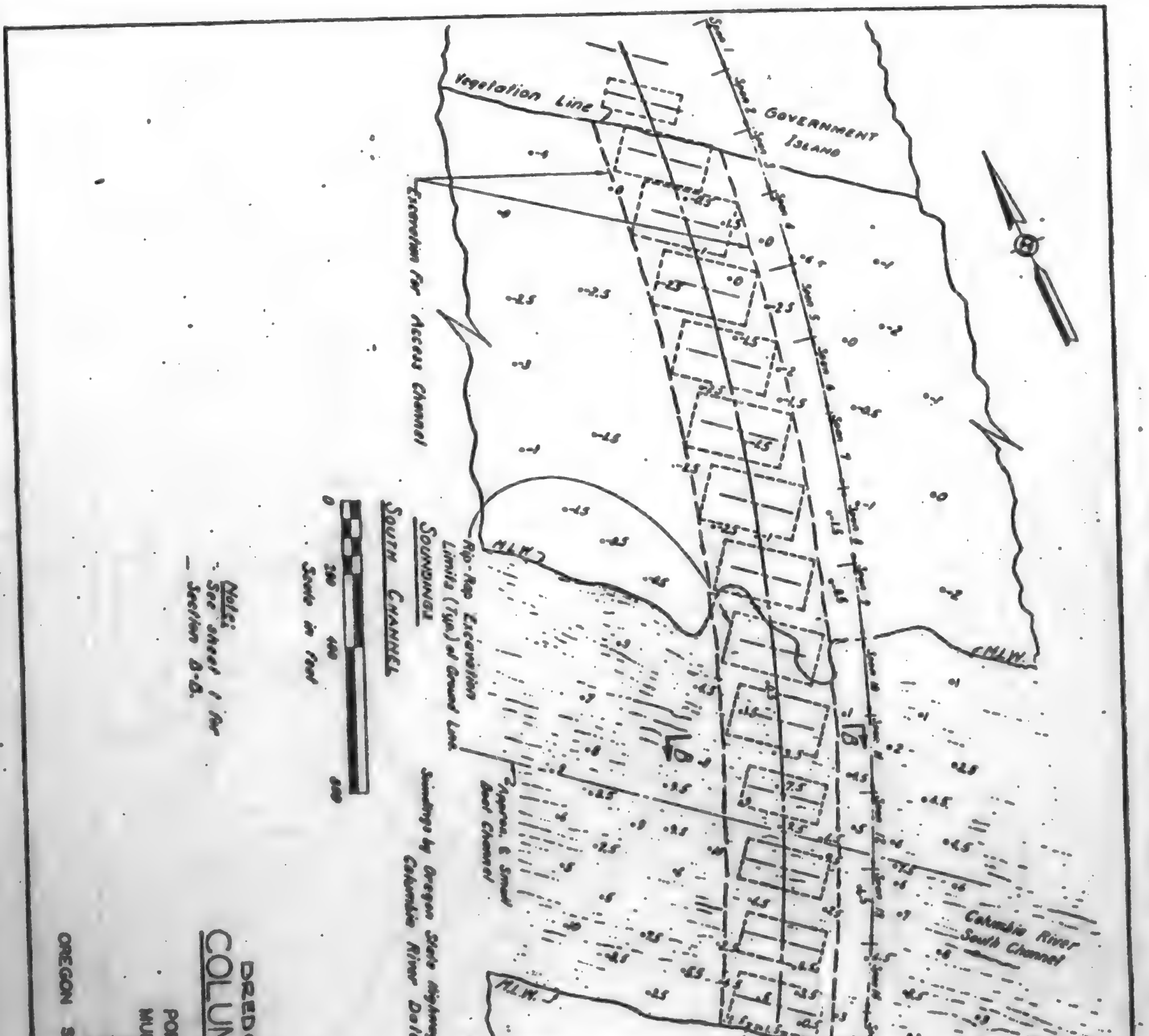
001895 (Columbia River - Dredging and Filling)


PLAN
ELEVATION
SECTION A-A
No Scale
SECTION B-B
No Scale
WASHINGTON
OREGON
Columbia River
Government Island
Lewis & Clark Hwy.
Evergreen Hwy.
S.P.&S. RR
Land Approach
Bridge
Embankment (Proposed Land Fill)
Loading Dock and Approach (See Section A-A this sheet)
Temporary Loading Dock (covered under USCG application)
Temporary Timber Trestle
Columbia R. So. Channel
Scale in feet
0 100 200 300
Note:
See sheet 2 for Section A-A.
See sheet 3 for Section B-B
Note:
* Structure width varies
PROPOSED
DREDGING AND FILLING
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
DREDGING AND
WORK TRESTLES
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1973
SHEET 1 of 5

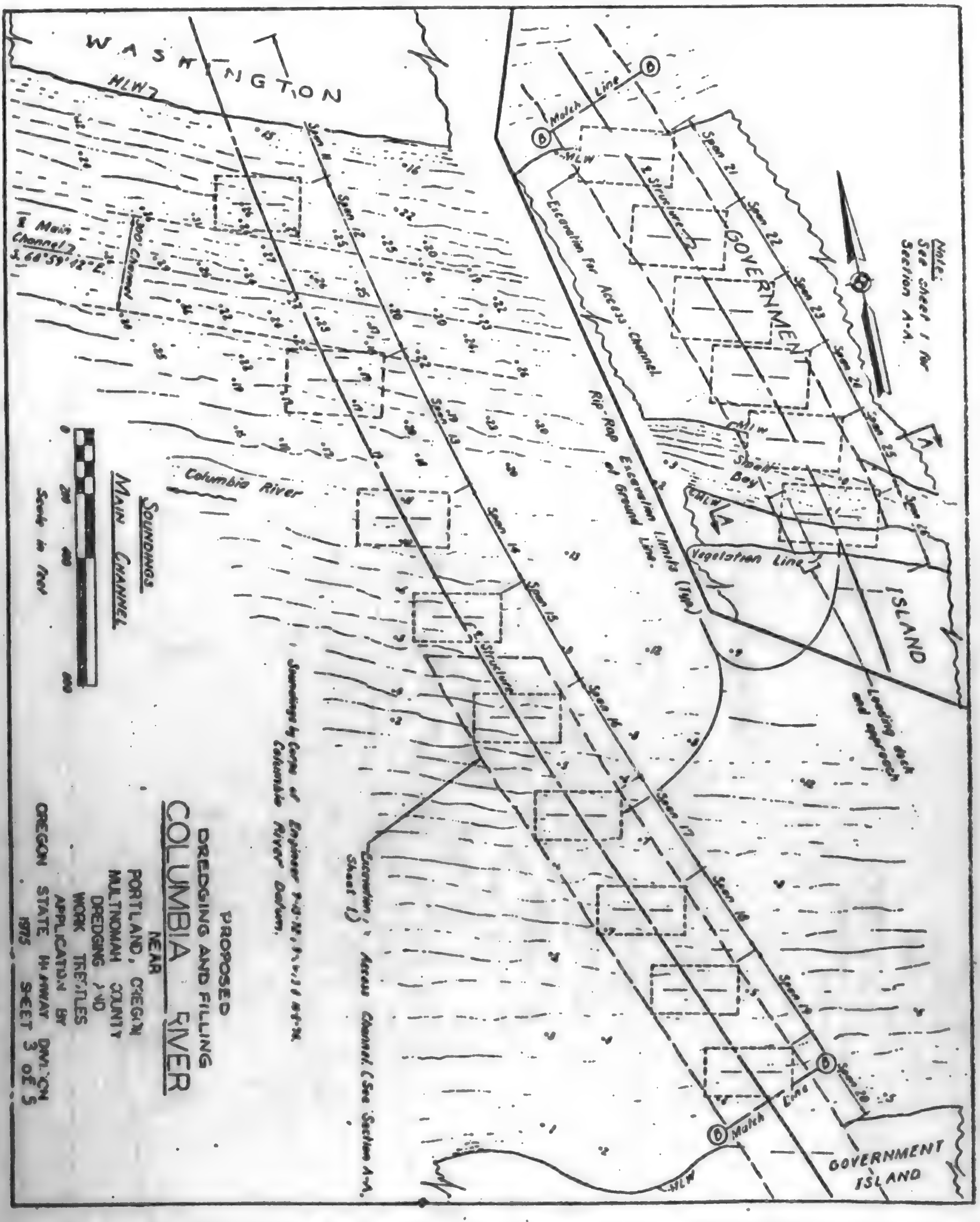
001895(Columbia River-Dredging & Filling)


PLAN
SCALE IN FEET
100 50 0 200 400
Toe of fill
"L" Line
Possible Wetlands
L 83+10
L 94+80
76' Lt.
76' Rt.
Note:
Elevations shown are U.S.C. & G.S.
Bridge
Toe of fill
23' Ave.
Roadway Grade at top edge of fill.
EMBANKMENT FILL
18' Ave.
24' Ave.
76' Lt.
76' Rt.
Bridge
Toe of fill.
100 yr. flood El. 28.4
5 yr. flood El. 21.0
2 yr. flood probability El. 18.4
Min. flood water(1916-1973) El. 13.5
M.L.W. El. 2.48
(100 Col. R. Datum)
Possible Wetlands
GOVERNMENT ISLAND
Horizontal
SCALE IN FEET
100 50 0 200
ELEVATION
Vertical
SCALE IN FEET
10 5 0 20
COLUMBIA RIVER BRIDGE (I-205)
Sheet 2 of 5

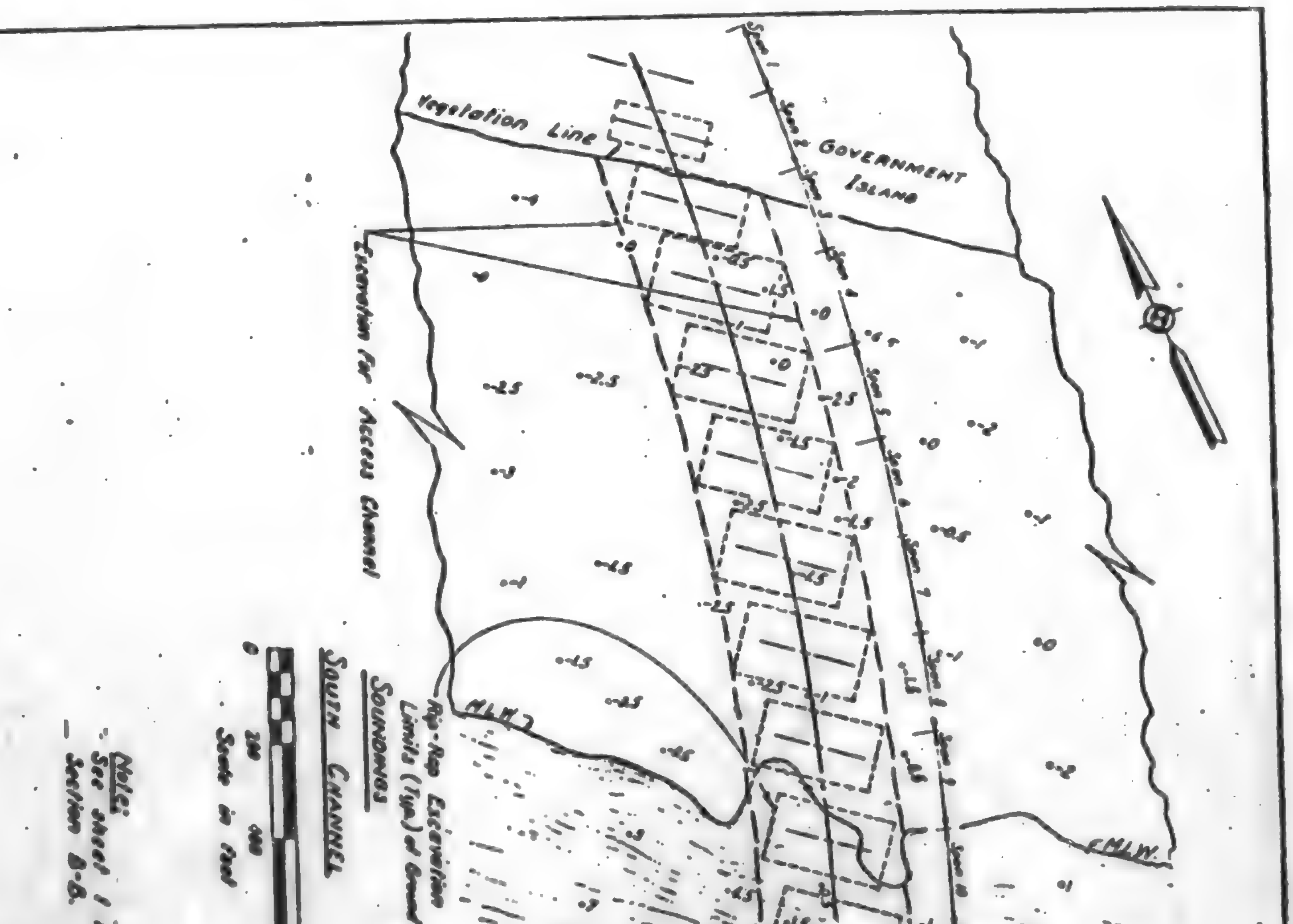
001895' (Columbia River - Dredging and Filling)


Vegetation Line
GOVERNMENT ISLAND
Excavation for Access Channel
M.L.W.
C.M.L.W.
Rip-Rap Excavation Limits (Typ.) at Ground Line
SOUNDINGS
SOUTH CHANNEL
Soundings by Oregon State Highway Division, May 1972.
Columbia River Datum.
Note:
See Sheet 1 for Section D-D.
0 200 400
Scale in Feet
Columbia River South Channel
MARINE DRIVE (Existing)
℄ Structure
OREGON
PROPOSED
DREDGING AND FILLING
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
DREDGING AND
WORK TRESTLES
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
6-75 SHEET 4 of 5

001895 (Columbia River - Dredging and Filling)

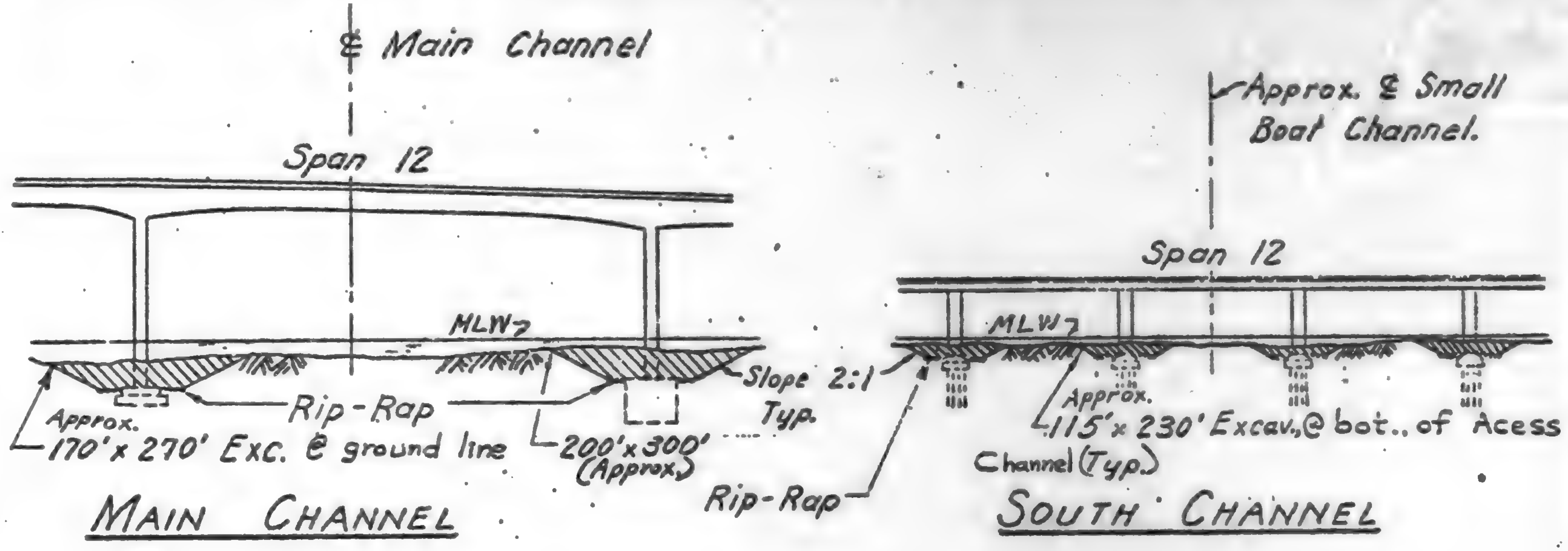

WASHINGTON
GOVERNMENT ISLAND
GOVERNMENT ISLAND
Columbia River
Match Line
Match Line
Span 11
Span 12
Span 13
Span 14
Span 15
Span 16
Span 17
Span 18
Span 19
Span 20
Span 21
Span 22
Span 23
Span 24
Span 25
Span 26
℄ Structure
℄ Structure
℄ Main Channel S. 66°59'42"E.
300' Channel
Excavation for Access Channel
Rip Rap Excavation Limits (Typ) at Ground Line.
Vegetation Line
Sibell Bay
Loading dock and approach
Note: See sheet 1 for Section A-A.
Excavation: Access Channel (See Section A-A, Sheet 1)
Soundings by Corps of Engineers Columbia River Datum.
MAIN CHANNEL SOUNDINGS
0 200 400 800
Scale in Feet
PROPOSED
DREDGING AND FILLING
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
DREDGING AND
WORK TRESTLES
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1975 SHEET 3 OF 5

001895 (Columbia River - Dredging and Filling)



Vegetation Line
GOVERNMENT ISLAND
Excavation For Access Channel
Rip-Rap Excavation Limits (Typ.) at Ground Line
M.L.W.
C.M.L.W.
Columbia River South Channel
MARINE DRIVE (Existing)
℄ Structure
OREGON
SOUTH CHANNEL
SOUNDINGS
Soundings by Oregon State Highway Division May 1975. Columbia River Datum.
0 200 400 800
Scale in Feet
Note:
See sheet 1 for Section B-B.

PROPOSED
DREDGING AND FILLING
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
DREDGING AND
WORK TRESTLES
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1975 SHEET 4 of 5


℄ Main Channel
Span 12
MLW
Rip-Rap
Approx. 170' x 270' Exc. @ ground line
200' x 300' (Approx.)
Slope 2:1 Typ.
Rip-Rap
MAIN CHANNEL
Approx. ℄ Small Boat Channel.
Span 12
MLW
Approx. 115' x 230' Excav. @ bot.. of Acess Channel (Typ.)
SOUTH CHANNEL

RIP-RAP PREPARATION DETAILS

0 100 200 300

Scale in feet

Note:
Material excavated to be side cast and may be replaced after riprap is installed.

PROPOSED
DREDGING AND FILLING
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
DREDGING AND
WORK TRESTLES

APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1975

SHEET 5 of 5
SHEET 5

8905

OFFICE OF THE GOVERNOR
STATE CAPITOL
SALEM 97310

ROBERT W. STRAUB
GOVERNOR

April 7, 1976

District Engineer
Corps of Engineers
U. S. Army
Portland District
P.O. Box 2946
Portland, OR 97208

NOTED
E. S. HUNTER

Att: A. J. Heinsman, Chief
Navigation Division

Ref: PN 071-OYA-1-001913 (Revised) (Columbia River - Dredging)

Dear Sir:

I approve the project subject to the conditions outlined in Material Removal Permit No. 2202 to be issued by the Division of State Lands.

On January 23, 1976, the Department of Environmental Quality certified there was reasonable assurance that the project, as described, would not violate applicable water quality standards.

Sincerely,

Governor

[illegible]:kp

Att.

cc: Oregon Department of Transportation
Division of State Lands
Department of Environmental Quality
Department of Fish & Wildlife
U.S. Fish & Wildlife Service

RECEIVED
STATE HWY ENGR
APR 8 '76
REFER TO
Cy [illegible]
FOR
Info	Inves	R/D	D/R	Sign	Act	File

4-9-76

COPY

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WASHINGTON, D.C. 20590

FEB 4 1976
IN REPLY REFER TO:
HNG-31

NOTED
E. S. HUNTER

Honorable Mark O. Hatfield
United States Senate
Washington, D.C. 20510

Dear Senator Hatfield:

This is in further response to your communication of December 17, 1975, addressed to the Congressional Liaison Office, Federal Highway Administration, which was acknowledged on December 31. Your communication transmitted a letter dated December 11, 1975, from Mr. Dan Byers of the Portland Yacht Club concerning dredging and bridge clearance associated with the construction of the Columbia River I-205 Bridge.

Our field office in Salem, Oregon, has responded to Mr. Byers' letter and informed him that it was the State's intention to create an access channel along the bridge centerline and use the material for the proposed roadway fill on Government Island. The construction procedure to be used will greatly reduce the possibility that construction of the bridge will contribute to the natural filling process in the anchorage site.

Mr. Byers was informed that the grade line was established on the basis of comments received at public hearings and meetings, and the glide path of the Portland International Airport which is directly over the structure. The fill height across the island was limited because of concerns of wildlife and conservation interests. For these reasons and economics, modification of the vertical alinement is not feasible.

A meeting was held in which representatives of the Federal Highway Administration and the State Highway Division met with Mr. Byers and Mr. Church of the Portland Yacht Club. Mr. Byers was informed that access would be provided on the north side of the new bridge during construction and that this access would remain open for use by pleasure boaters. It is the opinion of our representatives who were at the meeting that Mr. Byers was satisfied with this type of access and would not raise further issue with the design of the structure.

Sincerely yours,

/s/ H. A. Lindberg
H. A. Lindberg
Associate Administrator for
Engineering and Traffic Operations

cy Hart
Tenpin
Bothman
2-11-76

RECEIVED
STATE HWY ENGR
FEB 11 76
REFER TO
FOR
Info
Inves
R/D
D/R
Sign
Act
File

Form 81-734-3030

OREGON STATE HIGHWAY DIVISION
INTER-OFFICE CORRESPONDENCE
Salem, Oregon
January 14, 1976
16

FILE: BR 9555

Walter J Hart

FROM: Walter J. Hart
Bridge Engineer

TO: Memo to the Files

SUBJECT:

Columbia River (I-205) Bridge
Bridge 9555

445-H

On January 13, 1976, Mr. R. N. Bothman and Mr. Ken Limbocker of Metro; Mr. H. A. Schell, FHWA; and I met with Mr. I. James Church and Mr. Don Byers of the Portland Yacht Club. The various Yacht Clubs in the Portland area are concerned that construction of the I-205 Bridge will cut off access for a number of boaters to the inlet on the north side of Government Island.

The inlet is a popular and heavy-use area, particularly during high water periods. The clearance at Span 25 over the inlet is 35 feet at mean low water or something less than 15 feet at high water.

A channel will be dredged through the sand spit which forms the north boundary of the inlet to provide access for marine equipment in conjunction with the bridge construction. Mr. Church suggested that this construction access channel would provide a suitable access to the inlet for recreational boaters upon completion of the bridge. It was agreed that the construction access channel would be left open upon completion of bridge construction.

Mr. Church requested that the channel have a minimum horizontal clearance of 75 feet from the piers on the upper stream side of the bridge. The contract plans for the bridge will call for the dredging of a channel meeting that criteria. The depth of the dredged channel will be to approximately elevation -6. Mr. Church and Mr. Byers indicated that they believed that this would provide satisfactory access to the inlet for recreational boaters.

WJH:dh

cc F. B. Klaboe
R. N. Bothman
H. A. Schell, FHWA
I. JamesChurch, Port of Portland
Don Byers, Portland Yacht Club

RECEIVED
STATE HWY ENGR
JAN 15 '76
REFER TO
FOR

1-16-76

Walt. I presume they realize the channel will fill in at the first high water. Who will maintain in future? Ed.

cy Hunter 1-15-76

Box 300
Salem OR 97308

January 15, 1976

1041DA/INQ-580

Citizen Inquiry -
(Senator Hatfield's copy of
Don Byers' ltr to Portland FHWA, 12-11-75)

G. L. Green, Division Administrator

NOTED
E. S. HUNTER

Mr. L. E. Lybecker, Regional Administrator
Portland, Oregon 10ED.3, Mr. Snow

By endorsement to Associate Administrator Lindberg's December 31 letter to Senator Hatfield, you were asked to provide information for a response. Prior to receiving the Senator's inquiry, Mr. Byers had written directly to the Regional Office, raising questions concerning the same issue. We previously furnished you copies of our December 29 letter to Mr. Byers in response to his December 11 letter to you. Our letter should provide you with the information to respond to the Washington Office.

In addition, a meeting was held with Mr. Byers and Mr. Church of the Portland Yacht Club, which included representatives of the State Highway Division and this office. Mr. Byers was informed that access would be provided on the north side of the new bridge during construction and that this access would remain for use by pleasure boaters following construction. It was the opinion of representatives of this office who were at the meeting that Mr. Byers was satisfied with this type of access and therefore was raising no further issue relative to the design of the structure. This type of meeting has proved to be very beneficial in resolving design issues.

Original Signed By
G. L. Green
Division Administrator

G. L. Green

NOTED
F. B. KLABOE

cc:
OSHD (Mr Klaboe)

RECEIVED
STATE HWY ENGR
JAN 16 '76
REFER TO
FOR
Info Invës R/D D/R Sign

cy Baldwin
Hall Hart
Vic Walker
1-23-76

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WASHINGTON, D.C. 20590

DEC 31 1975

IN REPLY REFER TO:
HNG-31

Honorable Mark O. Hatfield
United States Senate
Washington, D.C. 20510

Dear Senator Hatfield:

Your communication of December 17, 1975, addressed to Congressional Liaison Office, Federal Highway Administration, has been referred to this office for reply. Your communication transmitted a letter from the Portland Yacht Club concerning dredging and bridge clearance.

We do not have sufficient information in the Washington Headquarters to fully reply to your inquiry and have requested our Regional Office in Portland, Oregon, to investigate the situation. A further reply will be sent you upon receipt of their report.

Sincerely yours,

/s/ H. A. Lindberg

H. A. Lindberg
Associate Administrator for
Engineering and Traffic Operations

Enclosure:
Transmitted Correspondence

RECEIVED
STATE HWY ENGR
JAN 16 '76
REFER TO
FOR
Info

December 31, 1975

Mr. Don Byers
Secretary-Treasurer
Portland Yacht Club
1241 N. E. Marine Drive
Portland, OR 97211

bc F. B. Klaboe
R. L. Schroeder
Walt Hart
Gary Potter (enc.)
Victor D. Wolfe "

Dear Mr. Byers:

Corps of Engineers Public Notice
No. 071-OYA-1-001913
Columbia River Bridge (I-205)
South Channel

445-H

Your December 11 letter to the Corps of Engineers concerning the subject public notice has been referred to this office for reply.

The small amount of dredging required at the west end of Lemon Island is for the purpose of providing the contractor's floating equipment with access to the south channel. In order that the dredged area stay open as long as possible, the material removed will be side cast to the west of the area. This will keep the material from being washed back into the channel and provide potential users access through the channel for the maximum time possible.

We believe the dredged area will temporarily improve access to the south channel for boaters. The natural filling process of the river will probably cause the channel to return to its natural condition in a few years but during the interim, improved access should exist.

Very truly yours,

R. L. Schroeder

E. S. Hunter for
Deputy State Highway Engineer

cc F. R. Brockschink
Chief, Regulatory
Functions Branch
U. S. Corps of Engineers

Mr. H. A. Schell
Division Bridge Engineer
Federal Highway Administration

RWE:ag ja

DEPARTMENT OF DEFENSE
UNITED STATES OF AMERICA

DEPARTMENT OF THE ARMY
PORTLAND DISTRICT, CORPS OF ENGINEERS
P. O. BOX 2946
PORTLAND, OREGON 97208

REPLY TO ATTENTION OF: NPPND-RF

16 December 1975

IV
STATE HWY
DEC 18 '75
REFER TO
G. Hart
FOR
Info Ser.
X

Mr. E.S. Hunter
Assistant State Highway Engineer
Highway Building
Salem, OR 97310

Dear Mr. Hunter:

Inclosed is a copy of correspondence received in response to Public Notice No. 071-OYA-1-001913 (Columbia River mile 111.2 - Dredging).

The policy of the Portland District is to allow an applicant the opportunity to comment on objections or questions raised in connection with his permit application. As applicant, you should determine the proper approach for satisfying adverse reaction to your proposed project. Possible methods may include (1) supplying concrete and demonstrable evidence that the objection is ill-founded, (2) agreeing to observe appropriate corrective or preventive conditions, (3) redesign of contemplated work, (4) submission to this office of evidence that a covering agreement of approval from the objector has been secured, or (5) supplying the inquiring party with the information requested. Other methods, of course, for satisfying objections or questions may occur to you. Copies of all replies and of any final resolution or disposition of each problem should be furnished this office so that the nature of any solution may be fully evaluated before a permit is issued.

☐ Since the objection or question is from a Federal, state or local governmental or quasi-governmental agency, we ask that you reply directly to that agency.

☒ Since private individuals or groups are concerned, you may wish to reply directly to them in the fostering of improved public relations. If you prefer, you may respond directly to this office with appropriate views and facts.

I cannot emphasize too strongly that the better your answer or agreement satisfies the objections or questions, the sooner the processing of your application can be completed. Also, a lack of responsive action on your part may preclude issuance of the requested permit.

Sincerely yours,

F R Brockschink
F. R. BROCKSCHINK
Chief, Regulatory Functions Branch

Incl Cpy ltr Ptld Yacht Club dtd 11Dec75

RECEIVED
DEC 19 1975
BRIDGE SECTION

ND

PORTLAND YACHT CLUB

1241 N. E. Marine Drive
Portland, Oregon 97211

Telephone
285-1922

December 11, 1975

Department of the Army
Portland District Corps of Engineers
P. O. Box 2946
Portland, Oregon 97208

Re: NPPND-RF-1
Notice #071-0YA-1-001913

Atten: A. J. Heineman,
Chief, Navigation Division

Dear Mr. Heineman:

The membership of Portland Yacht Club has seen the referenced notice and noted its effect on the waters they use.

We believe that the effect can only be beneficial. It is suggested, however, that no material be "side cast" as it will undoubtedly find its way into the shallow side channels and reduce their usefullness.

Sincerely yours,

Don Byers

Don Byers,
Secretary-Treasurer

RECEIVED
DEC 15 1975
PERMITS SECTION

ACTION COPY

Box 300 Salem OR 97308

December 29, 1975

NOTED
E. S. HUNTER

Info
Inves
R/D
D.R
Sign
Act
File
FG
REFER TO
JAN 6 '76

1041BR/I-205-7(2)303

Mr. Don Byers
Secretary - Treasurer
Portland Yacht Club
1241 N. E. Marine Drive
Portland OR 97211

Dear Mr. Byers:

We received your letter of December 11, in reference to the Columbia River dredging work described in Corps of Engineers Public Notice 071-OYA-1-001895. The work outlined is to provide a reasonable work area for construction of the Columbia River I-205 Bridge. This structure, in order to create the least disruption to the water way, was designed with rather long spans which require massive piers for support. Economical construction requires large floation equipment.

We agree with your concern about side casting and leaving the spoils excavation adjacent to the footing areas. Such a procedure might accelerate the filling-in of the designated special anchorage location when the flood waters come. It is not the State's intention to leave this excavated side cast material in this area. It is intended to create an access channel along the bridge centerline and use this material for the proposed roadway fill on Government Island. The materials excavated from below the access channel to allow pier construction will be side cast at each pier site and will be returned upon completion of the pier. This replacement material will support the rip rap which is required at each pier. The construction procedure in this area will preclude leaving excavated material for any appreciable time and will eliminate the bridge contraction contribution to the natural filling process in the anchorage site.

Your second area of concern was about the clearance over the small slough at Government Island which is more complex. The grade line at this location and the remainder of the structure across the main channel has basically remained the same since 1969. It was established through comments received at public hearings, meetings, and airport restraints. One of the restraints is the glide path of the Portland International Airport. This glide path is directly over the Government Island Slough and prevents raising the structure as you suggest. After these public hearings we received approved permits from the Federal Aviation Administration (1969) and Coast Guard(1970) for this alignment. Further restarints on the fill

RECEIVED
JAN 2 1976
BRIDGE SECTION

NOTED
E. L. WALLACE

height across the island have resulted from concerns of Wildlife and Conservation agencies.

We feel the physical restraints of the airport glide path, the wildlife interest, the advanced stages of design , and economics, make the modification of the vertical alignment grade not feasable at this time.

Original signed by
R. H. PILLSBURY

G. L. Green

cc
FHWA (Cowdery)
OSHD (Potter)

HASchall:cp

RECEIVED
JAN 2 1976
BRIDGE SECTION

CON
I-205
Col. R. Br.
Sp.
Mooring Pnts.

PORTLAND YACHT CLUB

1241 N. E. Marine Drive
PORTLAND, OREGON 97211

TELEPHONE
285-1022

December 11, 1975

RECEI
TATE HWY
IGR
DEC 11 '75
REFER TO
FOR
Info
Inves
R/D
D/R
Sign
Act
File

FHWA Regional Office
Mohawk Building
222 S. W. Morrison St.
Portland, Oregon 97204

Ref. NPPND-RF-1
Notice No. 071-0YA-1-001895

Gentlemen:

The referenced notice has been brought to the attention of the membership of Portland Yacht Club. The proposed work affects an anchorage area which has been used by our members and many other recreational boatmen for many years. Two aspects of the work affect us very adversely.

The dredging work calls for side casting spoils which are removed from foundations, with the possibility that it will all be left where side cast is specifically mentioned. A considerable amount of these spoils will be in the river directly upstream from our anchorage and will undoubtedly be washed into the anchorage which has been gradually filling for several years. This will reduce the effective area of our anchorage at a much greater rate and we strenuously object to this potential damage to us. We request that all material be disposed above the twenty-five foot (25') elevation in such a way that it cannot wash into the anchorage. We also suggest that your dredging an access channel to the work loading dock be done from directly downstream so that it will be naturally self-scouring and will not aggravate the erosion problem we are experiencing.

The other element of the design which we object to is the clearance of the bridge over a small slough into a lagoon in Government Island. The crossing referred to is at the "loading dock" proposed on sheet 1 of 5 in the exhibits attached to the referenced notice. A profile drawing which was given us today indicates that the elevation of the deck at the south edge of this channel at low water will be forty five feet above mean low water which is shown at 2.48 feet above sea level. This area is most usefull to us during the spring and summer when water stages are at approximately twenty feet above low water. As many as 50 to 100 boats anchor here on week ends in the spring and summer.

65 ft

Copy To
Potter
Bothman
12-15-75

NOTED
R. L. SCHROEDER

RECEIVED
DEC 15 1975
Office of
Assistant State Highway Engineer

Ref. NPPND-RF-1
Notice No. 071-0YA-1-001895

In order to allow for a seven foot deep structure and allow passage for a small sail boat with a thirty foot mast we request that the structure at this point be raised fifteen feet (15'). This will reduce the amount of vertical curve in the design and require additional fill material in the proposed fill on Government Island. This fill material is readily available by dredging as nearly as the lagoon directly downstream.

Sincerely yours,

Don Byers
Don Byers,
Secretary-Treasurer

cc: Coast Guard - Seattle
OHD - Salem
Dist. Engineer
D. E. Q.
Sen. Hatfield
Sen. Packwood
Rep. Duncal
Gov. Straub
State Marine Board

8905

January 30, 1976

Commander (oan)
13th Coast Guard District
Federal Building
915 Second Avenue
Seattle, Washington 98174

Dear Sir:

Columbia River Bridge
Highway I-205
Public Notice No. 75-N-19
Bridge Permit

As a result of the meeting between the Coast Guard, Corps of Engineers, Federal Highway Administration, and Oregon State Highway Division personnel in the Corps of Engineers' office in Portland on January 22, 1976, it is my understanding that only three items of concern remain relative to issuance of the subject bridge permit. These items are:

1. Assurance from the Corps of Engineers that they will maintain the designated navigation channel in vicinity of the proposed I-205 Bridge.
2. That the 4(f) concerns of the Department of Interior relative to Government Island be mutually resolved.
3. Release of the final EIS.

I am informed that it was agreed during the meeting that the Corps of Engineers will write a letter to the Coast Guard assuring maintenance of the designated navigation channel and that this will serve as documentation of the resolution of the first item.

We are in contact with the Department of Interior regarding the 4(f) matters at Government Island and will soon have them resolved to our mutual satisfaction. We believe this will satisfy the second item.

The final EIS is being processed and should be released in June of this year. With prior resolution of Items 1 and 2, it is my understanding that release of the EIS should allow prompt completion of bridge permit processing for this structure.

We have progressed to the point where contracting for construction of the Columbia River I-205 Bridge appears possible within a year. It has been a long and, at times, frustrating process. Your cooperation in the matter of the bridge permit has been greatly appreciated.

Very truly yours,

E. S. Hunter
Deputy State Highway Engineer

cc Mr. Adam Heineman
Corps of Engineers
Portland District

Mr. Glen L. Green
Division Administrator
Federal Highway Administration

bc F. B. Klaboe
R. L. Schroeder
Walt Hart
Gary Potter
Victor D. Wolfe
R. N. Bothman
Robert Ewen

RWE:ag ja

8905

9

for Baldwin's Signature

ROUGH DRAFT January 23, 1976 BR 9555

Mr. Lawrence Barber
6422 N. Kerby Avenue
Portland, OR 97217

Dear Larry:

This is in reply to your letter of December 15, 1975, which concerns construction of the proposed I-205 Bridge across the Columbia River at Portland and addresses three specific items.

450 H
476-H

Your first point is well taken. If material excavated from the access channel and pier locations upstream from the special anchorage were side cast and left, it could be washed into the anchorage area by flood waters. It is our intent to use the material excavated from the channel to make the roadway fill on Government Island. The excavation necessary for pier construction in this area will be side cast for the period of pier construction only and then replaced around the pier. This procedure will prevent leaving excavated material where side cast longer than necessary and will eliminate acceleration of natural filling which takes place in the area.

Your second item concerns a possible Corps of Engineers' construction project. As I understand it, the Corps is having shoaling problems with the existing channel and must do something to keep it open for navigation. I understand they will soon issue a public notice explaining the project and soliciting comments.

Your third item concerns the height of the I-205 Bridge at the Government Island Slough and its limitation to access to the slough at high water.

orig to
Baldwin
1-23-76

The deck elevations at this point and at all other locations for the main river crossing are the same as they have been since 1969 when the Federal Aviation Administration issued a permit for the structure. In 1970 the Coast Guard issued a permit for the same structure. Both of these permits were preceded by public notices soliciting comments. Public meetings regarding the I-205 project were held in 1965, 1970 and 1975 for the purpose of receiving public input. Design of the project and the bridge considered this input and other limiting factors. One of the important limiting factors is the glide path for the future north runway extension at the Portland International Airport. This glide path is over the slough and prevents raising the structure at that point.

Recently Mr. Don Byers and Mr. Church of the Portland Yacht Club met with members of the Oregon State Highway Division and the Federal Highway Administration regarding this matter. Mr. Church suggested that the construction access channel which will be dredged through the sand spit which forms the north boundary of the inlet would provide suitable access to the inlet and "Beer Can Lake" for recreational boaters. It was agreed that the construction access channel will not be filled in upon completion of the bridge construction as originally planned. The channel will be left open for use of boaters.

Mr. Church requested that the channel be dredged with a minimum horizontal clearance of 75 feet from the piers on the upstream side of the bridge. It was agreed that the contract plans for the bridge construction will reflect this request. The channel will be dredged to approximately -6.

It was emphasized that the State will not maintain the channel after completion of the bridge construction. Both Mr. Church and Mr. Byers indicated that they believed this would provide satisfactory access to the inlet for recreational boaters.

As you know, I-205 has been a long and involved project. It is complicated both from a technical and socio-economic viewpoint. We are pursuing the best possible solution to the many problems involved while considering the restrictions, limitations, and needs of all parties of interest. It is our intent that the project provide the greatest benefit possible to the majority of the people affected.

Very truly yours,
George M. Baldwin

WR

RWE:dh

cc F. B. Klaboe
E. S. Hunter
R. N. Bothman
W. J. Hart
Gary Potter
Robert Ewen
G. L. Green, FHWA
U. S. Corps of Engineers - Mr. F. R. Brockschink

DEPARTMENT OF THE ARMY
PORTLAND DISTRICT, CORPS OF ENGINEERS
P. O. BOX 2946
PORTLAND, OREGON 97208

REPLY TO
ATTENTION OF:
NPPND-RF

RECEI
TE HWY EN
JAN 15 '76
REFER TO
Hart
FOR
Info | Invcs | R/D | D/R | Sign | Act | File

13 January 1976

Mr. Lawrence Barber
6422 N. Kerby Avenue
Portland, OR 97217

RE: Public Notice 071-OYA-1-001895
Columbia River, Dredging and Filling,
Oregon Department of Transportation

Dear Mr. Barber:

Thank you for your letter of 15 December 1975 pertaining to the I-205 bridge. As you raised three different topics, each will be discussed in turn. To begin, a copy of your letter has been sent to the Oregon Department of Transportation for its comments on the potential shoaling of the anchorage as a result of its actions.

The pile dike study is related to the 27-foot by 300-foot channel in the Columbia River from Vancouver to The Dalles. Currently, the using traffic has dictated that this channel be maintained by the Corps at a depth of only 17 feet to accommodate the tugs and barges with a maximum draft of about 15 feet. However, near the lower end of Government Island, depths have historically not been maintained in the designated channel due primarily to the rapid infill rate experienced in this reach. The deeper draft traffic has continually been forced to use the naturally deeper water along the Oregon side outside of the designated channel.

After the I-205 bridge is constructed there will be a need for suitable depths in the designated channel to provide an adequate upstream approach to the bridge. This would be in accord with Corps input to the design and location of the I-205 bridge. Two viable alternatives exist for maintaining this designated channel. The first would be to increase the frequency of maintenance dredging activities. This would provide maintained depths in the designated channel. However, it would also increase the volume of dredged material that would probably require shore disposal. Presently, the lower end of Government Island is considered the only feasible disposal site. We realize this could result in the eventual connection of Government and Sand Islands with some material being carried into the special anchorage area.

AMERICAN REVOLUTION BICENTENNIAL 1776-1976

However, there would not be the spoil disposal problem with a second alternative for maintaining suitable depths in the designated channel by installing a system of pile dikes. This would improve the self-maintaining characteristics of the channel in addition to minimizing subsequent maintenance dredging and disposal activities. The pile dike system would direct more of the river's flow away from Government Island and natural accretion along the island's lower end may continue. Presently, the analysis of this alternative is not sufficiently developed to determine the effects on the special anchorage area. You may be assured a public notice will be issued to describe the proposed final action for channel maintenance in this area. At that time, your comments directed to that specific proposal would be appreciated.

The problem of the bridge clearance comes under the jurisdiction of the Coast Guard rather than the Corps of Engineers. The bridge structure was shown on our public notice drawings to portray the relationships between the various parts of the work. You may wish to relay your concern to the Commander, Thirteenth Coast Guard District, 915 Second Avenue, Seattle, WA 98174.

Sincerely yours,

F. R. BROCKSCHINK
Chief, Regulatory Functions Branch

DEPARTMENT OF DEFENSE
UNITED STATES OF AMERICA

DEPARTMENT OF THE ARMY
PORTLAND DISTRICT. CORPS OF ENGINEERS
P. O. BOX 2946
PORTLAND, OREGON 97208

REPLY TO ATTENTION OF: NPPND-RF

31 December 1975

RECEIVED
STATE HWY ENGR
JAN 7 '76
REFER TO
FOR
Info
Inves
R/D
D/R
Sign
Act
File

RECEIVED
STATE HWY ENGR
JAN 2 '76
REFER TO
Fall Hank
FOR
Info | Inves. | R/D | D/R | Sign | Act | File
NOTED
E. S. HUNTER

Oregon Department Highway Division
State Highway Building
Salem, Oregon 97310

RE: Permit No. 001895

Dear Mr. E.S. Hunter:

Inclosed is a copy of correspondence received in response to Public Notice

The policy of the Portland District is to allow an applicant the opportunity to comment on objections or questions raised in connection with his permit application. As applicant, you should determine the proper approach for satisfying adverse reaction to your proposed project. Possible methods may include (1) supplying concrete and demonstrable evidence that the objection is ill-founded, (2) agreeing to observe appropriate corrective or preventive conditions, (3) redesign of contemplated work, (4) submission to this office of evidence that a covering agreement of approval from the objector has been secured, or (5) supplying the inquiring party with the information requested. Other methods, of course, for satisfying objections or questions may occur to you. Copies of all replies and of any final resolution or disposition of each problem should be furnished this office so that the nature of any solution may be fully evaluated before a permit is issued.

☐ Since the objection or question is from a Federal, state or local governmental or quasi-governmental agency, we ask that you reply directly to that agency.

☒ XXX Since private individuals or groups are concerned, you may wish to reply directly to them in the fostering of improved public relations. If you prefer, you may respond directly to this office with appropriate views and facts.

I cannot emphasize too strongly that the better your answer or agreement satisfies the objections or questions, the sooner the processing of your application can be completed. Also, a lack of responsive action on your part may preclude issuance of the requested permit.

Sincerely yours,

RECEIVED
JAN 5 1976
BRIDGE SECTION

Incl: Letter Lawrence Barber

FR Brockschink
F. R. BROCKSCHINK
Chief, Regulatory Functions Branch

NOTE: This is forwarded so that you may make appropriate respnse to the anchorage sholaing problem. You may also wish to comment on the bridge clearance although Mr. Barber has been referred to the 13th U.S.C.G.. The pile dikes are a separate matter.

11D

Lawrence Barber 6422 N. Kerby Avenue • Portland, Oregon 97217 • (503) 285-4220
Maritime Writing
Photography
Public Relations
Member
INTERNATIONAL
ASSOCIATION of
BOATING WRITERS

December 15, 1975

RECEIVED
DEC 17 1975
PERMITS SECTION

Colonel Clarence D. Gilkey,
District Engineer, Portland District,
U. S. Corps of Engineers,
P. O. Box 2946,
Portland, Oregon. 97208

Dear Colonel Gilkey:

Here's that "Old Boater" again opposing some of the great new plans of "Progress."

Your Public Notice 071-OYA-1-001895 , dated Nov. 19, 1975, contains information that alarms those of us of the recreational boating fraternity who frequent the area of the proposed I-205 highway bridge across the Columbia River.

1. The Oregon Department of Transportation, Highway Division, proposes to dredge two channels across the Columbia River to allow access to the construction site and to dredge at the locations for footings for bridge piers, side-casting material. There is grave danger of this material washing into the "Special Anchorage" between Sand (Tri-Club) Island and Government Island designated by the Department of the Army, Corps of Engineers, more than 20 years ago for the benefit of recreational boaters.

2. The Corps of Engineers also is reported to be studying plans for one or two additional pile dikes along the north side of Government Island to direct the river current toward the Washington shore. We believe there is danger of such dikes slowing the current behind (south) of Sand Island to the extent that sand and silt will settle there in increased quantities and add to the shoaling of the anchorage area.

We feel every effort should be made to prevent further shoaling and that a public hearing be held unless plans can be altered to prevent shoaling.

3. We also are concerned with the State Highway Division's plan to allow only 35 feet of vertical clearance under the proposed bridge at Span No. 25 where it will cross the Government Island Slough. a very popular waterway for boats. This slough is popularly known as "Beer Can Slough" and it leads to "Beer Can Lake." We believe that owing to the fact that we use the slough when the water is at 10 to 15 feet, only 20 to 25 feet of clearance will be left, not sufficient or safe for many boats.

Enclosed is a copy of a letter I have addressed to several yacht clubs and others to alert them of the above conditions. We will be glad to meet with you to discuss these matters

Lawrence Barber 6422 N. Kerby Avenue • Portland, Oregon 97217 • (503) 285-4220
Maritime Writing
Photography
Public Relations

Member
INTERNATIONAL
ASSOCIATION of
BOATING WRITERS

December 9, 1975

To Portland Area Yacht Clubs:

We are gradually losing boating waters to "progress". Columbia Slough is endangered by plans of the Port of Portland and Army Engineers to plug it. Now there is danger to our Government Island slough and lake.

The Oregon Department of Transportation, Highway Division, has applied to the Corps of Engineers for some permits to dredge in the Columbia River for foundations of piers for the proposed I-205 highway bridge to cross at Government Island. This work will effect some of the channels and anchorages used by pleasure craft.

The Corps of Engineers is considering the building of one or more pile dikes along the north side of Government Island to direct the flow of water out into the main navigation channel near the Washington shore. There is concern that these dikes will cause sand to pile up near the head of Sand (Tri-Club) Island and wash into our "special anchorage", which the Department of Army, Corps of Engineers, set aside for use more than 20 years ago.

In seeking more information, I wrote recently to the Coast Guard at Seattle for a copy of a public notice dated Aug. 5 which shows the vertical and horizontal clearances under the bridge. These arrived at the end of last week. They show a maximum vertical clearance of 35 feet at the south end, where it ~~crossed~~ will cross the Government Island Slough to "Beer Can" lake. This will be at low (zero) water.

When the water is at 15 feet, which is necessary for small boats to get into the lake, only 20 feet clearance will be left. Another 10 feet would be very helpful and safer, and it is up to the yacht clubs and Columbia River Yachting Association to request the plans be altered to raise the bridge at this point. The CRYA already is acting, via Curt Leichner, outgoing president.

I suggest that the Highway Division be asked to use sand from the slough and anchorage area for construction of an embankment planned to cross the island. This embankment will be about 18 feet above present ground level and 1170 feet long. If raised it would require twice as much material as presently planned and help keep our waters deeper and better.

From the island another bridge, 3120 feet long with a vertical clearance of 48 feet over the small boat channel is proposed. It will touch down on the Oregon shore dike.

If the clubs wish to write to authorities, I suggest they protest the low clearances over Government Island Slough and any plan for dredging and dikes that will leave spoils or natural silting in the anchorage area, that the Engineers be requested to study and inform us of possible effects of the proposed dikes on our anchorage area, and that the Highway Division require that material for the embankment be taken from the slough and the anchorage area.

If these conditions are met these popular boating waters may be protected and saved for future generations.

The main bridge will be 7470 feet long and have a vertical clearance of 157 feet, with a horizontal clearance of 468 feet between the main channel piers. Commercial interests have requested that the main span be widened to 500 feet. There will be 10 piers in the main river, 15 in the south channel, and two in our Government Island slough. As far as I can discern, the main bridge will be 200 feet upstream from Tri-Club Island.

Drawings and more plans can be obtained from the Highway Division, State Highway Bldg., Salem, 97310, or from the U. S. Coast Guard, 13th District, 915 Second Ave., Seattle, 98174 (Public Notice 75-N-19).

Protest letters should be addressed to the Federal Highway Administration, Regional Office, Mohawk Bldg., Portland, 97204, which handles environmental matters; the Highway Division (see above); Coast Guard (See above); Portland District, Corps of Army Engineers, P. O. Box 2946, Portland, 97208, which is planning the dikes.

Another area to make tracks is letters to Senators Mark Hatfield and Bob Packwood, in Washington, and Rep. Robert Duncan, in whose district these matters are involved. It wouldn't hurt to alert Gov. Bob Straub.

Time is ~~[illegible]~~ is important. The Engineers will hold a request for a public hearing open until Dec. 19 and wants all protests by that time.

The Coast Guard will close its files on Dec. 31.

We are tardy getting started- but let's go! Fast!

Yours,

Lawrence Barber

An old boater.

Lawrence Barber 6422 N. Kerby Avenue • Portland, Oregon 97217 • (503) 285-4220
Maritime Writing
Photography
Public Relations
Member
INTERNATIONAL
ASSOCIATION of
BOATING WRITERS

December 15, 1975

RECEIVED
STATE HWY ENGR
DEC 18 '75
REFER TO
FOR
Info Inves R/D D R Sign Att

Mr. George Baldwin,
Director, Department of Transportation,
State of Oregon,
Highway Building,
Salem, Oregon. 97310

Dear George:

Upon checking the Army Engineer Public Notice 071-OYA-1-001895 and the Coast Guard's Notice 75-N-19, I noted some features that will concern recreational boating in the area of the proposed I-205 highway bridge over the Columbia River between Government Island and the Washington shore.

1. The Highway Division proposes to dredge two channels across the river for construction purposes and to side-cast material removed from those channels as well as from the locations of footings for bridge piers. There is danger that this material will be washed into the "Special Anchorage" between Sand (Tri-Club) Island and Government Island, designated by the Corps of Engineers more than 20 years ago for the benefit of recreational boats. This material would add to shoaling in that area.

2. The Corps of Engineers is considering building one or more pile dikes along the north side of Government Island to direct the river flow toward the Washington shore. This will slow the current between the islands and cause additional shoaling, which we will protest.

3. The Highway Division plan for the bridge provides for only 35 feet maximum vertical clearance over the Government Island Slough at Span No. 25, which is not sufficient or safe for many recreational boats. We suggest that the bridge be raised at least 10 feet higher at this point. This slough is heavily used by small craft during high water periods when the river stage is at 10 to 15 feet. Such a change in height of the bridge would reduce the grade over the bridge and would require a higher embankment over Government Island. There is a great surplus of sand in the slough and anchorage area that we boaters would gratefully award to the bridge builders for use in raising the embankment.

If you wish to meet with us, I will try to round up a few boaters to discuss the matter with you. Enclosed is a copy of a letter I have sent to several clubs to alert them of the plans.

Happy Holidays,

L

Lawrence Barber

ESH

RECEIVED
DEC 18 1975
OFFICE
DIRECTOR of TRANSPORTATION

Info
Inves
R/D
D/R
Sign
Act
File
FOR

DEC 18 '75

RECEIVED

Lawrence Barber 6422 N. Kerby Avenue • Portland, Oregon 97217 • (503) 285-4220

Maritime Writing
Photography
Public Relations

Member
INTERNATIONAL
ASSOCIATION of
BOATING WRITERS

December 9, 1975

To Portland Area Yacht Clubs:

We are gradually losing boating waters to "progress". Columbia Slough is endangered by plans of the Port of Portland and Army Engineers to plug it. Now there is danger to our Government Island slough and lake.

The Oregon Department of Transportation, Highway Division, has applied to the Corps of Engineers for some permits to dredge in the Columbia River for foundations of piers for the proposed I-205 highway bridge to cross at Government Island. This work will effect some of the channels and anchorages used by pleasure craft.

The Corps of Engineers is considering the building of one or more pile dikes along the north side of Government Island to direct the flow of water out into the main navigation channel near the Washington shore. There is concern that these dikes will cause sand to pile up near the head of Sand (Tri-Club) Island and wash into our "special anchorage", which the Department of Army, Corps of Engineers, set aside for use more than 20 years ago.

In seeking more information, I wrote recently to the Coast Guard at Seattle for a copy of a public notice dated Aug. 5 which shows the vertical and horizontal clearances under the bridge. These arrived at the end of last week. They show a maximum vertical clearance of 35 feet at the south end, where it ~~crossed~~ will cross the Government Island Slough to "Beer Can" lake. This will be at low (zero) water.

When the water is at 15 feet, which is necessary for small boats to get into the lake, only 20 feet clearance will be left. Another 10 feet would be very helpful and safer, and it is up to the yacht clubs and Columbia River Yachting Association to request the plans be altered to raise the bridge at this point. The CRYA already is acting, via Curt Leichner, outgoing president.

I suggest that the Highway Division be asked to use sand from the slough and anchorage area for construction of an embankment planned to cross the island. This embankment will be about 18 feet above present ground level and 1170 feet long. If raised it would require twice as much material as presently planned and help keep our waters deeper and better.

From the island another bridge, 3120 feet long with a vertical clearance of 48 feet over the small boat channel is proposed. It will touch down on the Oregon shore dike.

If the clubs wish to write to authorities, I suggest they protest the low clearances over Government Island Slough and any plan for dredging and dikes that will leave spoils or natural silting in the anchorage area, that the Engineers be requested to study and inform us of possible effects of the proposed dikes on our anchorage area, and that the Highway Division require that material for the embankment be taken from the slough and the anchorage area.

If these conditions are met these popular boating waters may be protected and saved for future generations.

The main bridge will be 7470 feet long and have a vertical clearance of 157 feet, with a horizontal clearance of 468 feet between the main channel piers. Commercial interests have requested that the main span be widened to ~~4~~ 500 feet. There will be 10 piers in the main river, 15 in the south channel, and two in our Government Island slough. As far as I can discern, the main bridge will be 200 feet upstream from Tri-Club Island.

Drawings and more plans can be obtained from the Highway Division, State Highway Bldg., Salem, 97310, or from the U. S. Coast Guard, 13th District, 915 Second Ave., Seattle, 98174 (Public Notice 75-N-19).

Protest letters should be addressed to the Federal Highway Administration, Regional Office, Mohawk Bldg., Portland, 97204, which handles environmental matters; the Highway Division (see above); Coast Guard (See above); Portland District, Corps of Army Engineers, P. O. Box 2946, Portland, 97208, which is planning the dikes.

Another area to make tracks is letters to Senators Mark Hatfield and Bob Packwood, in Washington, and Rep. Robert Duncan, in whose district these matters are involved. It wouldn't hurt to alert Gov. Bob Straub.

Time is ~~[illegible]~~ is important. The Engineers will hold a request for a public hearing open until Dec. 19 and wants all protests by that time.

The Coast Guard will close its files on Dec. 31.

We are tardy getting started- but let's go! Fast!

Yours,

Lawrence Barber

An old boater.

8905

Fi BR 9555

1859

OREGON STATE
HIGHWAY DIVISION

HIGHWAY BUILDING • SALEM, OREGON • 97310

ROBERT W. STRAUB
GOVERNOR

F. B. KLABOE
Administrator of Highways

January 14, 1976

NOTED
E. S. HUNTER

Mr. R. L. Carroll
District Engineer
Washington Department of Highways
4200 Main St.
P O Box 1717
Vancouver, WA 98663

Dear Dick:

Columbia R. (I-205) Bridge
Hydraulics Project Approval

Attached is a copy of the letter from the Washington State Department of Ecology relative to the Corps of Engineers' Public Notice for the construction of access channels to be dredged along the centerline of the Columbia River (I-205) Bridge.

As I indicated in my conversation with you today, a penned note on the bottom of the letter indicates the applicant should obtain a hydraulics project approval from the Washington Department of Game before starting work. I understand that you will obtain that approval for this project in a routine manner.

Very truly yours,

Walter J. Hart
Bridge Engineer

ORIGINAL SIGNED
R.W. ELLISON
R. W. Ellison
Bridge Administration Engineer

RECEIVED
STATE HWY ENGR
JAN 15 '76
REFER TO
FOR
Info Inv R/D D/R Sign Act File

RWE/ag
Attach.
cc E. S. Hunter w/attach.
R. N. Bothman w/attach.
G. Potter w/attach.

RECEIVED
STATE HWY ENGR
JAN 9 '76
REFER TO
FOR

Info	Inves	R/D	D/R	Sign	Act	File

I-205 Col R. B. &

January 2, 1976

State of
Washington
Department
of Ecology

District Engineer
Department of the Army
Portland District, Corps of Engineers
P.O. Box 2946
Portland, Oregon 97208

Attention: Chief Navigation Division

Subject: Public Notice No. 071-0YA-1-001895 — across channel at bridge.
Oregon Dept. of Transportation

Gentlemen:

We have received and reviewed your public notice for a Department of the Army permit for work in navigable waters.

On behalf of the State of Washington, including the Department of Fisheries, we wish to report that there is no objection to the subject public notice.

Please note that this letter does not exempt the applicant from compliance with other requirements of federal, state, and local agencies.

Sincerely,

B A Cameron

Bruce A. Cameron
Division Supervisor
Office of Operations

495-H

BAC:bp

cc: Applicant
File

RECEIVED
STATE HWY ENGR
JAN 9 '76
REFER TO
Kant
FOR

Info	Inves	R/D	D/R	Sign	Act	File
			X		X	

RECEIVED
STATE HWY ENGR
JAN 14 '76
REFER TO
FOR

Info	Inves	R/D	D/R	Sign	Act	File

Please Note: applicant should obtain a Hydralics Project approval from the Wa. State Dept. of Game before Starting work.

ESH

RECEIVED
JAN 12 1976
BRIDGE SECTION

January 2, 1976

State of Washington
Department of Ecology

District Engineer
Department of the Army
Portland District, Corps of Engineers
P.O. Box 2946
Portland, Oregon 97208

Attention: Chief Navigation Division

Subject: WATER QUALITY CERTIFICATION
of Public Notice No. 071-OYA-1-001895
Oregon Dept. of Transportation

Dear Sir:

The application for the subject Corps of Engineers permit has been reviewed in accordance with all pertinent rules and regulations.

This agency certifies that the subject activities will comply with the applicable provisions of Section 301, 302, 306 and 307 of the Federal Water Pollution Control Act.

Please note that this certification does not exempt, and is provisional upon, compliance with the statutes and codes administered by other federal, state, and local agencies.

Sincerely,

BA Cameron

Bruce A. Cameron
Division Supervisor
Office Of Operations

BAC:bp

cc: EPA, Seattle
Applicant
File

ENGR
JAN 9 '76
REFER TO
FOR
Info

RECEIVED
JAN 12 1976
BRIDGE SECTION

Daniel J. Evans, Governor John A. Biggs, Director Olympia, Washington 98504 Telephone (206) 753-2800

8905

8

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION X
1200 SIXTH AVENUE
SEATTLE, WASHINGTON 98101

JAN 7 1976

REPLY TO ATTN OF: M/S 521

NOTED
E. S. HUNTE

Mr. A. J. Heineman
Chief, Navigation Division
Portland District, C/E
P. O. Box 2946
Portland, Oregon 97208

RE: 071-OYA-1-001913 - Oregon Department of Transportation (Revised)

Dear Mr. Heineman:

We have reviewed the above referenced public notice concerning an application for a permit to dredge at Columbia River Mile 111.2. This Agency will have no objection to the issuance of this permit provided the applicant complies with all State and Federal resource agency conditions that may be needed to protect the aquatic resources.

Sincerely,

Lloyd A. Reed
Chief, Water Compliance
and Permits Branch

cc: USFWS
NMFS
ODEQ
ODFW
ODSL
Applicant

RECEIVED
STATE HWY ENGR

JAN 9'76

REFER TO
Hart

FOR

Info	Inves	R/D	O/B	Sign	Act	File
✓						

cy Wolfe

8905

Form FHWA 121 (Rev. 5-73)

UNITED STATES GOVERNMENT

Memorandum

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
Box 300
Salem OR 97308

DATE: December 29, 1975

In reply refer to:

SUBJECT: Oregon Project I-205-7(2)303
Final EIS (Columbia River Bridge)

FROM : G. L. Green, Division Administrator

TO : Mr. F. B. Klaboe, Administrator & State Highway Engineer
ATTN: Mr. G. Potter

Here is a letter we received from the Regional Office and our answer on the State dredging permit application (Public Notice 071-OYA-1-001895) to the Corps of Engineers for the proposed I-205 Columbia River Bridge Construction. We have worked out an answer with your Bridge Section. It appears that this situation must be addressed in the EIS.

In the next few days the Corps of Engineers will put out a notice on spur dike work for the navigation channel immediately upstream from the proposed structure. We understand that this is required work to maintain the designated navigation channel. Since it has some relation to the proposed structure, the work must also be addressed in the EIS. Your Bridge Section has been working with the Corps on this matter.

The Coast Guard is concerned about their input into the EIS. We think an advanced copy of any river navigation items might be helpfull for them to comment on. Would you be able to forward preliminary drafts to them?

G. L. Green

NOTED
E. S. HUNTER

Attachments
letter from Regional Office
FHWA letter on State dredging permit
Public Notice 071-OYA-1-001895

RECEIVED
STATE HWY ENGR
DEC 31 '75
REFER TO
[redacted] Schroeder
FOR
Info | Inve. | R/D | D.R. | S.d | X

cc Hunt

RECEIVED
STATE HWY DIV.
DEC 31 '75
REFER TO
FOR

Box 300   Salem OR 97308

Mr. Don Byers
Secretary - Treasurer
Portland Yacht Club
1241 N. E. Marine Drive
Portland OR 97211

Dear Mr. Byers:

We received your letter of December 11, in reference to the Columbia River dredging work described in Corps of Engineers Public Notice 071-OYA-1-001895. The work outlined is to provide a reasonable work area for construction of the Columbia River I-205 Bridge. This structure, in order to create the least disruption to the water way, was designed with rather long spans which require massive piers for support. Economical construction requires large floation equipment.

We agree with your concern about side casting and leaving the spoils excavation adjacent to the footing areas. Such a procedure might accelerate the filling-in of the designated special anchorage location when the flood waters come. It is not the State's intention to leave this excavated side cast material in this area. It is intended to create an access channel along the bridge centerline and use this material for the proposed roadway fill on Government Island. The materials excavated from below the access channel to allow pier construction will be side cast at each pier site and will be returned upon completion of the pier. This replacement material will support the rip rap which is required at each pier. The construction procedure in this area will preclude leaving excavated material for any appreciable time and will eliminate the bridge contraction contribution to the natural filling process in the anchorage site.

Your second area of concern was about the clearance over the small slough at Government Island which is more complex. The grade line at this location and the remainder of the structure across the main channel has basically remained the same since 1969. It was established through comments received at public hearings, meetings, and airport restraints. One of the restraints is the glide path of the Portland International Airport. This glide path is directly over the Government Island Slough and prevents raising the structure as you suggest. After these public hearings we received approved permits from the Federal Aviation Administration (1969) and Coast Guard(1970) for this alignment. Further restarints on the fill

height across the island have resulted from concerns of Wildlife and Conservation agencies.

We feel the physical restraints of the airport glide path, the wildlife interest, the advanced stages of design , and economics, make the modification of the vertical alignment grade not feesable at this time.

G. L. Green

cc
FHWA (Cowdery)
OSHD (Potter)

HASchell:cp

PORTLAND YACHT CLUB

1241 N. E. Marine Drive
Portland, Oregon 97211

Telephone
285-1922

December 11, 1975

RECEIVED
STATE HWY ENGR
DEC 31 '75
REFER TO
FOR

FHWA Regional Office
Mohawk Building
222 S. W. Morrison St.
Portland, Oregon 97204

Ref. NPPND-RF-1
Notice No. 071-OYA-1-001895

Gentlemen:

The referenced notice has been brought to the attention of the membership of Portland Yacht Club. The proposed work affects an anchorage area which has been used by our members and many other recreational boatmen for many years. Two aspects of the work affect us very adversely.

The dredging work calls for side casting spoils which are removed from foundations, with the possibility that it will all be left where side cast is specifically mentioned. A considerable amount of these spoils will be in the river directly upstream from our anchorage and will undoubtedly be washed into the anchorage which has been gradually filli for several years. This will reduce the effective area of our anchorage at a much greater rate and we strenuously object to this potential damage to us. We request that all material be disposed above the twenty-five foot (25') elevation in such a way that it cannot wash into the anchorage. We also suggest that your dredging an access channel to the work loading dock be done from directly downstream so that it will be naturally self-scouring and will not aggravate the erosion problem we are experiencing.

The other element of the design which we object to is the clearance of the bridge over a small slough into a lagoon in Government Island. The crossing referred to is at the "loading dock" proposed on sheet 1 of 5 in the exhibits attached to the referenced notice. A profile drawing which was given us today indicates that the elevation of the deck at the south edge of this channel at low water will be forty five feet above mean low water which is shown at 2.48 feet above sea level. This area is most usefull to us during the spring and summer when water stages are at approximately twenty feet above low water. As many as 50 to 100 boats anchor here on week ends in the spring and summer.

Ref. NPPND-RF-1
Notice No. 071-0YA-1-001895

In order to allow for a seven foot deep structure and allow passage for a small sail boat with a thirty foot mast we request that the structure at this point be raised fifteen feet (15'). This will reduce the amount of vertical curve in the design and require additional fill material in the proposed fill on Government Island. This fill material is readily available by dredging as nearly as the lagoon directly downstream.

Sincerely yours,

Don Byers

Don Byers,
Secretary-Treasurer

cc: Coast Guard - Seattle
OHD - Salem
Dist. Engineer
D. E. Q.
Sen. Hatfield
Sen. Packwood
Rep. Duncal
Gov Straub
State Marine Board

State of
Washington
Department
of Ecology

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

Notice of Application for Water Quality Certification

Notice is hereby given that a request is being filed with the Department of Ecology for certification, as provided in Section 401 of the Federal Water Pollution Control Act, that a proposed discharge to navigable waters, resulting from the project described in the Corps of Engineers Public Notice No. 001895, will comply with the applicable provisions of the Federal Water Pollution Control Act.

Any person desiring to present views on the request in relation to water pollution considerations pertaining to the project may do so by providing the same in writing to the Department of Ecology, Olympia, Washington 98504, within 20 days of publication of this notice.

RECEIVED
STATE HWY ENG'
DEC 31 '75
REFER TO
FOR

Info	Inve.	R-D	O.K.	Sign	Act	File

Daniel J. Evans, Governor John A. Biggs, Director Olympia, Washington 98504 Telephone (206) 753-2800

404

A-6

X Ref File I-205-7(2) 303
Columbia River Br.

Kappus

Baker

DEPARTMENT OF THE ARMY
PORTLAND DISTRICT, CORPS OF ENGINEERS
P. O. BOX 2946
PORTLAND, OREGON 97208

REPLY TO
ATTENTION OF:
NPPND-RF-1

RECEIVED
STATE HWY ENG
DEC 31 '75
REFER TO
FOR

November 19, 1975

PUBLIC NOTICE
071-OYA-1-001895
DREDGING AND FILLING
COLUMBIA RIVER MILE 113.5 - AT PORTLAND, OREGON

Interested parties are hereby notified that application has been made for a Department of the Army permit for work in navigable waters of this Engineer District under Section 10 of the River and Harbor Act of March 3, 1899 (30 Stat. 1151; 33 U.S.C. 403) and under the provisions of Section 404 of the "Federal Water Pollution Control Act Amendments of 1972". This Public Notice is an adjunct to the United States Coast Guard Public Notice No. 75-N-19.

Name of Applicant: Oregon Department of Transportation, Highway Division.

Character and Purpose of Work: The applicant proposes to dredge two channels to allow access to the construction site of the I-205 Highway Bridge piers and a temporary loading dock. Access channels will require excavating approximately 300,000 cubic yards of material which will be placed on the upland and used as highway fills or side cast and replaced upon completion of the work. A small portion of the highway fill may involve possible wetland. Approximately 700,000 cubic yards of material is to be removed and side cast for the bridge piers, the 34 concrete bridge piers within the waterway constructed, the riprap placed around the piers and the dredged material replaced over the riprap. However, depending upon material suitability, construction sequence, or economic or other factors, all excavated material may be utilized as described or allowed to remain in its side cast position. If extensive erosion of side cast material occurs, additional material from the adjacent river bottom will be utilized to complete backfilling. Approximately 23,000 cubic yards of riprap will be placed around the piers for erosion control. The above described project is shown on the attached drawings marked 001895(Columbia River-Dredge and Fill).

An Environmental Impact Statement, for the highway project, which includes the bridge project as required by Section 102(2)(c) of the National Environmental Policy Act of 1969 is being prepared by Federal Highway Administration in accordance with guidelines promulgated by the Council on Environmental Quality and Department of Transportation Order No. 5610.1 (Series). The Federal Highway Administration is the lead agency within the Department of Transportation for the total highway project. Comments, if any, concerning the environmental impact statement should be directed to FHWA Regional Office, Mohawk Building, Portland, Oregon.

The draft stage of the EIS was circulated and may be examined in the Coast Guard Thirteenth District Office, Aids to Navigation Branch, 915 - Second Avenue, Room 3564, Seattle, Washington; Oregon Highway Division, Salem, Oregon; FHWA Division Engineer, Salem, Oregon; FHWA Regional Office, Mohawk Building, Portland, Oregon.

AMERICAN REVOLUTION BICENTENNIAL 1776-1976

Additional Information: Additional information may be obtained from Mr. E. S. Hunter, Asst. State Highway Engineer, Highway Building, Salem, Oregon 97310, telephone (503) 378-6888.

The requested permit, if issued, will be subject in part to the following conditions:

1. All construction debris will be disposed of on land in such a manner that it cannot enter into the waterway.

2. Care will be taken to prevent any petroleum products, chemicals or other deleterious materials from entering the water.

3. Only clean, durable riprap will be used.

4. Work in the waterway will be done so as to minimize turbidity increases in the water which tend to degrade water quality and damage aquatic life.

5. When the District Engineer has been notified by a fishery agency that an activity authorized by this permit is adversely affecting fish or wildlife resources or the harvest thereof and the District Engineer subsequently directs remedial measures, the permittee will comply with such directions as may be received to suspend or modify the activity to the extent necessary to mitigate or eliminate the adverse effect as required.

The latest published version of the National Register of Historic Places has been consulted and it has been determined that the property described is not a registered property nor is it listed in the latest published version of the Register as being eligible for inclusion therein. Unknown archeological, scientific, prehistorical or historical data may be lost or destroyed by work to be accomplished under the requested permit.

Additional Requirements: A permit for the proposed work will not be issued until certification as required under Section 401 of the Federal Water Pollution Control Act Amendments of 1972 has been received from Oregon State Department of Environmental Quality and the Washington State Department of Ecology. State laws require that easements or permits be obtained for certain works or activity in the described waters. These state requirements must be met where applicable and the Department of the Army permit obtained before any work waterward of the ordinary high water line may be accomplished. Similarly, the governing counties, cities and/or other local governmental agencies may also have ordinances or requirements which must be satisfied before the work is accomplished.

Public Hearing: Any person who has an interest which may be adversely affected by the issuance of a permit for the dredging and filling work described herein may request a public hearing. The request must be submitted in writing to the District Engineer within thirty days of the date of this public notice and must clearly set forth the interest which may be adversely affected and the manner in which the proposed activity will adversely affect that interest.

NPPND-RF-1
RE: 071-OYA-1-001895
(Columbia River - Dredging and Filling)

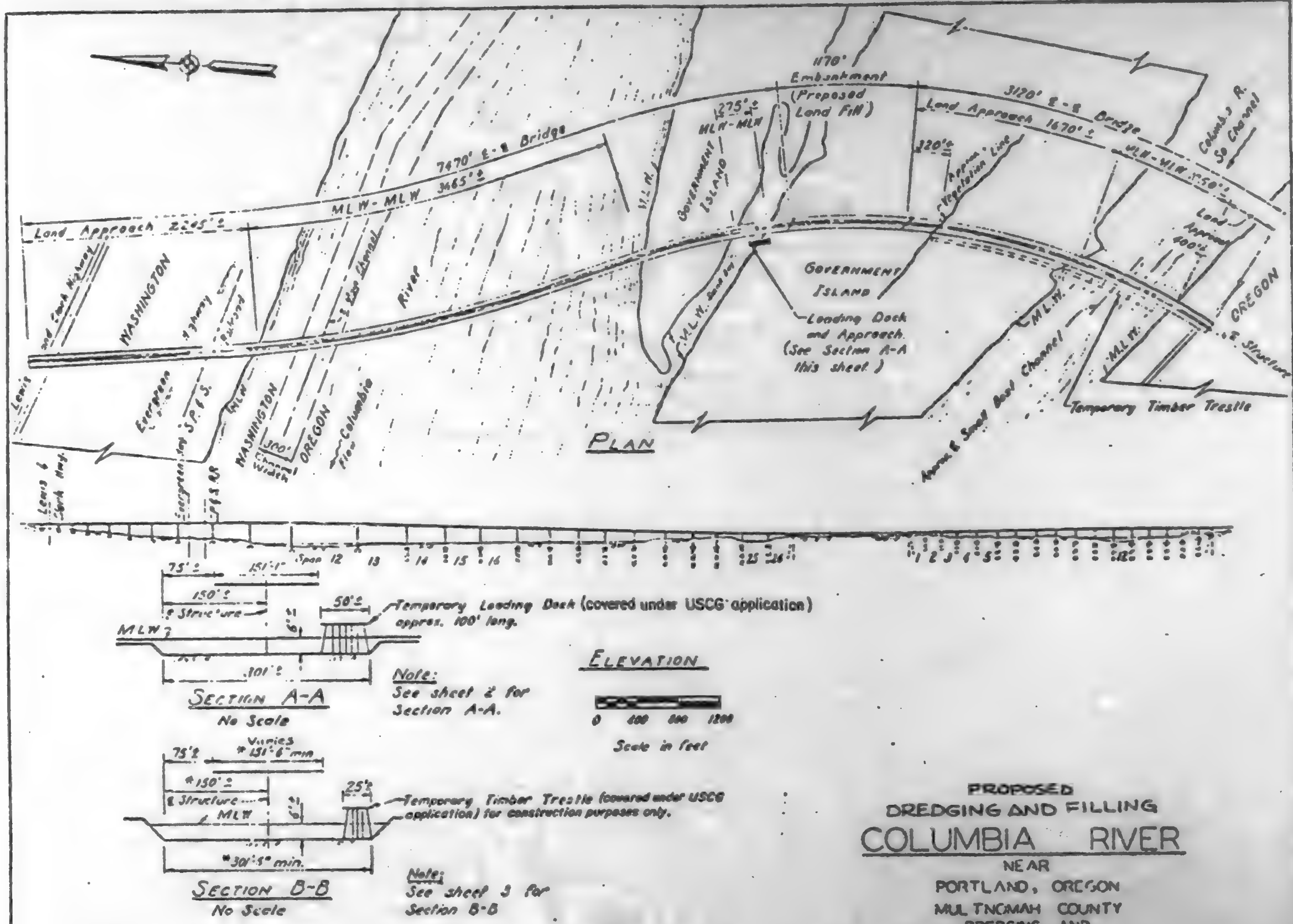
Interested parties are requested to submit in writing any comments or objections they may have to the proposed work. The decision whether to issue a permit will be based on an evaluation of the probable impact of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered; among those are conservation, economics, aesthetics, general environmental concerns, historic values, fish and wildlife values, flood damage prevention, land use classification, navigation, recreation, water supply, water quality and, in general, the needs and welfare of the people. In addition, the evaluation of the impact of the activity on the public interest will include application of the guidelines promulgated by the Administrator, EPA, under authority of Section 404(b) of the Federal Water Pollution Control Act. No permit will be granted unless its issuance is found to be in the public interest.

A preliminary determination has been made that a separate environmental impact statement is not currently required for the proposed work described herein.

Replies to this notice should be mailed to reach this office not later than December 19, 1975.

AJ Heineman
A. J. HEINEMAN
Chief, Navigation Division

001895 (Columbia River - Dredging and Filling)

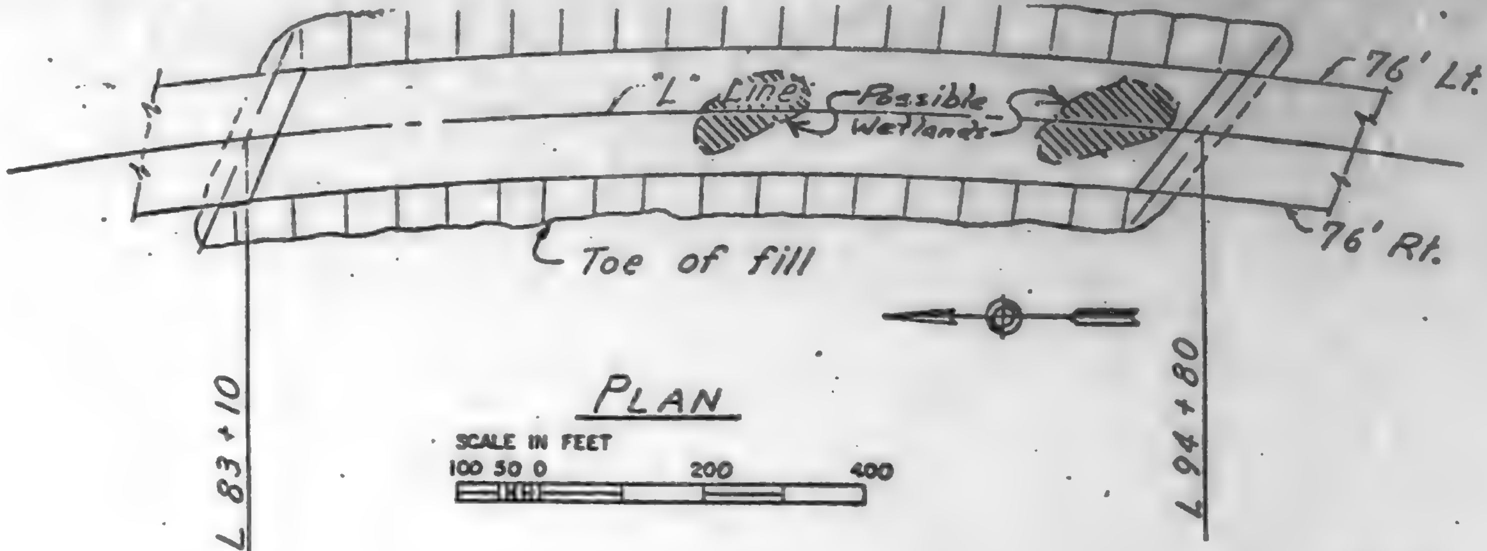

Land Approach 2245' ±
MLW - MLW 3465' ±
7470' E - E Bridge
Lewis and Clark Highway
WASHINGTON
Highway
Railroad
Lewis
Evergreen
S.P. & S.
MLW
WASHINGTON
300' Channel Width
OREGON
℄ Nav Channel
Columbia
Flow
River
V.L.W.
GOVERNMENT ISLAND
275' ± MLW - MLW
1170' Embankment (Proposed Land Fill)
Land Approach 1670' ±
3120' E - E Bridge
MLW - MLW 1250' ±
Columbia R. So Channel
320' ±
Approx. Vegetation Line
GOVERNMENT ISLAND
V.L.W. Sand bar
Loading Dock and Approach. (See Section A-A this sheet.)
M.L.W.
Access & Small Boat Channel
M.L.W.
Temporary Timber Trestle
Land Approach 400' ±
OREGON
℄ Structure
PLAN
Lewis & Clark Hwy.
Evergreen Hwy.
SP&S RR
Span 12
13
14
15
16
25
26
1
2
3
4
5
12
ELEVATION
0
400
800
1200
Scale in feet
75' ±
151'-1"
150' ±
℄ Structure
MLW
50' ±
101' ±
Temporary Loading Dock (covered under USCG application) approx. 100' long.
SECTION A-A
No Scale
Note:
See sheet 2 for Section A-A.
75' ±
Varies
* 151'-6" min
* 150' ±
℄ Structure
MLW
25' ±
* 301'-5" min.
Temporary Timber Trestle (covered under USCG application) for construction purposes only.
SECTION B-B
No Scale
Note:
See sheet 3 for Section B-B

Note:

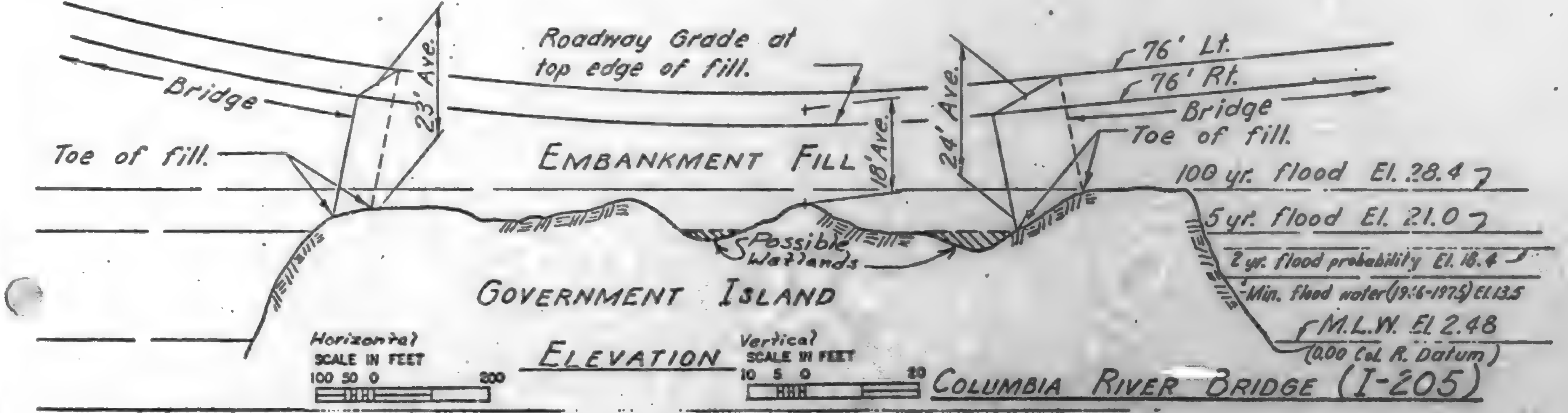
* Structure width varies spans 11 thru 16 of south channel. Maintain 75' ± channel each side of structure.

PROPOSED
DREDGING AND FILLING
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
DREDGING AND
WORK TRESTLES

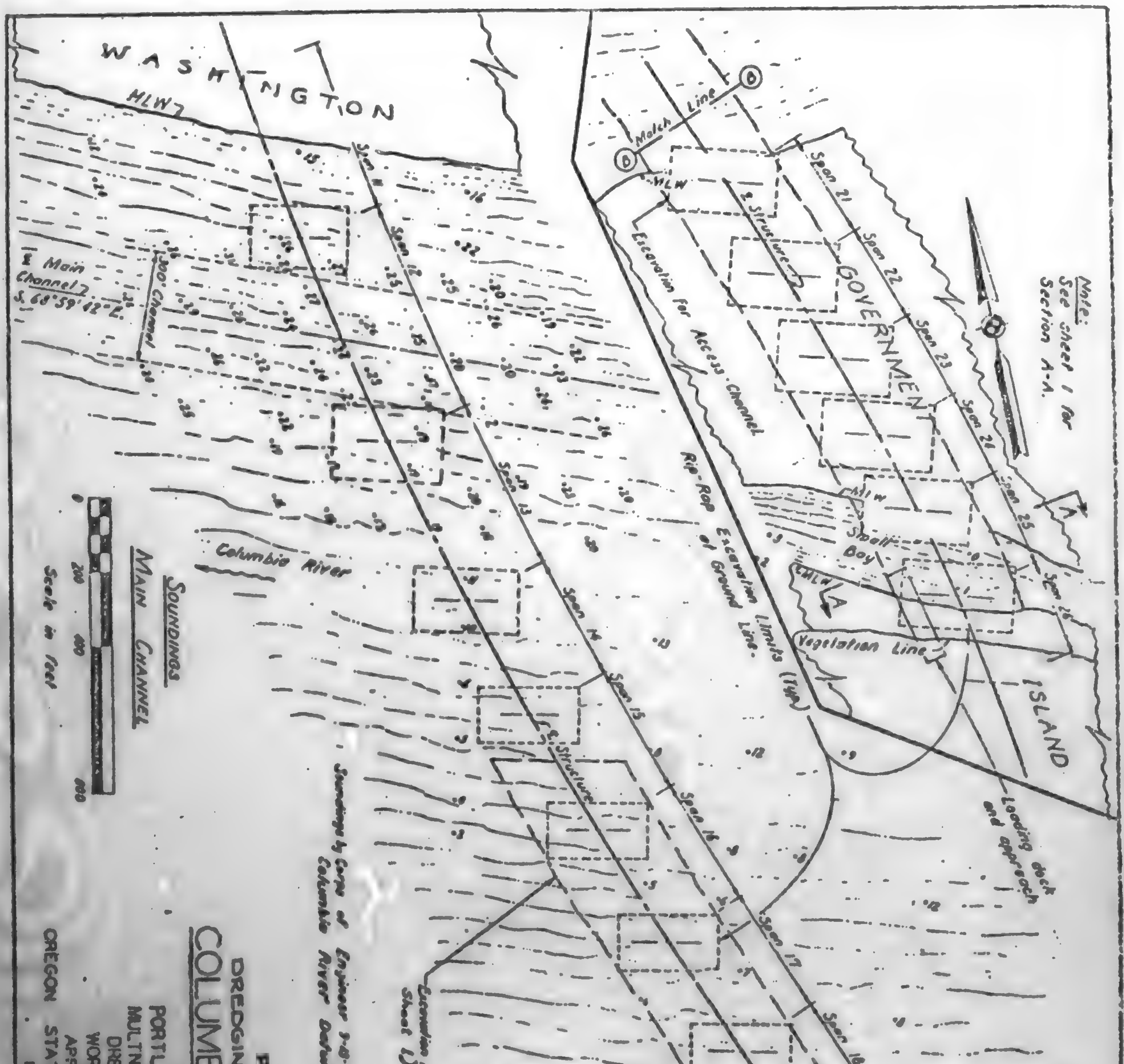
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1973
SHEET 1 of 5


"L" Line
Possible Wetlands
76' Lt.
76' Rt.
Toe of fill
L 83+10
L 94+80
PLAN
SCALE IN FEET
100 50 0 200 400

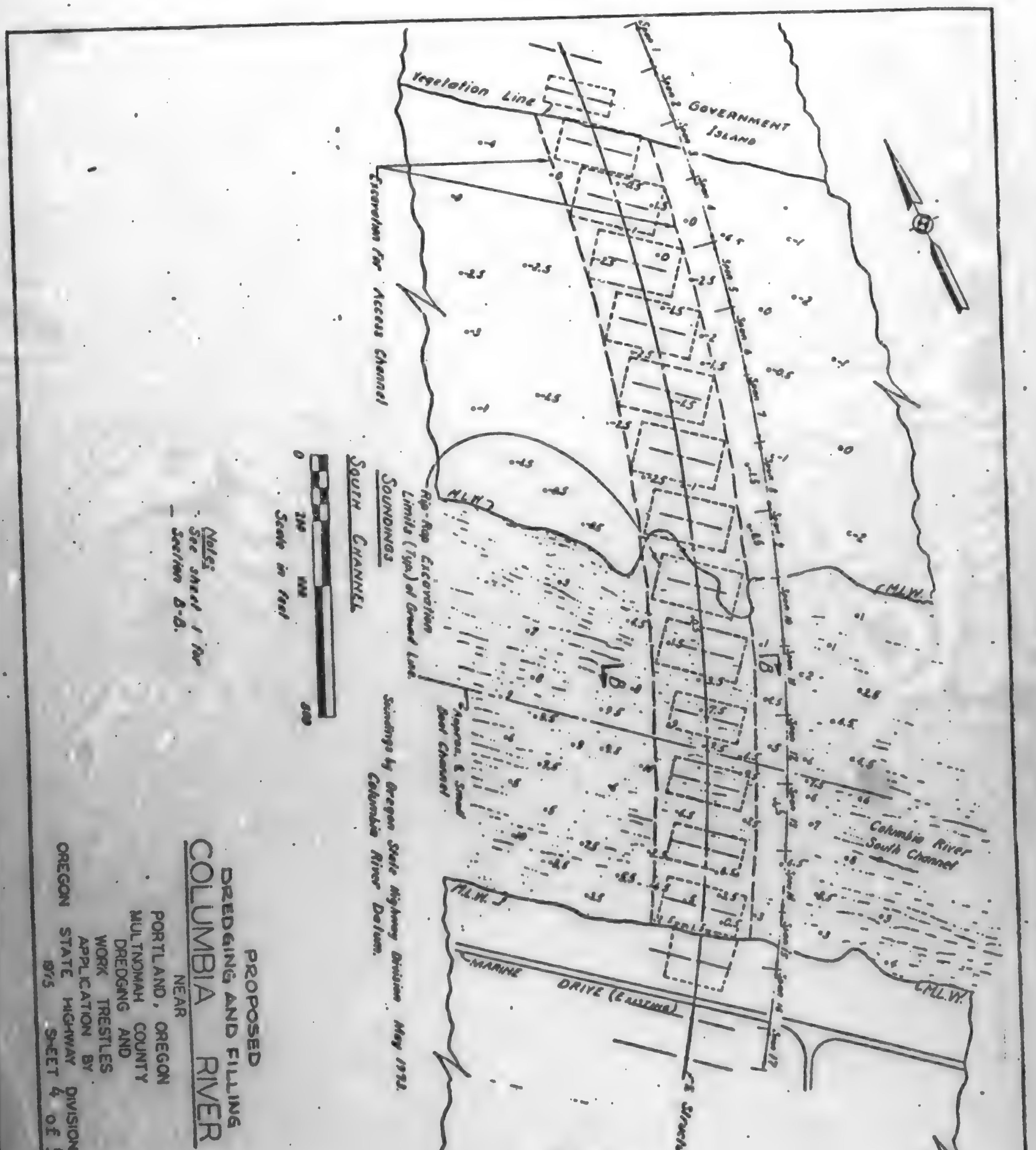
Note:
Elevations shown are
U.S.C. & G.S.

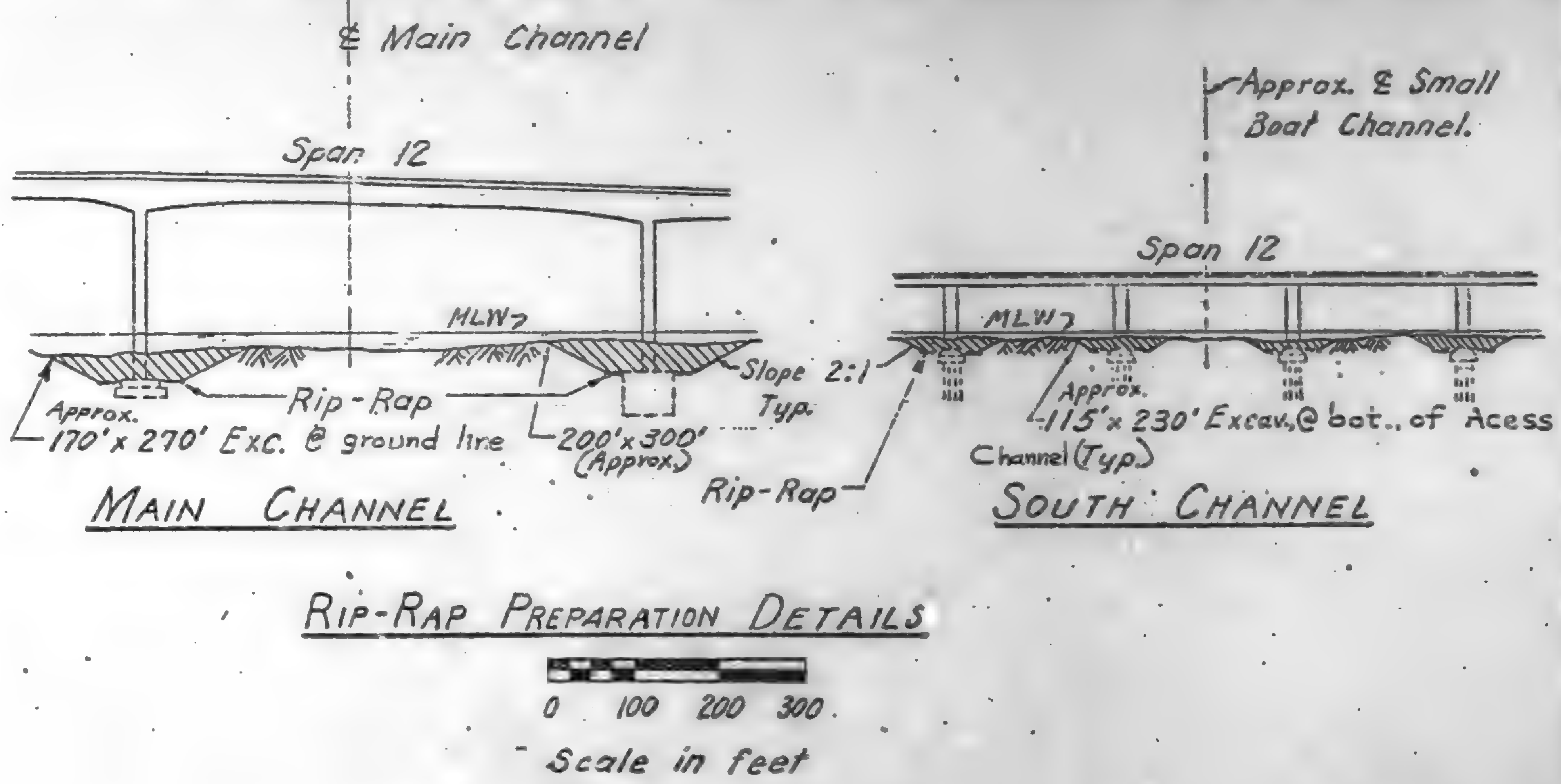

Roadway Grade at top edge of fill.
Bridge
23' Ave.
18' Ave.
24' Ave.
76' Lt.
76' Rt.
Bridge
Toe of fill.
Toe of fill.
EMBANKMENT FILL
100 yr. flood El. 28.4
5 yr. flood El. 21.0
2 yr. flood probability El. 18.4
Min. flood water (1916-1975) El. 13.5
M.L.W. El. 2.48
(0.00 Col. R. Datum)
Possible Wetlands
GOVERNMENT ISLAND
ELEVATION
Horizontal
SCALE IN FEET
100 50 0 200
Vertical
SCALE IN FEET
10 5 0 20
COLUMBIA RIVER BRIDGE (I-205)

001895 (Columbia River - Dredging and Filling)


WASHINGTON
HLW
Span 11
Span 12
Span 13
Span 14
Span 15
Span 16
Span 17
Span 18
Span 19
Span 20
Span 21
Span 22
Span 23
Span 24
Span 25
Span 26
Match Line
B
℄ Structure
Excavation for Access Channel
Rip-Rap Excavation limits (Typ.) at Ground Line
GOVERNMENT ISLAND
Small Bay
Vegetation Line
Loading dock and approach
Note: See sheet 1 for Section A-A.
A
℄ Main Channel S. 68°59'42" E.
300' Channel
Columbia River
Soundings by Corps of Engineers 1-8-72, Pts. 1 & 69-72 Columbia River Datum.
Excavation, Access Channel (See Section A-A, Sheet 1)
SOUNDINGS
MAIN CHANNEL
0 200 400 800
Scale in feet
PROPOSED
DREDGING AND FILLING
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
DREDGING AND
WORK TRESTLES
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1975 SHEET 3 OF 5

001895' (Columbia River - Dredging and Filling)


Vegetation Line
GOVERNMENT ISLAND
Excavation for Access Channel
SOUTH CHANNEL
SOUNDINGS
Rip-Rap Excavation Limits (Typ.) at Ground Line
Scale in feet
0
200
400
Notes:
See sheet 1 for Section B-B.
M.L.W.
C.M.L.W.
Columbia River South Channel
Soundings by Oregon State Highway Division, May 1972.
Columbia River Datum.
Proposed Small Boat Channel
MARINE DRIVE (Existing)
℄ Structure
OREGON
PROPOSED
DREDGING AND FILLING
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
DREDGING AND
WORK TRESTLES
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1975 SHEET 4 of 5


℄ Main Channel
Span 12
MLW
Approx. 170' x 270' Exc. @ ground line
Rip-Rap
200' x 300' (Approx.)
Slope 2:1 Typ.
Rip-Rap
MAIN CHANNEL
Approx. ℄ Small Boat Channel.
Span 12
MLW
Approx. 115' x 230' Excav. @ bot. of Acess Channel (Typ.)
SOUTH CHANNEL
0 100 200 300
Scale in feet

RIP-RAP PREPARATION DETAILS

Note:
Material excavated to be side cast and may be replaced after riprap is installed.

PROPOSED
DREDGING AND FILLING
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
DREDGING AND
WORK TRESTLES

APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1975

SHEET 5 of 5
SHEET 5

8905

9

FORM 81-734-3030

OREGON STATE HIGHWAY DIVISION

INTER-OFFICE CORRESPONDENCE

FILE: BR 9555

December 24, 1975

Salem, Oregon

R.W. Ellison

FROM: R. W. Ellison
Bridge Administration Engineer

TO: Mr. Ed Hunter
Deputy State Highway Engineer

SUBJECT: Assignment No. 444

Your Assignment 444 requested a rough draft reply to the Portland Yacht Club relative to the Columbia River (I-205) Bridge. Subsequently Herb Schell of FHWA called and said he will answer the letter since it was addressed to his Regional office and asked me for suggestions.

444-H

I subsequently wrote the attached rough draft and delivered it to Herb.

I assume this satisfies the subject assignment.

RWE/ag

Attach.

NOTED
E. B. HUNTER

RECEIVED
STATE HWY ENG
DEC 24 '75
REFER TO
FOR

Info	Inves	R/D	D/R	Sign	Act	File

DEPARTMENT OF DEFENSE
UNITED STATES OF AMERICA

DEPARTMENT OF THE ARMY
PORTLAND DISTRICT, CORPS OF ENGINEERS
P. O. BOX 2946
PORTLAND, OREGON 97208

REPLY TO ATTENTION OF: NPPND-RF

16 December 1975

RECEIVED
STATE HWY ENGR
DEC 18 '75
REFER TO
Hart
FOR

Info	Inves	R/D	D/R	Sign	Act	File
		X				

Mr. E.S.Hunter, Assistant State Highway Engineer
Highway Building
Salem, OR 97310

Dear Mr. Hunter:

Inclosed is a copy of correspondence received in response to Public Notice No. 071-OYA-1-001895 (Columbia River - Dredging & Filling), Mile 113.5.

The policy of the Portland District is to allow an applicant the opportunity to comment on objections or questions raised in connection with his permit application. As applicant, you should determine the proper approach for satisfying adverse reaction to your proposed project. Possible methods may include (1) supplying concrete and demonstrable evidence that the objection is ill-founded, (2) agreeing to observe appropriate corrective or preventive conditions, (3) redesign of contemplated work, (4) submission to this office of evidence that a covering agreement of approval from the objector has been secured, or (5) supplying the inquiring party with the information requested. Other methods, of course, for satisfying objections or questions may occur to you. Copies of all replies and of any final resolution or disposition of each problem should be furnished this office so that the nature of any solution may be fully evaluated before a permit is issued.

☐ Since the objection or question is from a Federal, state or local governmental or quasi-governmental agency, we ask that you reply directly to that agency.

☒ Since private individuals or groups are concerned, you may wish to reply directly to them in the fostering of improved public relations. If you prefer, you may respond directly to this office with appropriate views and facts.

I cannot emphasize too strongly that the better your answer or agreement satisfies the objections or questions, the sooner the processing of your application can be completed. Also, a lack of responsive action on your part may preclude issuance of the requested permit.

Sincerely yours,

F R Brockschink
F. R. BROCKSCHINK
Chief, Regulatory Functions Branch

Incl Cpy lttr Ptld Yacht Club dtd
11 Dec 75

RECEIVED
DEC 19 1975
BRIDGE SECTION

PORTLAND YACHT CLUB

1241 N. E. Marine Drive
Portland, Oregon 97211

Telephone
285-1922

December 11, 1975

FHWA Regional Office
Mohawk Building
222 S. W. Morrison St.
Portland, Oregon 97204

RECEIVED
DEC 15 1975
PERMITS SECTION

Ref. NPPND-RF-1
Notice No. 071-OYA-1-001895

Gentlemen:

The referenced notice has been brought to the attention of the membership of Portland Yacht Club. The proposed work affects an anchorage area which has been used by our members and many other recreational boatmen for many years. Two aspects of the work affect us very adversely.

The dredging work calls for side casting spoils which are removed from foundations, with the possibility that it will all be left where side cast is specifically mentioned. A considerable amount of these spoils will be in the river directly upstream from our anchorage and will undoubtedly be washed into the anchorage which has been gradually filling for several years. This will reduce the effective area of our anchorage at a much greater rate and we strenuously object to this potential damage to us. We request that all material be disposed above the twenty-five foot (25') elevation in such a way that it cannot wash into the anchorage. We also suggest that your dredging an access channel to the work loading dock be done from directly downstream so that it will be naturally self-scouring and will not aggravate the erosion problem we are experiencing.

The other element of the design which we object to is the clearance of the bridge over a small slough into a lagoon in Government Island. The crossing referred to is at the "loading dock" proposed on sheet 1 of 5 in the exhibits attached to the referenced notice. A profile drawing which was given us today indicates that the elevation of the deck at the south edge of this channel at low water will be forty five feet above mean low water which is shown at 2.48 feet above sea level. This area is most usefull to us during the spring and summer when water stages are at approximately twenty feet above low water. As many as 50 to 100 boats anchor here on week ends in the spring and summer.

Ref. NPPND-RF-1
Notice No. 071-0YA-1-001895

In order to allow for a seven foot deep structure and allow passage for a small sail boat with a thirty foot mast we request that the structure at this point be raised fifteen feet (15'). This will reduce the amount of vertical curve in the design and require additional fill material in the proposed fill on Government Island. This fill material is readily available by dredging as nearly as the lagoon directly downstream.

Sincerely yours,

Don Byers,
Secretary-Treasurer

cc: Coast Guard - Seattle
✓ OHD - Salem
Dist. Engineer
✓ D. E. Q.
Sen. Hatfield
Sen. Packwood
Rep. Duncal
Gov. Straub
State Marine Board

8905.

8

December 22, 1975

1097-S

Mr. John Kincheloe, Field Supervisor
Fish and Wildlife Service
Division of Ecological Services
Portland Field Office
919 NE 19th Avenue
Portland, OR 97232

Dear Mr. Kincheloe:

We have been working closely with the Northwest Region, Bureau of Outdoor Recreation, to resolve the Section 4(f) issues concerning the Interstate 205 project in Multnomah County, Oregon.

A synopsis of this effort is as follows: The Lundy correspondence from the Bureau of Outdoor Recreation to the Fish and Wildlife Service received on November 14, 1975, refers to a May 5, 1975 letter from Deputy Assistant Secretary of the Interior Doremus, commenting on the Interstate 205 project. To resolve the 4(f)-related concerns expressed in that letter, representatives of the Oregon State Highway Division toured the right-of-way area on Government Island on November 7, 1975 with Mr. Sid Malbon, representing BOR, as well as representatives from the Corps of Engineers and Fish and Wildlife Service.

A meeting was held at the conclusion of the field inspection to discuss needs and procedures to resolve Interior concerns regarding the Government Island issue. Two problems were emphasized by ROR. They were (1) preserving public recreation use along the shores of Government Island, and (2) minimizing impacts of the fill on Government Island.

Potential solutions to these two problems are currently under investigation by this agency. The Oregon State Highway

Division intends to respond to the Department of Interior by letter in January of 1976. It is anticipated this correspondence will lead to a resolution of the issues outlined in the May 5, 1975 letter.

Very truly yours,

ORIGINAL SIGNED
R.L. SCHROEDER

R. L. Schroeder
Assistant State Highway Engineer

cc Environmental Protection Agency, Seattle
Bureau of Outdoor Recreation, Seattle
National Marine Fisheries Service, Portland
Corps of Engineers
Department of Environmental Quality
Division of State Lands
Washington Department of Fisheries
Washington Department of Game
Washington Department of Ecology
U. S. Coast Guard

bc George M. Baldwin
F. B. Klaboe
E. S. Hunter
R. N. Bothman
W. J. Hart
G. A. Potter
J. H. Versteeg
L. W. Rulien

JZ:sz: ab

DEPARTMENT OF DEFENSE
UNITED STATES OF AMERICA

DEPARTMENT OF THE ARMY
PORTLAND DISTRICT, CORPS OF ENGINEERS
P. O. BOX 2946
PORTLAND, OREGON 97208

REPLY TO ATTENTION OF: NPPND-RF

December 5, 1975

RECEIVED
STATE HWY ENGR
DEC 8'75
REFER TO
Schroeder
FOR

Info	Inves	R/D	D/R	Sign	Act	File
		X				

Mr. E. S. Hunter
Assistant State Highway Engineer
Highway Building
Salem, OR 97310

Dear Mr. Hunter:

Inclosed is a copy of correspondence received in response to Public Notice Nos. 071-OYA-1-001895 (Columbia R-Dredging & Filling, Mi. 113.5) & -001913 (Columbia River-Drdging, Mi. 111.2)

The policy of the Portland District is to allow an applicant the opportunity to comment on objections or questions raised in connection with his permit application. As applicant, you should determine the proper approach for satisfying adverse reaction to your proposed project. Possible methods may include (1) supplying concrete and demonstrable evidence that the objection is ill-founded, (2) agreeing to observe appropriate corrective or preventive conditions, (3) redesign of contemplated work, (4) submission to this office of evidence that a covering agreement of approval from the objector has been secured, or (5) supplying the inquiring party with the information requested. Other methods, of course, for satisfying objections or questions may occur to you. Copies of all replies and of any final resolution or disposition of each problem should be furnished this office so that the nature of any solution may be fully evaluated before a permit is issued.

☒ Since the objection or question is from a Federal, state or local governmental or quasi-governmental agency, we ask that you reply directly to that agency.

☐ Since private individuals or groups are concerned, you may wish to reply directly to them in the fostering of improved public relations. If you prefer, you may respond directly to this office with appropriate views and facts.

I cannot emphasize too strongly that the better your answer or agreement satisfies the objections or questions, the sooner the processing of your application can be completed. Also, a lack of responsive action on your part may preclude issuance of the requested permit.

Sincerely yours,

RECEIVED
DEC 10 1975
Office of
Assistant State Highway Engineer

F R Brockschink
F. R. BROCKSCHINK
Chief, Regulatory Functions Branch

Incl Cpy of: USDI lttrs dtd 3 Dec 75

NOTED
R. L. SCHROEDER

United States Department of the Interior
FISH AND WILDLIFE SERVICE
Division of Ecological Services
Portland Field Office
919 N.E. 19th Avenue
Portland, Oregon 97232

adp
H

Reference: ES

December 3, 1975

District Engineer
Portland District, Corps of Engineers
P. O. Box 2946
Portland, Oregon 97208

Dear Sir:

The Fish and Wildlife Service has reviewed public notice:

Notice No./Date	Applicant Name	Due Date
071-OYA-1-001895 11/19	Oregon Department of Transportation, Highway Division	12/19/75

Type of Permit: Section 10 of the 1899 Rivers and Harbors Act
Section 404 of Federal Water Pollution Control Act Amendments of 1972

This Department requests that issuance of the permit be held in abeyance per the attached memorandum from the Regional Director of the Bureau of Outdoor Recreation. Our comments on the application will be expedited once the matter referred to in this memorandum is resolved.

By copy of this letter we are so advising the following agencies:

Environmental Protection Agency, Seattle
Bureau of Outdoor Recreation Seattle
National Marine Fisheries Service, Portland
Oregon Department of Fish and Wildlife
Department of Environmental Quality
Division of State Lands
Washington Department of Fisheries
Washington Department of Game
Washington Department of Ecology

RECEIVED
DEC 5 1975
PERMITS SECTION

Sincerely yours,

Marvin Yoshinaka for
John W. Kincheloe
Field Supervisor

Attachment

RECEIVED
STATE HWY ENGR
DEC 8 '75
REFER TO

FOR

Info	Inves	R/D	D/R	Sign	Act	File

AMERICAN REVOLUTION BICENTENNIAL 1776-1976

E3039
ER-75/221

NOV 14 1975

Memorandum

To: Regional Director, Fish & Wildlife Service, Region 1

From: Regional Director, Northwest Region, Bureau of Outdoor Recreation

Subject: Interstate 205 Project, Multnomah County, Oregon

Deputy Assistant Secretary Doremus' May 5, 1975, letter to Mr. Schroeder of the Oregon State Highway Division commented on the combined Draft Environmental Statement and Section 4(f) Determination for this project. It objected to Federal Highway Administration approval of the project until the Secretary concurred that all Section 4(f) aspects of the project were satisfied. It assigned the Departmental responsibility to this office for working with the Oregon State Highway Division to resolve the Section 4(f) issues. Until such time as the Secretary of the Interior's office advises that the Department concurs in the Section 4(f) aspects of the project, no agreement by the Fish and Wildlife Service as the representative of the entire Department should be expressed to any of the specific Coast Guard or Corps of Engineers' permits that may be required to implement the project.

We are currently working with the State and hope to secure the Secretary's concurrence in the near future.

Maurice H. Lundy
Regional Director

Ernest E. Allen

cc:
Robert T. Ewen, OSHD, Portland
Bill Kappus, FHWA, Salem
Douglas Myhre, Seattle
Howard Needles Tammen & Bergendoff

E3039
ER/221

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Division of Ecological Services
Portland Field Office
919 N.E. 19th Avenue
Portland, Oregon 97232

adp
H

Reference: ES

December 3, 1975

District Engineer
Portland District, Corps of Engineers
P. O. Box 2946
Portland, Oregon 97208

Dear Sir:

The Fish and Wildlife Service has reviewed public notice:

Notice No./Date	Applicant Name	Due Date
071-OYA-1-001913 11/19	Oregon Department of Transportation, Highway Division	12/19/75

Type of Permit: Section 10 of the 1899 Rivers and Harbors Act
Section 404 of Federal Water Pollution Control Act Amendments of 1972

This Department requests that issuance of the permit be held in abeyance per the attached memorandum from the Regional Director of the Bureau of Outdoor Recreation. Our comments on the application will be expedited once the matter referred to in this memorandum is resolved.

By copy of this letter we are so advising the following agencies:

Environmental Protection Agency, Seattle
Bureau of Outdoor Recreation, Seattle
National Marine Fisheries Service, Portland
Oregon Department of Fish and Wildlife
Department of Environmental Quality
Division of State Lands
Washington Department of Fisheries
Washington Department of Game
Washington Department of Ecology

RECEIVED
DEC 5 1975
PERMITS SECTION

Sincerely yours,

Marvin Yoshinaka for
John W. Kincheloe
Field Supervisor

Attachment

AMERICAN REVOLUTION BICENTENNIAL 1776-1976

E3039
ER-75/221

NOV 14 1975

Memorandum

To: Regional Director, Fish & Wildlife Service, Region 1

From: Regional Director, Northwest Region, Bureau of Outdoor Recreation

Subject: Interstate 205 Project, Multnomah County, Oregon

Deputy Assistant Secretary Doremus' May 5, 1975, letter to Mr. Schroeder of the Oregon State Highway Division commented on the combined Draft Environmental Statement and Section 4(f) Determination for this project. It objected to Federal Highway Administration approval of the project until the Secretary concurred that all Section 4(f) aspects of the project were satisfied. It assigned the Departmental responsibility to this office for working with the Oregon State Highway Division to resolve the Section 4(f) issues. Until such time as the Secretary of the Interior's office advises that the Department concurs in the Section 4(f) aspects of the project, no agreement by the Fish and Wildlife Service as the representative of the entire Department should be expressed to any of the specific Coast Guard or Corps of Engineers' permits that may be required to implement the project.

We are currently working with the State and hope to secure the Secretary's concurrence in the near future.

Maurice H. Lundy
Regional Director
Ernest E. Allen

cc:
Robert T. Ewen, OSHD, Portland
Bill Kappus, FHWA, Salem
Douglas Myhre, Seattle
Howard Needles Tammen & Bergendoff

E3039
2/22

9

BOHEMIA INC. B / U
UMPQUA DIVISION

P.O. Box 1819
2280 Oakmont Way
EUGENE, OREGON 97401

Phone (503) 342-6262
Telex 364-442

423-H

8 December 1975

Mr. E. S. Hunter
Assistant State Highway Engineer
Highway Building
Salem, Oregon 97310

NOTED
E. S. HUNTER

Subject: Public Notice - Dredging
071-OYA-1-001913 (Revised)
Columbia River Mile 111.2 0 Portland, Oregon

Dear Mr. Hunter:

This is in reference to the above mentioned Public Notice. We would like to advise you that we have some of our equipment in this area. If you would like more information concerning this equipment, please feel free to contact me.

Very truly yours,

BOHEMIA INC., UMPQUA DIVISION

L. D. Poindexter, P.E.
Chief Engineer

LDP/mv
Att.

RECEIVED
STATE HWY ENGR
DEC 12 '75
REFER TO
FOR

Info	Inves	R/D	D/R	Sign	Act	File

RECEIVED
DEC 11 1975
BRIDGE SECTION

RECEIVED
STATE HWY ENGR
DEC 11 '75
REFER TO
Hal Hart
FOR

Info	Inves	R/D	D/R	Sign	Act	File
			✓			

NOTED
W. J. HART

x
x DEE
x FEE
x DICK
DALE
DUANE 8
JOAN

D7

DEPARTMENT OF THE ARMY
PORTLAND DISTRICT, CORPS OF ENGINEERS
P. O. BOX 2946
PORTLAND, OREGON 97208

REPLY TO ATTENTION OF: NPPND-RF-1

December 4, 1975

PUBLIC NOTICE
071-OYA-1-001913 (Revised)
DREDGING
COLUMBIA RIVER MILE 111.2 - AT PORTLAND, OREGON

Interested parties are hereby notified that application has been made for a Department of the Army permit for work in navigable waters of this Engineer District under Section 10 of the River and Harbor Act of March 3, 1899 (30 Stat. 1151; 33 U.S.C. 403) and under the provisions of Section 404 of the "Federal Water Pollution Control Act Amendments of 1972".

Name of Applicant: Oregon Department of Transportation, Highway Division.

Character and Purpose of Work: To dredge approximately 10,000 cubic yards of material, downstream from the west end of Lemon Island. The material will be removed to a depth of -6 feet C.R.D. to allow barging construction materials up the South Channel to the I-205 bridge site. The dredging will be accomplished by clamshell with the material to be placed in highway fills or side cast depending on material suitability and construction sequence. The above described work is shown on the attached drawings marked 001913 (Columbia River - Dredging).

Adj: fee

Additional Information: Additional information may be obtained from Mr. E. S. Hunter, Assistant State Highway Engineer, Highway Building, Salem, Oregon 97310, telephone (503) 378-6888.

The requested permit, if issued, will be subject in part to the following conditions:

1. Care will be taken to prevent any petroleum products, chemicals or other deleterious materials from entering the water.

2. Work in the waterway will be done so as to minimize turbidity increases in the water which tend to degrade water quality and damage aquatic life.

3. The disposal area method of disposal or method of dredging will not be changed without the prior written approval of the District Engineer.

4. When the District Engineer has been notified by a fishery agency that a dredging or filling activity is adversely affecting fish or wildlife resources or the harvest thereof and the District Engineer subsequently directs remedial measures, the permittee will comply with such directions as may be received to suspend or modify the activity to the extent necessary to mitigate or eliminate the adverse effect as required.

5. If any other Federal authorization or any State or local authorization is required for the performance of the work or activity described in this permit and if such authorization is not secured or, if secured, expires or is otherwise terminated, this permit shall become invalid and remain invalid until the required authorization or re-authorization is secured.

NPPND-RF-1
RE: 071-OYA-1-001913 (Revised)
(Columbia River - Dredging)

The latest published version of the National Register of Historic Places has been consulted and it has been determined that the property described is not a registered property nor is it listed in the latest published version of the Register as being eligible for inclusion therein. Unknown archeological, scientific, prehistorical or historical data may be lost or destroyed by work to be accomplished under the requested permit.

Additional Requirements: A permit for the proposed work will not be issued until certification as required under Section 401 of the Federal Water Pollution Control Act Amendments of 1972 has been received from the Oregon State Department of Environmental Quality. State law requires that leases, easements or permits be obtained for certain works or activity in the described waters. These state requirements must be met where applicable and the Department of the Army permit obtained before any work waterward of the ordinary high water line may be accomplished. Similarly, the governing county, city and/or other local governmental agencies may also have ordinances or requirements which must be satisfied before the work is accomplished.

Public Hearing: Any person who has an interest which may be adversely affected by the issuance of a permit for the work described herein may request a public hearing. The request must be submitted in writing to the District Engineer within thirty days of the date of this public notice and must clearly set forth the interest which may be adversely affected and the manner in which the proposed activity will adversely affect that interest.

Interested parties are requested to submit in writing any comments or objections they may have to the proposed work. The decision whether to issue a permit will be based on an evaluation of the probable impact of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered; among those are conservation, economics, aesthetics, general environmental concerns, historic values, fish and wildlife values, flood damage prevention, land use classification, navigation, recreation, water supply, water quality and, in general, the needs and welfare of the people. In addition, the evaluation of the impact of the activity on the public interest will include application of the guidelines promulgated by the Administrator, EPA, under authority of Section 404(b) of the Federal Water Pollution Control Act. No permit will be granted unless its issuance is found to be in the public interest.

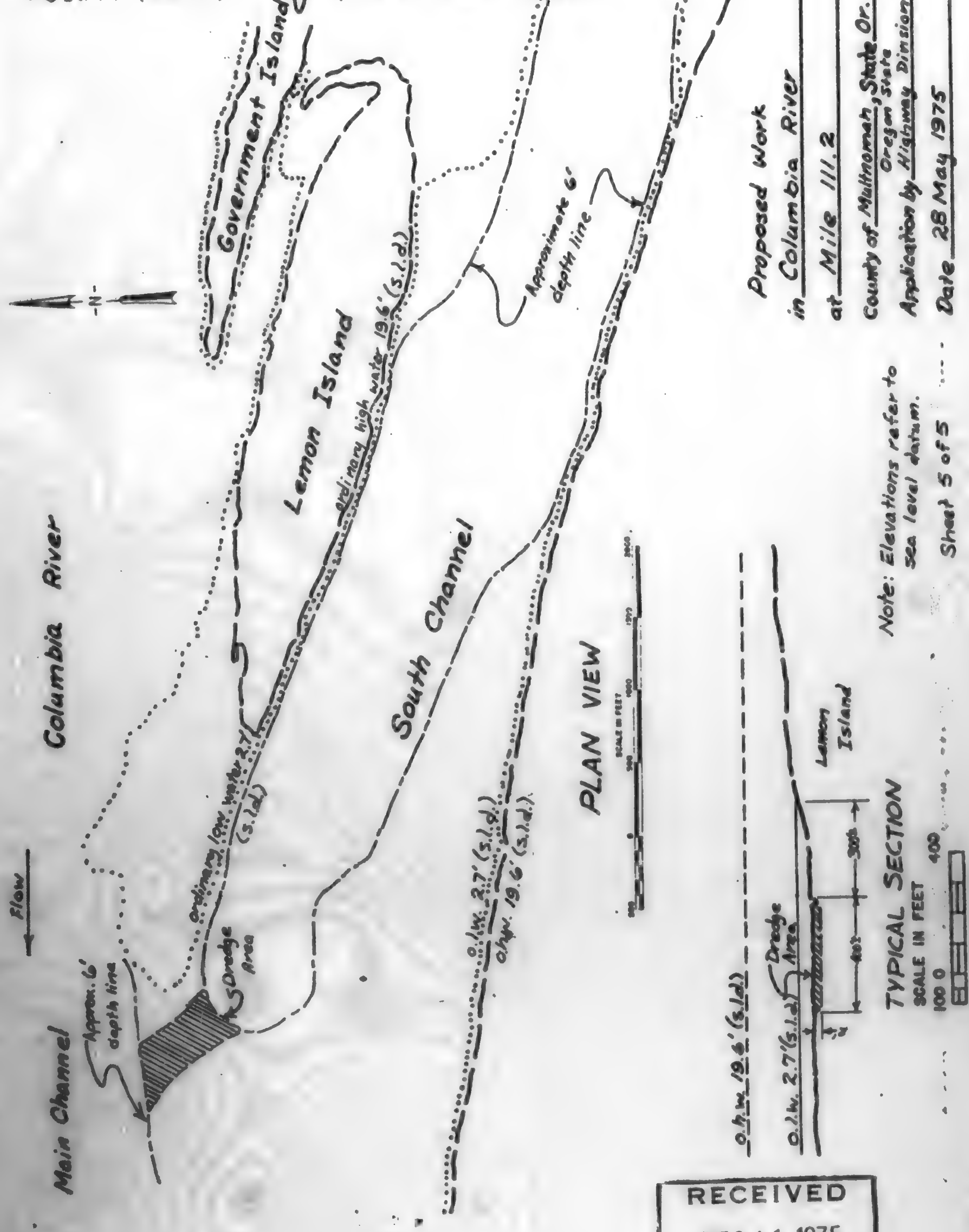
A preliminary determination has been made that an environmental impact statement is not currently required for the proposed work.

Replies to this notice should be mailed to reach this office not later than 5 January 1976.

A J Heineman
A. J. HEINEMAN
Chief, Navigation Division

RECEIVED
DEC 11 1975
BRIDGE SECTION

0019.5 (Revised) (Columbia River - Dredging)


Columbia River
Flow
Main Channel
Approx. 6' depth line
5' Dredge Area
Government Island
Lemon Island
ordinary high water 19.6' (s.l.d.)
ordinary low water 2.7' (s.l.d.)
Approximate 6' depth line
South Channel
o.l.w. 2.7' (s.l.d.)
o.h.w. 19.6' (s.l.d.)
N
PLAN VIEW
SCALE IN FEET
500
0
500
1000
1500
2000
TYPICAL SECTION
SCALE IN FEET
100 0 400
o.h.w. 19.6' (s.l.d.)
o.l.w. 2.7' (s.l.d.)
Dredge Area
Lemon Island
400'
300'
5'

Proposed Work
in Columbia River
at Mile 111.2
County of Multnomah, State Or.
Application by Oregon State Highway Division
Date 28 May 1975

Note: Elevations refer to sea level datum.

Sheet 5 of 5

RECEIVED
DEC 11 1975
BRIDGE SECTION

1859

DEPARTMENT OF ENVIRONMENTAL QUALITY

1234 S.W. MORRISON STREET • PORTLAND, ORE. 97205 • Telephone (503) 229- 5301

ROBERT W. STRAUB
GOVERNOR

KESSLER R. CANNON
Director

Public Notice

The following shall constitute public notice by the State of Oregon that the Department of Environmental Quality, pursuant to the requirements of Section 401 of the Federal Water Pollution Control Act Amendments of 1972, has been requested to certify that there is reasonable assurance that the project described in Corps of Engineers Public Notice No. 071-OYA-1-001913 (Revised) will not violate applicable water quality standards. Comments regarding possible water quality effects of the proposed project shall be sent within 20 days to the Department of Environmental Quality, 1234 S. W. Morrison Street, Portland, Oregon 97205.

RECEIVED
DEC 11 1975
BRIDGE SECTION

Contains Recycled Materials

DEQ-1

8905

8

FORM 81-734-3030

OREGON STATE HIGHWAY DIVISION

FILE: BR 9555

INTER-OFFICE CORRESPONDENCE
December 5, 1975
Salem, Oregon

ORIGINAL SIGNED
R.W. ELLISON

FROM: R. W. Ellison
Bridge Administration Engineer

TO: Memorandum to the Files

SUBJECT:

Columbia R. (I-205) Br.
Pier Footing at Dike
Meeting with Corps of Engineers

NOTED
E. S. HUNTER

Pursuant to my letter of November 28, 1975, a meeting was held today in the Corps of Engineers' Portland office relative to the bridge footing at the Oregon shore dike. In attendance were: Duane Brands, Larry Bogar, and John Jenkins of the Corps; Bob Pillsbury of FHWA, and Jerry Backstrand and Bob Ellison of OSHD.

Discussion centered around the alternate pier locations outlined in the OSHD letter of November 28, 1975. OSHD indicated preference for the scheme using a pier between the Oregon shore dike and relocated Marine Drive with an end abutment south of relocated Marine Drive (Alternate No. 1 as attached to November 28 letter).

Advantages of this scheme are:

1. Estimated cost about $1 million less than other alternates.
2. Eliminates estimated 12" settlement of existing dike which would result if end of bridge were founded on the dike.
3. Improves alignment of relocated Marine Drive at the bridge location and eliminates need for a structure to carry the storm sewer over relocated Marine Drive.
4. Eliminates any settlement of the existing dike which would result from placing highway fill against the south side of the dike.
5. Eliminates need for additional right of way which is costly and difficult to acquire.

The Corps gave verbal approval to this scheme.

Our next step is to make drawings showing plan and elevation of the scheme as well as details of footing construction on both sides of the dike. These drawings will then be submitted to the Multnomah County Drainage District No. 1 for approval. They in turn will submit the drawings to the Corps for approval. Thus we will obtain formal approval from the Drainage District and the Corps with one submittal.

RWE/ag

cc D. Brands, USCE
L. Bogar, USCE
J. Jenkins, USCE
R. Pillsbury, FHWA
E. Hunter, OSHD
J. Backstrand, OSHD

RECEIVED
STATE HWY ENGR
DEC 8 '75
REFER TO
FOR
Info Inves R/D D/R Sign Act File

8905

8

OREGON STATE
HIGHWAY DIVISION

HIGHWAY BUILDING • SALEM, OREGON • 97310

ROBERT W. STRAUB
GOVERNOR

F. B. KLABOE
Administrator of Highways

RECEIVED
STATE HWY ENGR
DEC 1 '75
REFER TO
FOR
Info Inves R/D D/R Sign Act File

BR 9555

December 1, 1975

Mr. R. L. Carroll
District Engineer
Washington Department of Highways
P. O. Box 1717
Vancouver, WA 98663

Dear Mr. Carroll:

NOTED
E. S. HUNTER

Columbia River (I-205) Bridge
Bridge 9555
Corps of Engineers' Permits
Public Notices

Attached is one copy each of the two Public Notices issued by the Corps of Engineers relative to our application for permits for the subject structure. One notice covers the access channels and pier excavation at the bridge site. The other is for dredging at the west end of Lemon Island which is required to provide access to the south channel for floating equipment traveling to the bridge site.

I would appreciate your checking with the Washington State Department of Ecology for issuance of the Section 401 certification required by the Corps before issuing their permits.

Very truly yours,

Walter J. Hart
Bridge Engineer

ORIGINAL SIGNED
WALTER J. HART

R. W. Ellison
Bridge Administration Engineer

RWE:dh
Attachment
cc W. A. Bulley /w/ attach.
E. S. Hunter /w/ attach.
R. N. Bothman /w/ attach.
Robert Ewen /w/ attach.
P. M. Oakley

DEPARTMENT OF THE ARMY
PORTLAND DISTRICT, CORPS OF ENGINEERS
P. O. BOX 2946
PORTLAND, OREGON 97208

REPLY TO ATTENTION OF: NPPND-RF-1 November 19, 1975

PUBLIC NOTICE
071-OYA-1-001913
DREDGING
COLUMBIA RIVER MILE 111.2 - AT PORTLAND, OREGON

Interested parties are hereby notified that application has been made for a Department of the Army permit for work in navigable waters of this Engineer District under Section 10 of the River and Harbor Act of March 3, 1899 (30 Stat. 1151; 33 U.S.C. 403) and under the provisions of Section 404 of the "Federal Water Pollution Control Act Amendments of 1972".

Name of Applicant: Oregon Department of Transportation, Highway Division.

Character and Purpose of Work: To dredge approximately 10,000 cubic yards of material, downstream from the west end of Lemon Island. The material will be removed to a depth of -6 feet C.R.D. to allow barging construction materials up the South Channel to the I-205 bridge site. The dredging will be accomplished by clamshell with the material to be placed in highway fills or side cast depending on material suitability and construction sequence. The above described work is shown on the attached drawings marked 001913 (Columbia River - Dredging).

Additional Information: Additional information may be obtained from Mr. E. S. Hunter, Assistant State Highway Engineer, Highway Building, Salem, Oregon 97310, telephone (503) 378-6888.

The requested permit, if issued, will be subject in part to the following conditions:

1. Care will be taken to prevent any petroleum products, chemicals or other deleterious materials from entering the water.

2. Work in the waterway will be done so as to minimize turbidity increases in the water which tend to degrade water quality and damage aquatic life.

3. The disposal area method of disposal or method of dredging will not be changed without the prior written approval of the District Engineer.

4. When the District Engineer has been notified by a fishery agency that a dredging or filling activity is adversely affecting fish or wildlife resources or the harvest thereof and the District Engineer subsequently directs remedial measures, the permittee will comply with such directions as may be received to suspend or modify the activity to the extent necessary to mitigate or eliminate the adverse effect as required.

5. If any other Federal authorization or any State or local authorization is required for the performance of the work or activity described in this permit and if such authorization is not secured or, if secured, expires or is otherwise terminated, this permit shall become invalid and remain invalid until the required authorization or re-authorization is secured.

NPPND-RF-1
RE: 071-OYA-1-001913
(Columbia River - Dredging)

Additional Requirements: A permit for the proposed work will not be issued until certification as required under Section 401 of the Federal Water Pollution Control Act Amendments of 1972 has been received from the State of Washington, Department of Ecology. State law requires that easements or permits be obtained for certain works or activity in the described waters. These state requirements must be met where applicable and the Department of the Army permit obtained before any work waterward of the ordinary high water line may be accomplished. Similarly, the governing county, city and/or other local governmental agencies may also have ordinances or requirements which must be satisfied before the work is accomplished.

Public Hearing: Any person who has an interest which may be adversely affected by the issuance of a permit for the work described herein may request a public hearing. The request must be submitted in writing to the District Engineer within thirty days of the date of this public notice and must clearly set forth the interest which may be adversely affected and the manner in which the proposed activity will adversely affect that interest.

Interested parties are requested to submit in writing any comments or objections they may have to the proposed work.

The decision whether to issue a permit will be based on an evaluation of the probable impact of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered; among those are conservation, economics, aesthetics, general environmental concerns, historic values, fish and wildlife values, flood damage prevention, land use classification, navigation, recreation, water supply, water quality and, in general, the needs and welfare of the people. In addition, the evaluation of the impact of the activity on the public interest will include application of the guidelines promulgated by the Administrator, EPA, under authority of Section 404(b) of the Federal Water Pollution Control Act. No permit will be granted unless its issuance is found to be in the public interest.

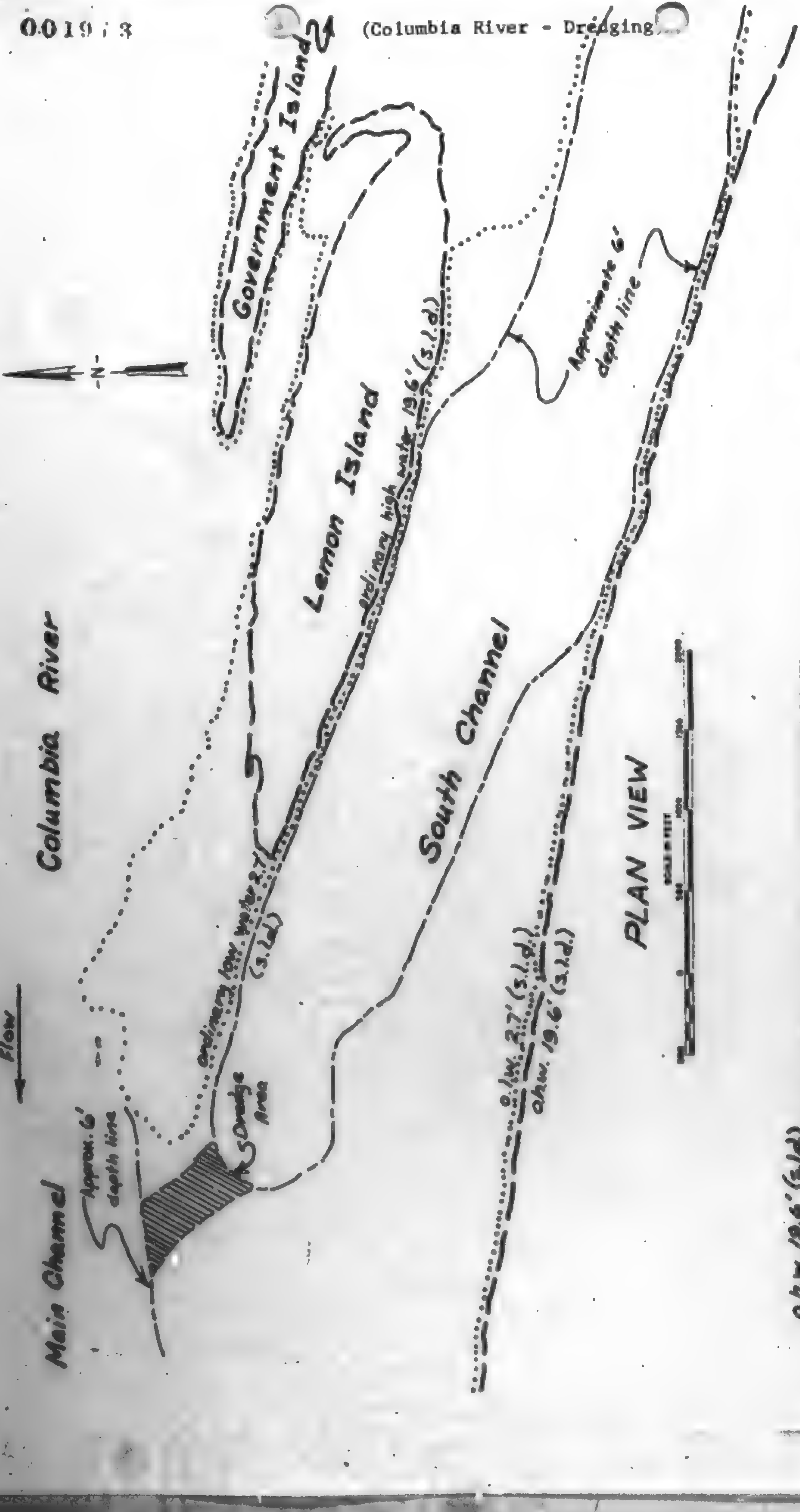
A preliminary determination has been made that an environmental impact statement is not currently required for the proposed work.

Replies to this notice should be mailed to reach this office not later than December 19, 1975.

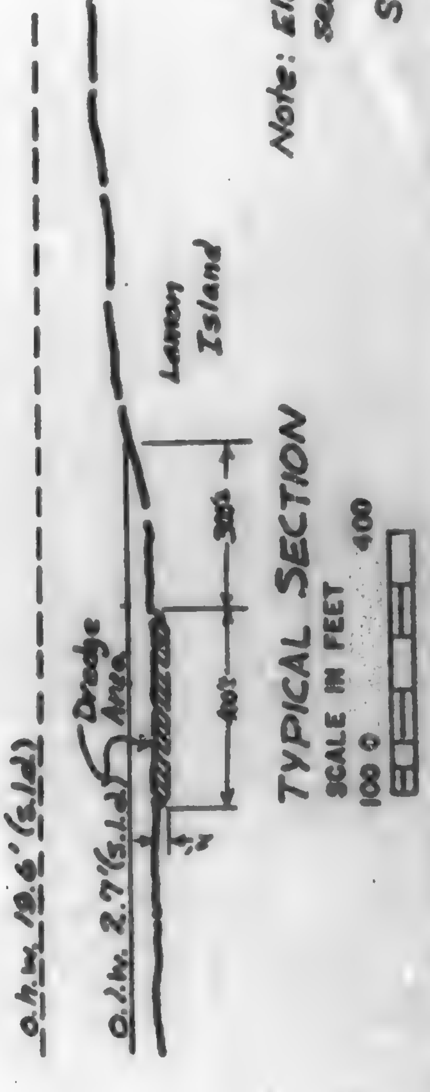
Heineman
A. J. HEINEMAN
Chief, Navigation Division

RECEIVED
NOV 26 1975
BRIDGE SECTION

001973 (Columbia River - Dredging


Main Channel
Approx. 6' depth line
Flow
Columbia River
Government Island
Lemon Island
ordinary high water 19.6' (s.l.d.)
ordinary low water 2.7' (s.l.d.)
Dredge Area
Approximate 6' depth line
South Channel
o.l.w. 2.7' (s.l.d.)
o.h.w. 19.6' (s.l.d.)
N
SCALE IN FEET
0
500
1000
1500
2000

PLAN VIEW


o.h.w. 19.6' (s.l.d.)
o.l.w. 2.7' (s.l.d.)
Dredge Area
Lemon Island
400
300
4'

TYPICAL SECTION

SCALE IN FEET
100 0 400

Proposed Work
in Columbia River
at Mile 111.2
County of Multnomah, State Or.
Application by Oregon State Highway Division
Date 28 May 1975

Note: Elevations refer to sea level datum.

Sheet 5 of 5

DEPARTMENT OF ENVIRONMENTAL QUALITY

1234 S.W. MORRISON STREET • PORTLAND, ORE. 97205 • Telephone (503) 229- 5301

ROBERT W. STRAUB
GOVERNOR

KESSLER R. CANNON
Director

Public Notice

The following shall constitute public notice by the State of Oregon that the Department of Environmental Quality, pursuant to the requirements of Section 401 of the Federal Water Pollution Control Act Amendments of 1972, has been requested to certify that there is reasonable assurance that the project described in Corps of Engineers Public Notice No. 071-OYA-1-001913 will not violate applicable water quality standards. Comments regarding possible water quality effects of the proposed project shall be sent within 20 days to the Department of Environmental Quality, 1234 S. W. Morrison Street, Portland, Oregon 97205.

Contains Recycled Materials

DEPARTMENT OF DEFENSE
UNITED STATES OF AMERICA

DEPARTMENT OF THE ARMY
PORTLAND DISTRICT, CORPS OF ENGINEERS
P. O. BOX 2946
PORTLAND, OREGON 97208

REPLY TO
ATTENTION OF:
NPPND-RF-1

November 19, 1975

PUBLIC NOTICE
071-OYA-1-001895
DREDGING AND FILLING
COLUMBIA RIVER MILE 113.5 - AT PORTLAND, OREGON

Interested parties are hereby notified that application has been made for a Department of the Army permit for work in navigable waters of this Engineer District under Section 10 of the River and Harbor Act of March 3, 1899 (30 Stat. 1151; 33 U.S.C. 403) and under the provisions of Section 404 of the "Federal Water Pollution Control Act Amendments of 1972". This Public Notice is an adjunct to the United States Coast Guard Public Notice No. 75-N-19.

Name of Applicant: Oregon Department of Transportation, Highway Division.

Character and Purpose of Work: The applicant proposes to dredge two channels to allow access to the construction site of the I-205 Highway Bridge piers and a temporary loading dock. Access channels will require excavating approximately 300,000 cubic yards of material which will be placed on the upland and used as highway fills or side cast and replaced upon completion of the work. A small portion of the highway fill may involve possible wetland. Approximately 700,000 cubic yards of material is to be removed and side cast for the bridge piers, the 34 concrete bridge piers within the waterway constructed, the riprap placed around the piers and the dredged material replaced over the riprap. However, depending upon material suitability, construction sequence, or economic or other factors, all excavated material may be utilized as described or allowed to remain in its side cast position. If extensive erosion of side cast material occurs, additional material from the adjacent river bottom will be utilized to complete backfilling. Approximately 23,000 cubic yards of riprap will be placed around the piers for erosion control. The above described project is shown on the attached drawings marked 001895(Columbia River-Dredge and Fill).

An Environmental Impact Statement, for the highway project, which includes the bridge project as required by Section 102(2)(c) of the National Environmental Policy Act of 1969 is being prepared by Federal Highway Administration in accordance with guidelines promulgated by the Council on Environmental Quality and Department of Transportation Order No. 5610.1 (Series). The Federal Highway Administration is the lead agency within the Department of Transportation for the total highway project. Comments, if any, concerning the environmental impact statement should be directed to FHWA Regional Office, Mohawk Building, Portland, Oregon.

The draft stage of the EIS was circulated and may be examined in the Coast Guard Thirteenth District Office, Aids to Navigation Branch, 915 - Second Avenue, Room 3564, Seattle, Washington; Oregon Highway Division, Salem, Oregon; FHWA Division Engineer, Salem, Oregon; FHWA Regional Office, Mohawk Building, Portland, Oregon.

AMERICAN REVOLUTION BICENTENNIAL
1776-1976

NPPND-RF-1
RE: 071-OYA-1-001895
(Columbia River - Dredging and Filling)

Additional Information: Additional information may be obtained from Mr. E. S. Hunter, Asst. State Highway Engineer, Highway Building, Salem, Oregon 97310, telephone (503) 378-6888.

The requested permit, if issued, will be subject in part to the following conditions:

1. All construction debris will be disposed of on land in such a manner that it cannot enter into the waterway.

2. Care will be taken to prevent any petroleum products, chemicals or other deleterious materials from entering the water.

3. Only clean, durable riprap will be used.

4. Work in the waterway will be done so as to minimize turbidity increases in the water which tend to degrade water quality and damage aquatic life.

RECEIVED
NOV 26 1975
BRIDGE SECTION

5. When the District Engineer has been notified by a fishery agency that an activity authorized by this permit is adversely affecting fish or wildlife resources or the harvest thereof and the District Engineer subsequently directs remedial measures, the permittee will comply with such directions as may be received to suspend or modify the activity to the extent necessary to mitigate or eliminate the adverse effect as required.

The latest published version of the National Register of Historic Places has been consulted and it has been determined that the property described is not a registered property nor is it listed in the latest published version of the Register as being eligible for inclusion therein. Unknown archeological, scientific, prehistorical or historical data may be lost or destroyed by work to be accomplished under the requested permit.

Additional Requirements: A permit for the proposed work will not be issued until certification as required under Section 401 of the Federal Water Pollution Control Act Amendments of 1972 has been received from Oregon State Department of Environmental Quality and the Washington State Department of Ecology. State laws require that easements or permits be obtained for certain works or activity in the described waters. These state requirements must be met where applicable and the Department of the Army permit obtained before any work waterward of the ordinary high water line may be accomplished. Similarly, the governing counties, cities and/or other local governmental agencies may also have ordinances or requirements which must be satisfied before the work is accomplished.

Public Hearing: Any person who has an interest which may be adversely affected by the issuance of a permit for the dredging and filling work described herein may request a public hearing. The request must be submitted in writing to the District Engineer within thirty days of the date of this public notice and must clearly set forth the interest which may be adversely affected and the manner in which the proposed activity will adversely affect that interest.

NPPND-RF-1
RE: 071-OYA-1-001895
(Columbia River - Dredging and Filling)

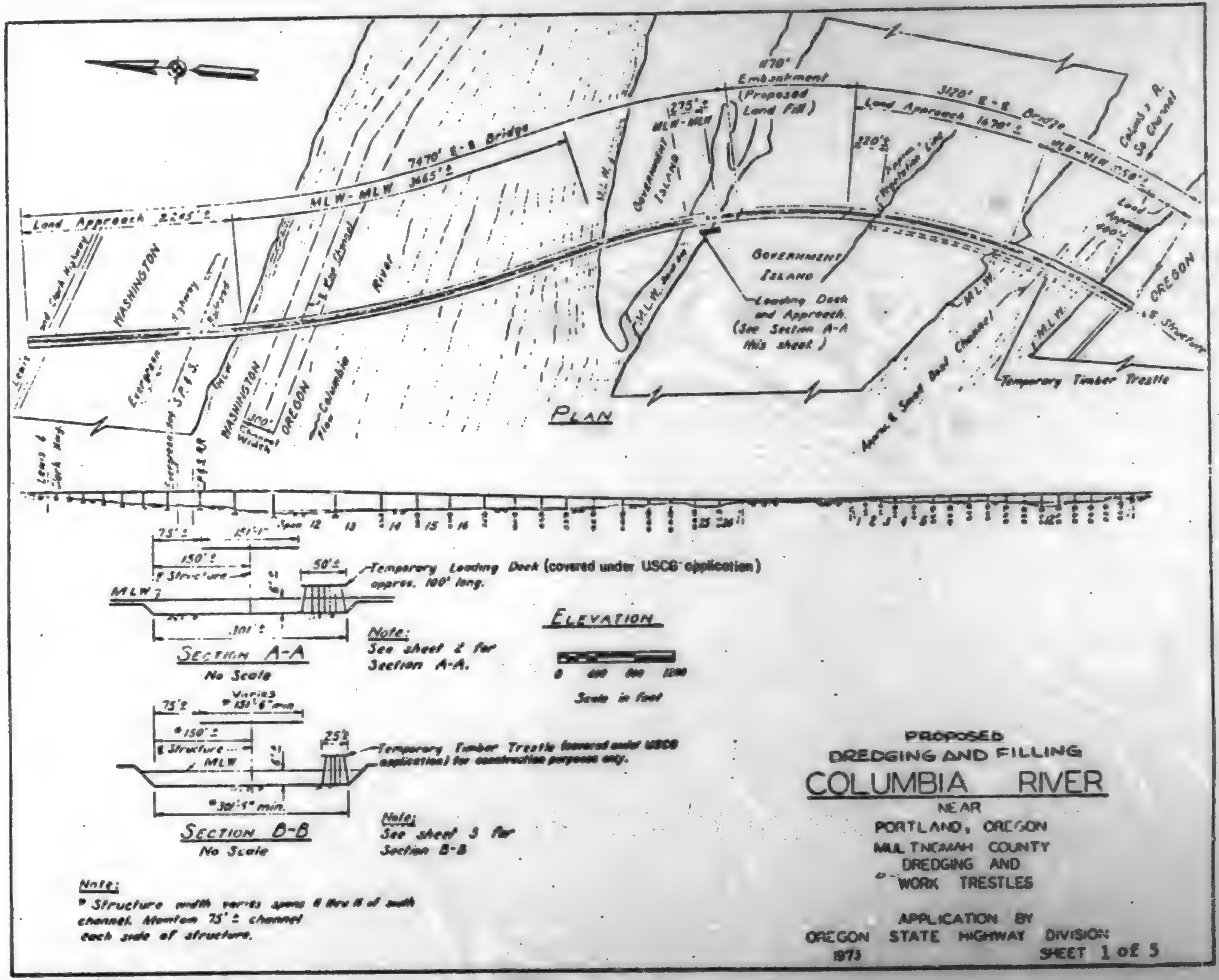
Interested parties are requested to submit in writing any comments or objections they may have to the proposed work. The decision whether to issue a permit will be based on an evaluation of the probable impact of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered; among those are conservation, economics, aesthetics, general environmental concerns, historic values, fish and wildlife values, flood damage prevention, land use classification, navigation, recreation, water supply, water quality and, in general, the needs and welfare of the people. In addition, the evaluation of the impact of the activity on the public interest will include application of the guidelines promulgated by the Administrator, EPA, under authority of Section 404(b) of the Federal Water Pollution Control Act. No permit will be granted unless its issuance is found to be in the public interest.

A preliminary determination has been made that a separate environmental impact statement is not currently required for the proposed work described herein.

Replies to this notice should be mailed to reach this office not later than December 19, 1975.

AJ Heineman
A. J. HEINEMAN
Chief, Navigation Division

001895 (Columbia River - Dredging and Filling)


Land Approach 2245'±
MLW-MLW 3665'±
7470' E-B Bridge
Lewis and Clark Highway
WASHINGTON
Evergreen Highway
Railroad
Lewis
Evergreen S.P.&S.
MLW
WASHINGTON
300' Channel Width
OREGON
Columbia Flow
S.E. Kar Channel
River
M.L.W.
Government Island
275'± MLW-MLW
1170' Embankment (Proposed Land Fill)
3120' E-B Bridge
Land Approach 1670'±
MLW-MLW 750'±
Columbia R. So Channel
220'±
Approx. Vegetation Line
GOVERNMENT ISLAND
M.L.W. Boat Ramp
Loading Dock and Approach. (See Section A-A this sheet.)
M.L.W.
Access & Small Boat Channel
M.L.W.
Land Approach 400'±
OREGON
℄ Structure
Temporary Timber Trestle
PLAN
Lewis & Clark Hwy.
Evergreen Hwy.
P.S.& S. RR.
Span 12
13
14
15
16
25
26
75'±
151'-1"
150'±
℄ Structure
MLW
50'±
101'±
Temporary Loading Dock (covered under USCG application) approx. 100' long.
SECTION A-A
No Scale
ELEVATION
0
400
800
1200
Scale in Feet
75'±
Varies
* 151'-6" min.
* 150'±
℄ Structure
MLW
25'±
* 301'-5" min.
Temporary Timber Trestle (covered under USCG application) for construction purposes only.
SECTION B-B
No Scale

Note:
See sheet 2 for
Section A-A.

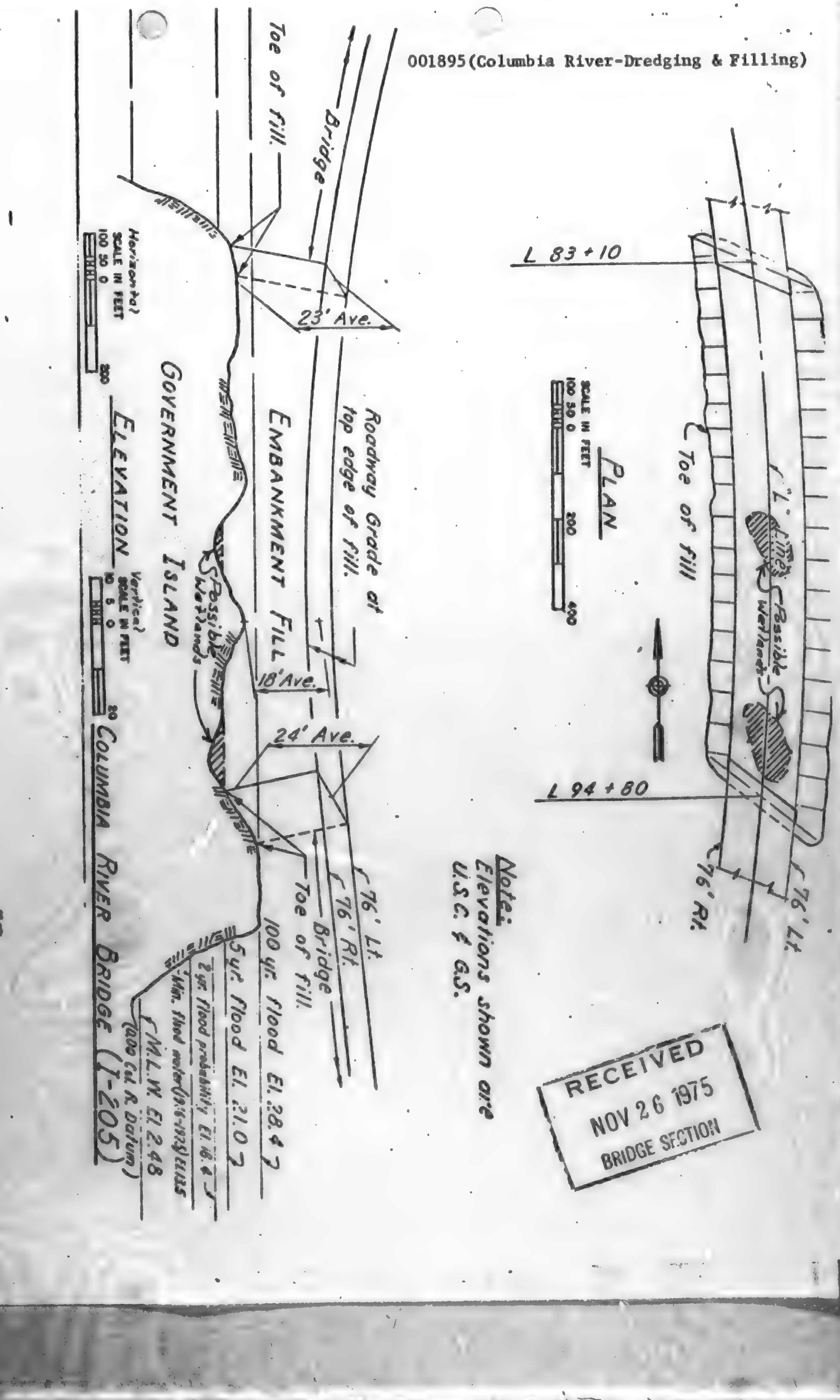
Note:
See sheet 3 for
Section B-B

Note:
* Structure width varies spans 8 thru 11 of south channel. Maintain 75'± channel each side of structure.

PROPOSED
DREDGING AND FILLING
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
DREDGING AND
WORK TRESTLES

APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1973
SHEET 1 of 5

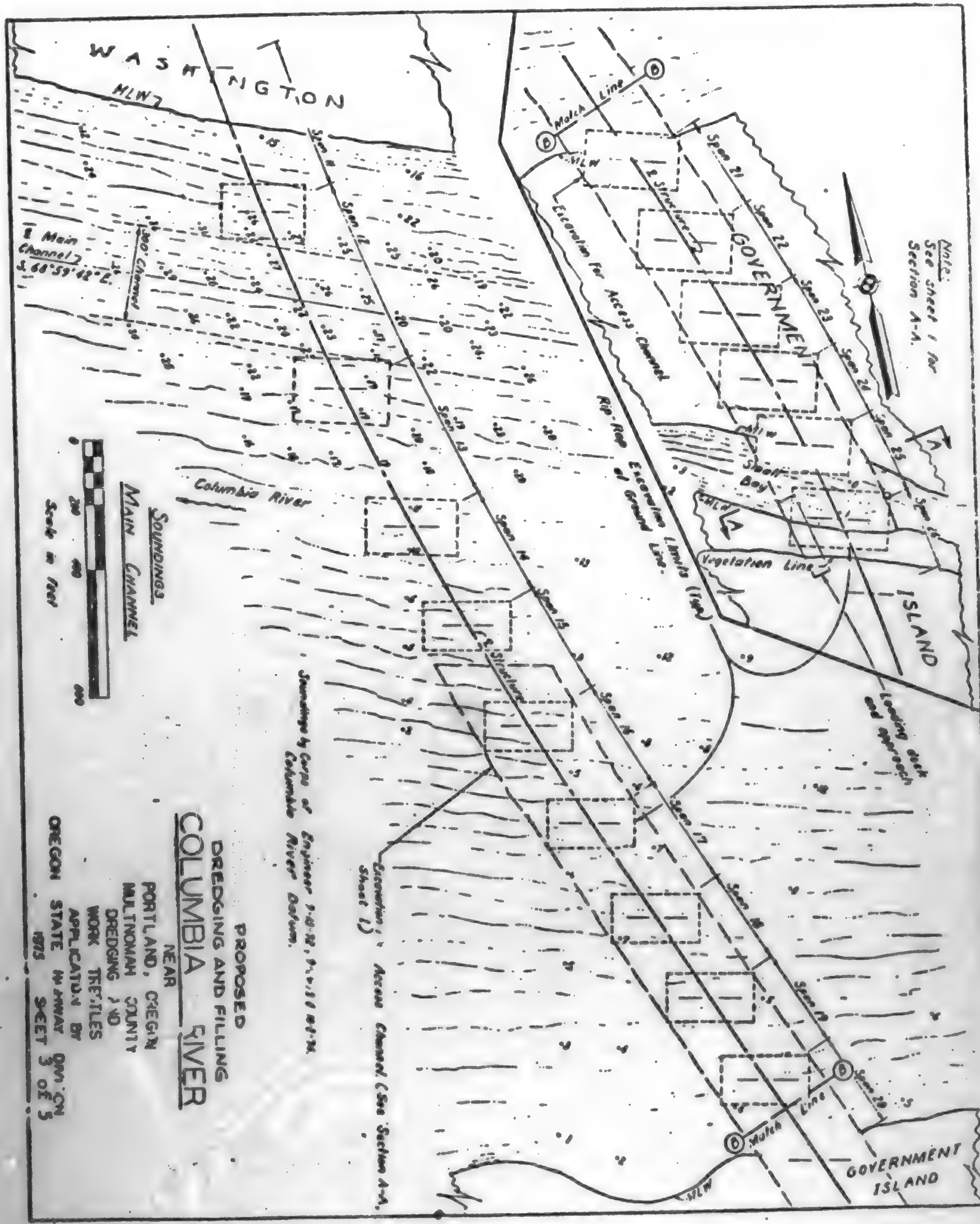
001895(Columbia River-Dredging & Filling)



PLAN
L 83+10
L 94+80
"L" Line
Possible wetlands
Toe of fill
76' Lt.
76' Rt.
SCALE IN FEET 100 50 0 200 400
Note: Elevations shown are U.S.C. & G.S.
Bridge
Toe of fill
Roadway Grade at top edge of fill.
EMBANKMENT FILL
23' Ave.
18' Ave.
24' Ave.
76' Lt.
76' Rt.
Bridge
Toe of fill
Possible Wetlands
GOVERNMENT ISLAND
100 yr. flood El. 28.4
5 yr. flood El. 21.0
2 yr. flood probability El. 16.4
Min. flood water (1916-1973) El. 13.5
M.L.W. El. 2.48 (100 Col. R. Datum)
Horizontal SCALE IN FEET 100 50 0 200
Vertical SCALE IN FEET 10 5 0 20
ELEVATION
COLUMBIA RIVER BRIDGE (I-205)
Sheet 2 of 5

RECEIVED
NOV 26 1975
BRIDGE SECTION

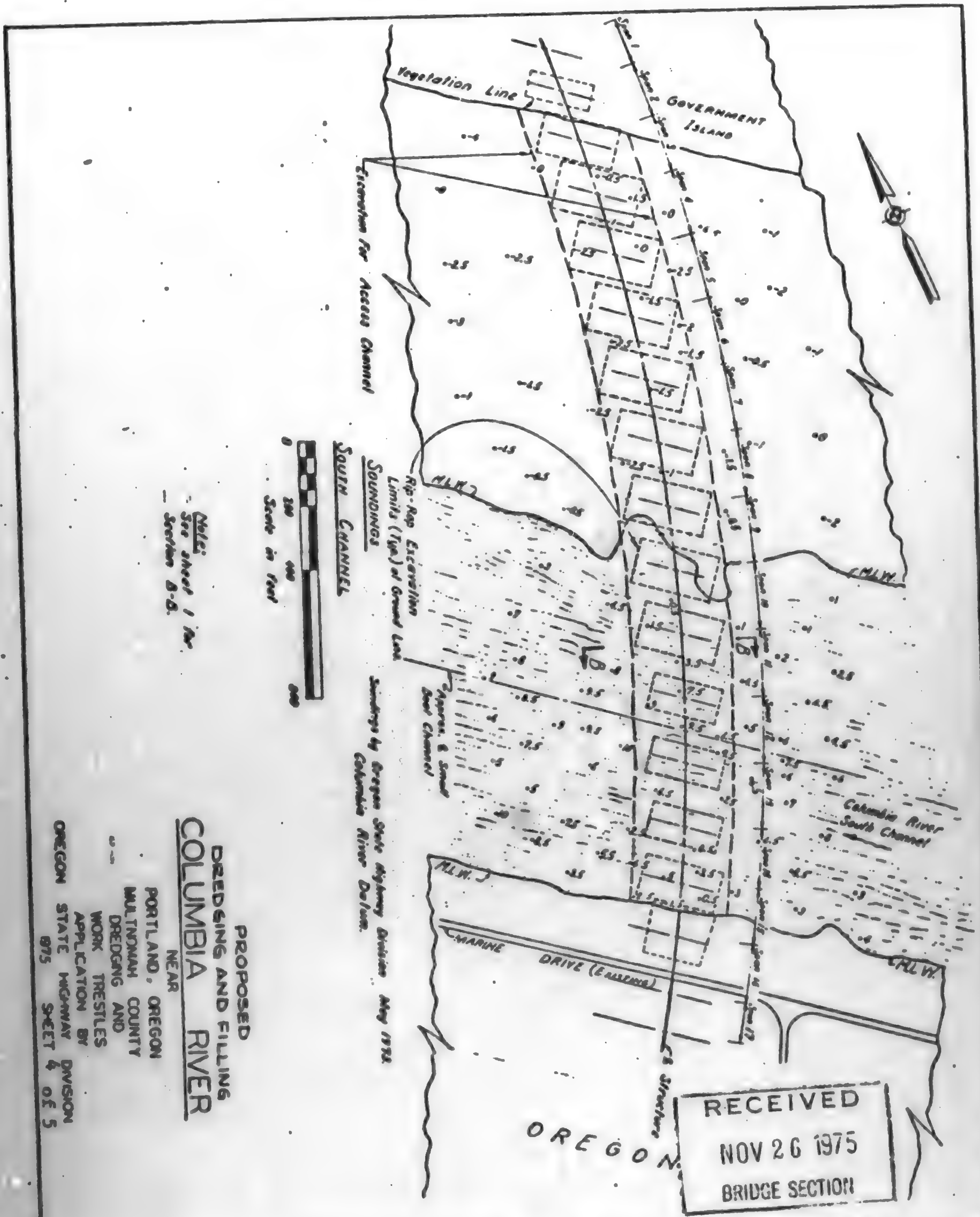
001895 (Columbia River - Dredging and Filling)



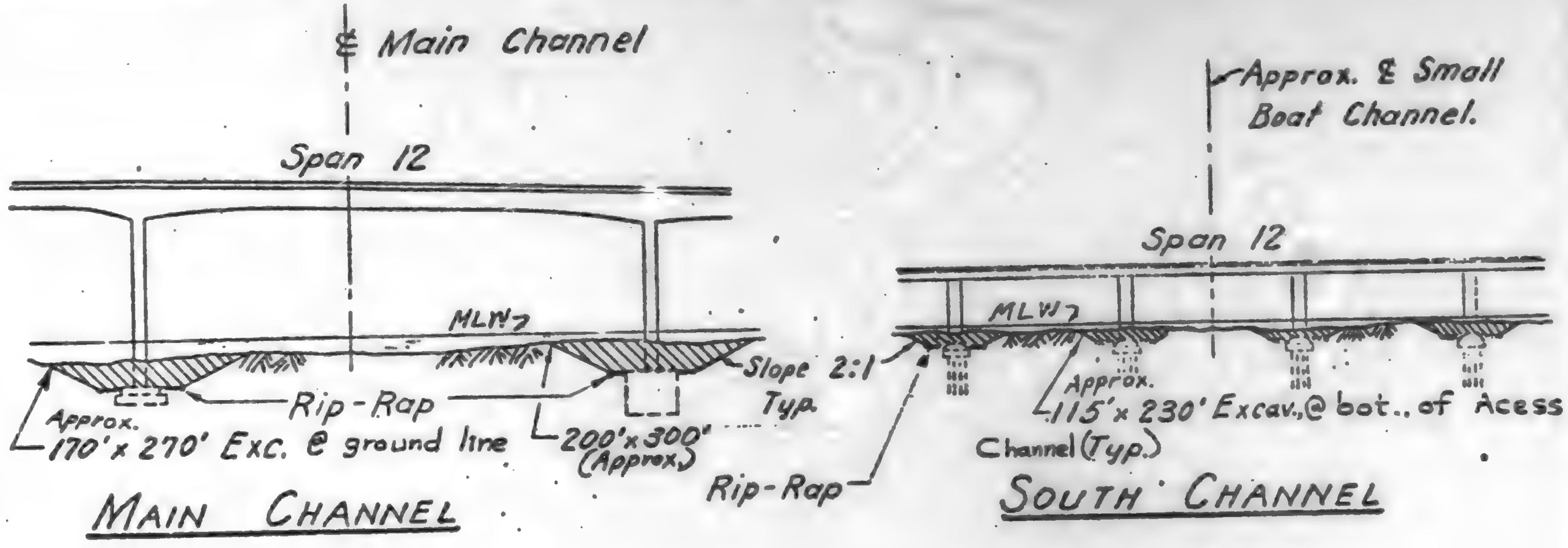
WASHINGTON
HLW
GOVERNMENT
ISLAND
GOVERNMENT ISLAND
Columbia River
Main Channel
℄ Main Channel S. 68°59'42" E.
300' Channel
Match Line
B
NLW
℄ Structure
Excavation for Access Channel
Rip Rap Excavation Limits (Typ)
at Ground Line
Vegetation Line
Shallow Bay
Loading dock and approach
Span 11
Span 12
Span 13
Span 14
Span 15
Span 16
Span 17
Span 18
Span 19
Span 20
Span 21
Span 22
Span 23
Span 24
Span 25
Span 26
Note: See sheet 1 for Section A-A.
Excavation: Access Channel (See Section A-A Sheet 1)
Soundings by Corps of Engineers 7-12-72, 7-13-72 & 8-7-72. Columbia River Datum.
SOUNDINGS
MAIN CHANNEL
0
200
400
600
Scale in Feet

PROPOSED
DREDGING AND FILLING
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
DREDGING AND
WORK TRESTLES
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1973 SHEET 3 OF 5

001895' (Columbia River - Dredging and Filling)


Vegetation Line
GOVERNMENT ISLAND
Excavation for Access Channel
Rip-Rap Excavation Limits (Typ.) at Ground Line
SOUTH CHANNEL SOUNDINGS
Soundings by Oregon State Highway Division May 1972. Columbia River Datum.
Scale in Feet
Note: See sheet 1 for Section B-B.
M.L.W.
Columbia River South Channel
MARINE DRIVE (Existing)
Ⓒ Structure
OREGON
PROPOSED
DREDGING AND FILLING
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
DREDGING AND
WORK TRESTLES
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1975 SHEET 4 of 5

RECEIVED
NOV 26 1975
BRIDGE SECTION


℄ Main Channel
Span 12
MLW
Slope 2:1 Typ.
Rip-Rap
Approx. 170' x 270' Exc. @ ground line
200' x 300' (Approx.)
Rip-Rap
MAIN CHANNEL
Approx. ℄ Small Boat Channel.
Span 12
MLW
Approx. 115' x 230' Excav., @ bot.. of Acess Channel (Typ.)
SOUTH CHANNEL

RIP-RAP PREPARATION DETAILS

0 100 200 300
Scale in feet

Note:
Material excavated to be side cast and may be replaced after riprap is installed.

PROPOSED
DREDGING AND FILLING
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
DREDGING AND
WORK TRESTLES

APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1975

SHEET 5 of 5
SHEET 5

8905

8

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Division of River Basin Studies
Portland Area Office
919 N.E. 19th Avenue
Portland, Oregon 97232

Reference: RBS

July 30, 1975

District Engineer
Portland District, Corps of Engineers
P. O. Box 2946
Portland, Oregon 97208

NOTED
E. S. HUNTER

Re: NPPND-WM-1
Maintenance Dredging of Columbia River, Vancouver-The Dalles Navigation Channel

Dear Sir:

We have reviewed your public notice concerning maintenance dredging of the Columbia River, Vancouver-The Dalles Navigation Channel, and have the following comments:

These comments have been prepared under the authority of and in accordance with the provisions of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.) and are consistent with the intent of the National Environmental Policy Act of 1969.

The Oregon State Highway Division is planning to dredge to -6 feet the I-205 right-of-way through your proposed disposal site on Government Island. It is suggested that disposal on this site be coordinated with the Highway Division.

The above views and recommendations constitute the report of the Department of the Interior on the subject public notice.

Sincerely yours,

John W. Kincheloe

John W. Kincheloe
Field Supervisor

RECEIVED
STATE HWY ENGR
JUL 31 '75
REFER TO
FOR
Info Inves R/D D/R Sign Act File

cc:
EPA
BOR
NMFS
ODFW
DEQ
DSL
OSHD
WDF
WDG
WDE

CONSERVE AMERICA'S ENERGY

Save Energy and You Serve America!

8905 8

TO Ed Hunter DATE 7/3/75

Re: Corps of Engr letter 6/20/75

I-205 Col. R. Br. – Permit for excavation.

There is an apparent jurisdictional dispute between Corps & Coast Guard about issuing a permit for pier excavation, etc. This will be resolved between the two according to Ed Shields of the C.G. (I talked to him by phone). Both agencies have all the info they need to issue a permit.

SIGNED

PLEASE REPLY HERE

no answer to this letter required.

TO DATE

R.W. Ellison

NOTED
E. S. HUNTER

SIGNED

NOTE – INDIVIDUAL ORIGINATING CONFIRMATION MEMO RETAINS YELLOW COPY, FORWARDING FIRST AND TRIPLICATE INTACT WITH CARBONS, ADDRESSEE REPLIES, EXTRACTS CARBON; RETAINS TRIPLICATE, RETURNING FIRST PART TO ORIGINATOR OF CONFIRMATION MEMO.

DEPARTMENT OF THE ARMY
PORTLAND DISTRICT, CORPS OF ENGINEERS
P. O. BOX 2946
PORTLAND, OREGON 97208

REPLY TO
ATTENTION OF:
NPPND-RF

20 June 1975

Oregon Department of Transportation
Highway Division
State Highway Building
Salem, Oregon 97310
ATTN: Mr. E. S. Hunter

RE: Application 071-OYA-1-001895,
Discharge of Dredged Material, Columbia
River; Application 071-OYA-1-001913,
Dredging, Columbia River

Dear Mr. Hunter:

We have received your 11 June 1975 request for additional dredging work to be added to your application for discharge of dredged material. After our review, it has become apparent that your application will have to be treated as two applications. Your additional work will be assigned the number 071-OYA-1-001913 as referenced above.

Application 1895 will be processed solely as an application under Section 404 of the Federal Water Pollution Control Act. Application 1913 will be processed under Section 10 of the 1899 River and Harbor Act as well as Section 404.

On 19 June, I informed the Thirteenth Coast Guard District that the bridge pier and access channel excavation had to be covered by the Coast Guard permit. This would include the inwater stockpiling of dredged material since such a stockpile, as a structure or activity, would be inseparable from the act of dredging. Our permit, if and when issued, would be only for the discharge of dredged material in a navigable water as provided by Section 404. I think I can safely say that the distinction is that the Federal Water Pollution Control Act is essentially water quality legislation and does not address the broad range of considerations applicable to Section 10 permits or to Coast Guard permits. Since our Section 404 permit should not conflict with any Coast Guard permit, it presently appears that the Coast Guard permit would have to precede ours.

NOTED
E. S. HUNTER
6-23

Heat
what now?
Ed.

RECEIVED
JUN 23 1975
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

NPPND-RF
Oregon Department of Transportation

20 June 1975

I realize your original application was submitted in reliance on the Coast Guard's instructions to apply to the Portland District. In view of the above clarification, you may wish to confer with the Thirteenth Coast Guard District to insure that all desired work is included in any revised Coast Guard permit.

Sincerely yours,

FR Brockschink
F. R. BROCKSCHINK
Chief, Regulatory Functions Branch

OREGON STATE
HIGHWAY DIVISION

HIGHWAY BUILDING • SALEM, OREGON • 97310

BR 9555

June 11, 1975

NOTED
E. S. HUNTER

U. S. Corps of Engineers
2850 S. E. 82nd Ave.
Portland, OR 97208

Attention Mr. John Payne

Dear Mr. Payne:

Columbia River (I-205) Bridge
Excavation Permit Application
Supplement

Mr. Hunter's letter of May 28, 1975, made application for a permit to dredge an access channel along the alignment of the proposed Columbia River (I-205) Bridge at Portland, Oregon, and to excavate for footings for the bridge.

As I indicated to you by phone, perusal of the Corps of Engineers' river chart CL-110-49 dated March 25, 1974, shows that, except for one location, there is sufficient water depth (6 feet below CRD) to allow barging construction materials up the south channel to the bridge site. The one location with insufficient depth is just downstream from the west end of Lemon Island (see marked section of chart, attached).

We would like to have the necessary dredging of the south channel added to our permit application.

Please feel free to call if you need more information.

Very truly yours,

Walter J. Hart
Bridge Engineer
ORIGINAL SIGNED
R.W. ELLISON

R. W. Ellison
Bridge Administration Engineer

RECEIVED
JUN 11 1975
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

RWE:ag:dh
Attachment
cc E. S. Hunter

8905

Robert W. Straub
XXXXXXXXXXX

May 28, 1975

District Engineer
U.S. Army Engineer District
P. O. Box 2946
Portland, Oregon 97208

Gentlemen:

Columbia River Bridge
Highway I-205
Department of the Army Permit

Enclosed is a completed application form for a Department of the Army permit for the proposed I-205 bridge across the Columbia River at Portland.

The U.S. Coast Guard issued a bridge permit for this structure in 1970. A revised bridge permit is required because of the need to lengthen bridge to span the south channel. Originally this channel was to be filled to accommodate Portland International Airport expansion. This fill would have carried the highway to the bridge. Abandonment of the airport expansion plans necessitated lengthening the structure to span the south channel and reach the Oregon shore. Preliminary negotiations for a revised bridge permit are in process with the Coast Guard.

The Coast Guard has informed us that the bridge permit does not cover the excavation work required for bridge pier construction or for excavation of a temporary access channel along the bridge construction site. The attached is application for a permit for such excavation.

Excavation for the bridge piers will be side cast on the river bottom adjacent to the pier until the pier and riprap construction are complete and then replaced around the pier. If the river action should partly erode away the side cast material prior to backfilling around the pier, additional material as required to provide minimal backfill will be obtained from the river bottom in the vicinity of the pier.

District Engineer
May 28, 1975
Page Two

Excavation for the access channel will be used to construct the proposed highway fill on Government Island and Oregon shore unless the material is not suitable for fill material, is not needed for fill, or the use of the material in the fill is not suited to the sequence of construction events. If the material is not used in the fill, it will be side cast adjacent to the access channel and replaced in the channel upon completion of the project.

Environmental aspects of this bridge construction project are addressed in the draft environmental impact statement, of which you have a copy.

Cooperation of your personnel in this matter to date is greatly appreciated.

Very truly yours,

E. S. Hunter
Assistant State Highway Engineer

Attachments

HWE:ag js

bc: Mr. George Andrews
Washington Department of Highways
Highway Administration Building
Olympia, Washington 98504

Mr. R. L. Carroll, District Engineer
P. O. Box 1717
Vancouver, Washington 98663

F. B. Kiaboe
A. E. Johnson
R. N. Bothman
G. L. Green
Gary Potter w/att.

Mr. R. Jack Allen
Sverdrup & Parcel and Associates, Inc.
P. O. Box 369
Bellevue, Washington 98004

W. J. Hart
V. D. Wolfe

APPLICATION FOR A DEPARTMENT OF THE ARMY PERMIT

One set of original drawings and two copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and checklist).

1. Application number (To be assigned by Corps).

2. Date. Day Mo. Yr.

3. For official use only.

4. Name and address of applicant.

Oregon Department of Transportation
Highway Division
State Highway Building
Salem, OR 97310

Attention Mr. E. S. Hunter

Telephone number ______ Social Security No. ______

5. Name, address, and title of applicant's authorized agent for permit application coordination.

Mr. E. S. Hunter
Assistant State Highway Engineer
Highway Building
Salem, Oregon 97310

Telephone Number 378-6888

6. Describe the proposed activity, its purpose and intended use, including a description of the type of structures, if any, to be erected on fills, or pile or float-supported platforms, and the type, composition and quantity of materials to be discharged or dumped and means of conveyance. Excavation for footings for I-205 highway bridge across the Columbia River at Portland, Oregon. Also excavation for temporary access channel to be used during bridge construction period. Approximately 1 million cu.y. total excavation for all piers and temporary access channel. (700,000 cu.yds. pier excavation and 300,000 cu.yd. access channel excavation.) Excavated material at pier sites to be side cast on river bottom and replaced when pier completed. Material from temporary access channel to be placed in highway fills or side cast and replaced upon completion of the work depending upon material suitability, construction sequence, or other factors.

7. Proposed use.
Private ☐ Public ☒ Commercial ☐ Other ☐ (Explain in remarks)

8. Name and addresses of adjoining property owners whose property also adjoins the waterway.

Oregon side:
Port of Portland
700 N.E.Multnomah Ave.
Portland, Oregon

Washington side:
Stanley Bishoprick Jr., P.O.Box 248
Vancouver, WA 98660

James F. Boone, 1501 N. Hayden Isl.Dr.
Portland, OR 97217

9. Location where proposed activity exists or will occur.

Sec. 3, 9 and 16 Twp 1 N Rge 2 E (Where applicable)

State: Oregon / Washington
County: Multnomah / Clark
In - City or Town: ______
Near - City or Town: Portland / Vancouver

10. Name of waterway at location of the activity. Columbia River

ENG FORM 4345 REPLACES ENG FORMS 4345 AND 4345-1 (PART A), MAY 71 AND 4345-1 (PART B), JUN 71, WHICH ARE OBSOLETE.

(ER 1145-2-303)
(EP 1145-2-1)

11. Date activity is proposed to commence. August 1976

Date activity is expected to be completed. August 1980

12. Is any portion of the activity for which authorization is sought now complete? Yes ☐ No ☒
If answer is "Yes" give reasons in the remarks section. Month and year the activity was completed ________. Indicate the existing work on the drawings.

13 List all approvals or certifications required by other Federal, interstate, state or local agencies for any structures, construction, discharges, deposits or other activities described in this application.

Issuing Agency	Type Approval	Identification No.	Date of Application	Date of Approval
U.S.Coast Guard	Bridge Permit	41-70		May 20, 1970

(A revised bridge permit will be required because of need to lengthen the bridge)

Issuing Agency	Type Approval	Identification No.	Date of Application	Date of Approval
Ore.Div.State Lands	Removal Permit		Have not yet applied.	

14. Has any agency denied approval for the activity described herein or for any activity directly related to the activity described herein? Yes ☐ No ☒ (If "Yes" explain in remarks)

15. Remarks (see paragraph 3 of Permits Pamphlet for additional information required for certain activities).

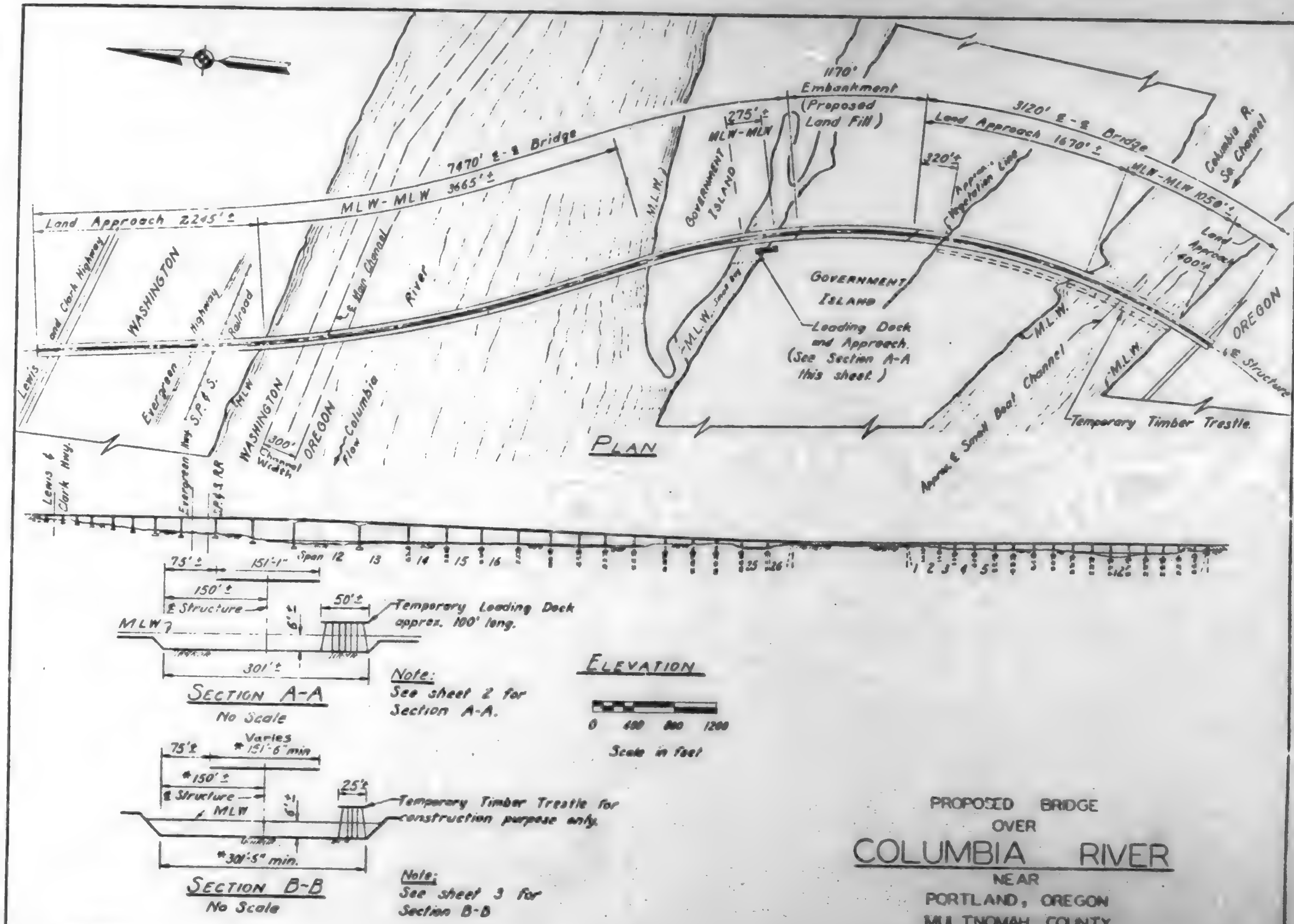
16. Application is hereby made for a permit or permits to authorize the activities described herein. I certify that I am familiar with the information contained in this application, and that to the best of my knowledge and belief such information is true, complete, and accurate. I further certify that I possess the authority to undertake the proposed activities.

J H [illegible] for C S [illegible]
Signature of Applicant

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up by any trick, scheme, or device a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false fictitious or fraudulent statement or entry, shall be fined not more than $10,000 or imprisioned not more than five years, or both.

The application must be signed by the person who desires to undertake the proposed activity; however, the application may be signed by a duly authorized agent if accompanied by a statement by that person designating the agent and agreeing to furnish upon request, supplemental information in support of the application.

If the activity includes the discharge of dredged or fill material in navigable waters or the transportation of dredged material for the purpose of dumping it in ocean waters, the application must be accompanied by a fee of $100 for quantities exceeding 2500 cubic yards and $10 for quantities of 2500 cubic yards or less. Federal, State and local governments are excluded from this requirement.

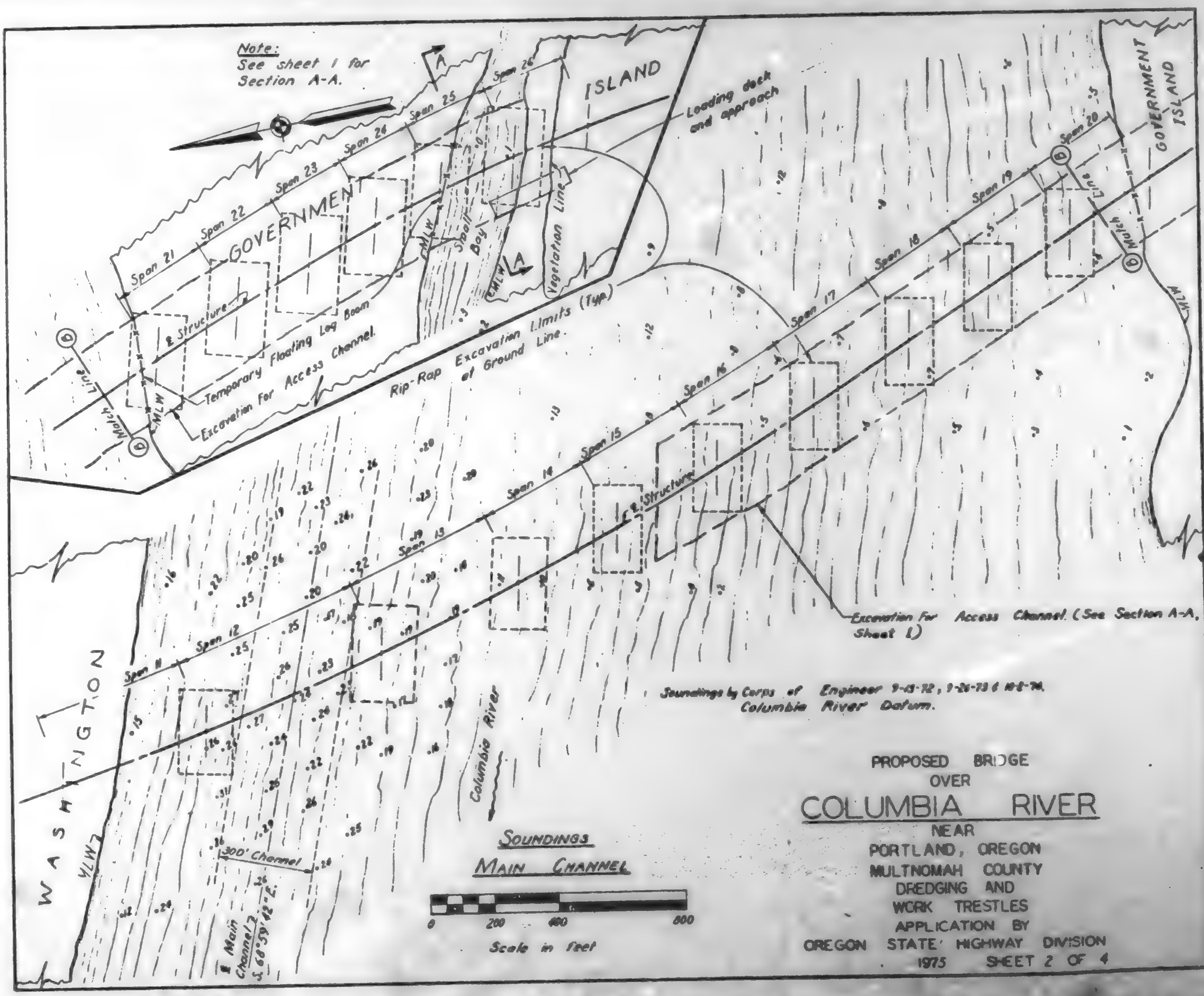

Land Approach 2245'±
MLW-MLW 3665'±
7470' ℄-℄ Bridge
1170' Embankment (Proposed Land Fill)
275'± MLW-MLW
3120' ℄-℄ Bridge
Land Approach 1670'±
320'±
Approx. Vegetation Line
MLW-MLW 1050'±
Columbia R. So. Channel
Land Approach 400'±
Lewis and Clark Highway
WASHINGTON
Evergreen Highway
S.P. & S. Railroad
MLW
WASHINGTON
300' Channel Width
OREGON
℄ Main Channel
Columbia River
Flow
M.L.W.
GOVERNMENT ISLAND
M.L.W. Small bay
GOVERNMENT ISLAND
Loading Dock and Approach. (See Section A-A this sheet.)
M.L.W.
Approx. ℄ Small Boat Channel
M.L.W.
Temporary Timber Trestle.
OREGON
℄ Structure
PLAN
Lewis & Clark Hwy.
Evergreen Hwy
S.P.& S RR
Span 12
13
14
15
16
25
26
1
2
3
4
5
75'±
151'-1"
150'±
℄ Structure
MLW
6'±
50'±
Temporary Loading Dock approx. 100' long.
301'±
SECTION A-A
No Scale
Note:
See sheet 2 for Section A-A.
ELEVATION
0
400
800
1200
Scale in feet
75'±
Varies
* 151'-6" min
* 150'±
℄ Structure
MLW
6'±
25'±
Temporary Timber Trestle for construction purpose only.
* 301'-5" min.
SECTION B-B
No Scale
Note:
See sheet 3 for Section B-B

Note:

* Structure width varies spans 11 thru 16 of south channel. Maintain 75'± channel each side of structure.

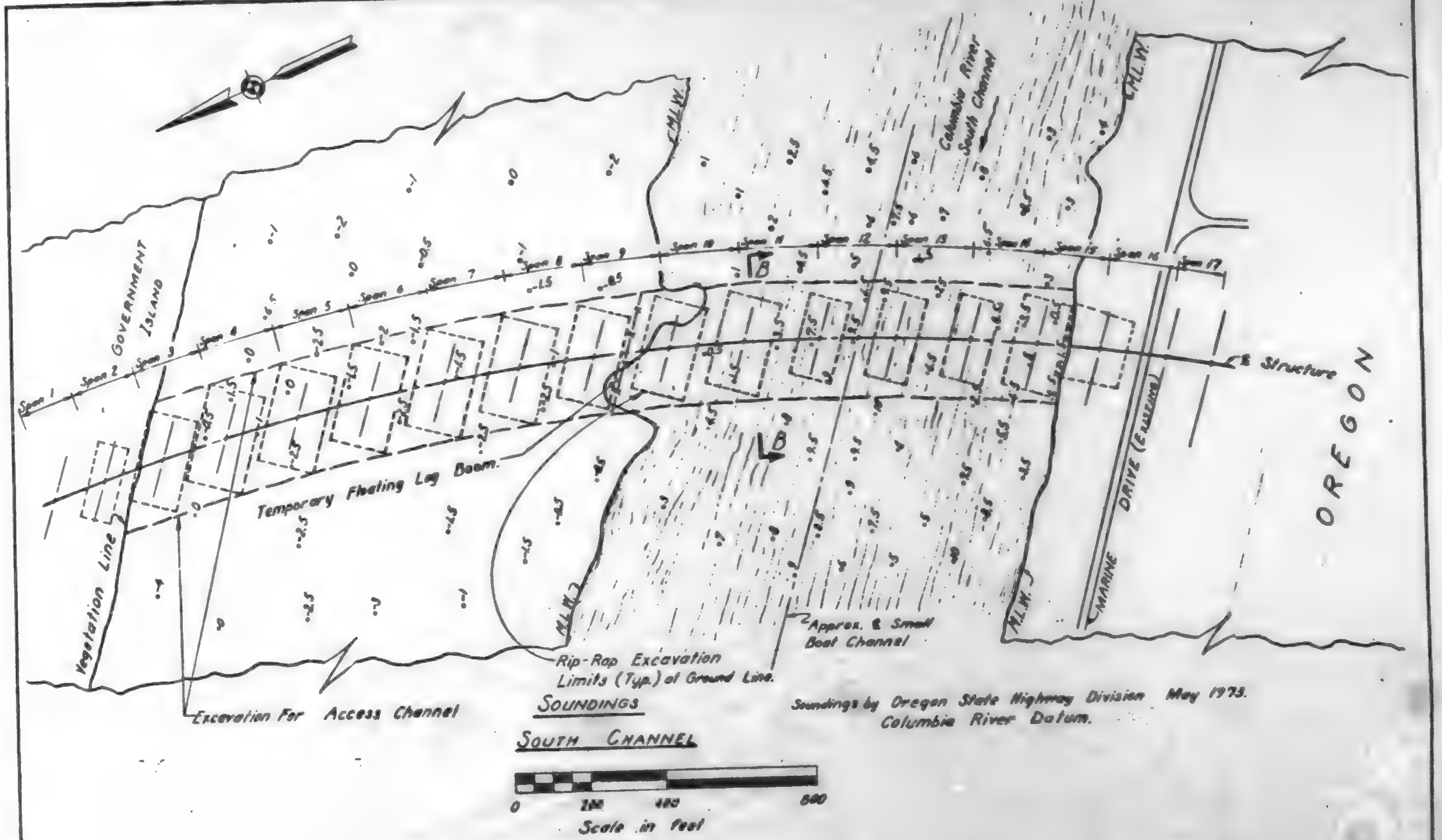
PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
DREDGING AND
WORK TRESTLES

APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1973 SUPPLEMENTAL SHEET 1 OF 4


Note:
See sheet 1 for
Section A-A.
WASHINGTON
VLW
GOVERNMENT
ISLAND
GOVERNMENT ISLAND
Span 11
Span 12
Span 13
Span 14
Span 15
Span 16
Span 17
Span 18
Span 19
Span 20
Span 21
Span 22
Span 23
Span 24
Span 25
Span 26
℄ Structure
Match Line
MLW
Temporary Floating Log Boom
Excavation for Access Channel
Rip-Rap Excavation Limits (Typ.) at Ground Line.
Loading deck and approach
Small Bay
Vegetation Line
Columbia River
300' Channel
℄ Main Channel S. 68°59'42" E.
Excavation for Access Channel. (See Section A-A, Sheet 1)
Soundings
Main Channel
0
200
400
800
Scale in feet

Soundings by Corps of Engineer 9-13-72, 9-26-73 & 10-8-74.
Columbia River Datum.

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
DREDGING AND
WORK TRESTLES
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1975 SHEET 2 OF 4


Vegetation Line
GOVERNMENT ISLAND
Span 1
Span 2
Span 3
Span 4
Span 5
Span 6
Span 7
Span 8
Span 9
Span 10
Span 11
Span 12
Span 13
Span 14
Span 15
Span 16
Span 17
C.M.L.W.
Columbia River South Channel
Temporary Floating Log Boom.
M.L.W.
B
℄ Structure
MARINE DRIVE (Existing)
OREGON
Approx. ℄ Small Boat Channel
Rip-Rap Excavation Limits (Typ.) at Ground Line.
Excavation For Access Channel
0
200
400
800
Scale in feet

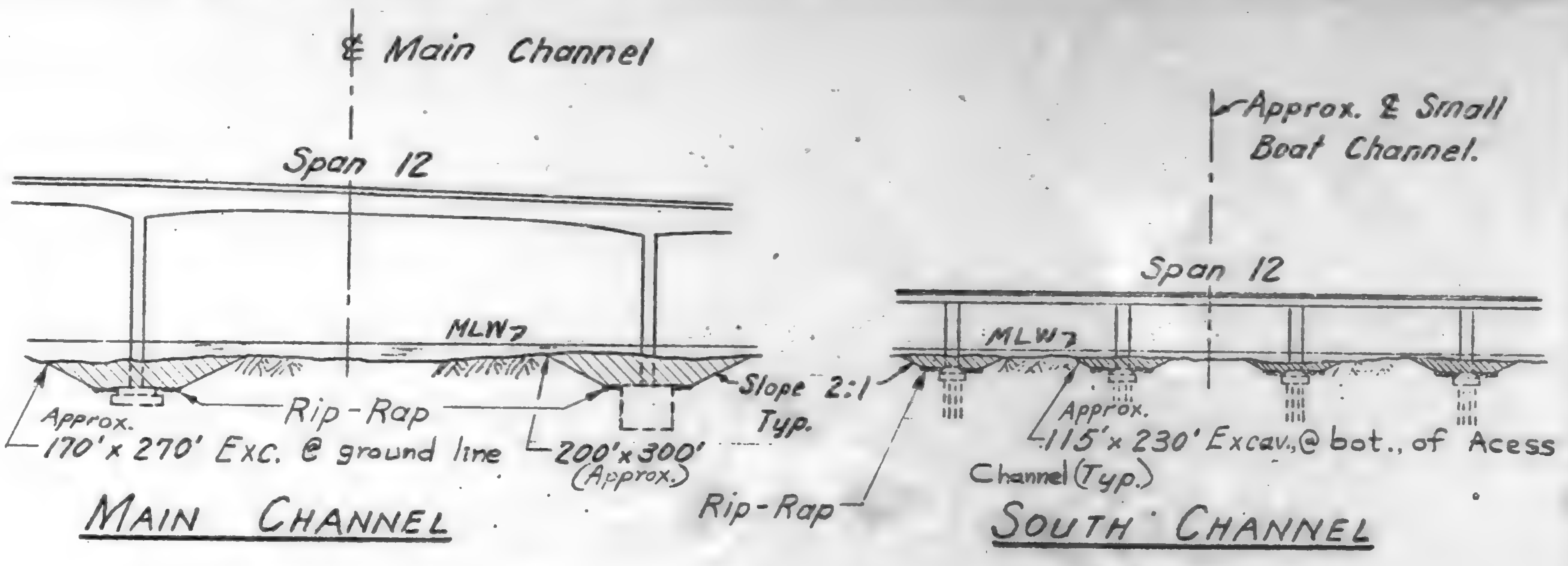
SOUNDINGS

SOUTH CHANNEL

Soundings by Oregon State Highway Division May 1975.
Columbia River Datum.

Note:
See sheet 1 for
Section B-B.

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
DREDGING AND
WORK TRESTLES
APPLICATION BY
OREGON STATE HIGHWAY DIVISION
1975 SHEET 3 OF 4


℄ Main Channel
Span 12
MLW7
Approx.
170' x 270' Exc. @ ground line
Rip-Rap
200' x 300' (Approx.)
Slope 2:1 Typ.
Rip-Rap
MAIN CHANNEL
Approx. ℄ Small Boat Channel.
Span 12
MLW7
Approx.
115' x 230' Excav. @ bot., of Acess Channel (Typ.)
SOUTH CHANNEL

RIP-RAP PREPERATION DETAILS

0 100 200 300

Scale in feet

Note:

Material excavated to be side cast and replaced after rip-rap is installed.

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
DREDGING AND
WORK TRESTLES

APPLICATION BY
OREGON STATE HIGHWAY DIVISION
FEB 1975 SUPPLEMENTAL SHEET 4 OF 4

8905

J

FORM 81-734-3030

OREGON STATE HIGHWAY DIVISION

FILE: BR 9555

INTER-OFFICE CORRESPONDENCE
Salem, Oregon
May 20, 1975

FROM: R. W. Ellison R.W. Ellison
Bridge Administration Engineer

TO: Mr. Victor D. Wolfe
Location Engineer

Attention Mr. Donald E. Keyes
Location Liaison Engineer

SUBJECT:
Columbia River Bridge
East Portland Freeway, I-205
Bridge 9555
Corps of Engineers Permit

The U. S. Coast Guard has informed me that in addition to the bridge permit required from them for the subject strucutre, we will also need a permit from the Corps of Engineers. The Corps permit is to cover excavation in the river for bridge piers and a temporary access channel.

Since you are the contact point for the Corps of Engineers, I am enclosing a completed form, drawings, and other materials for your use in making the permit application.

RWE:dh
Enclosures

cc E. S. Hunter
J. E. Backstrand

RECEIVED
MAY 27 1975
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

NOTED
W. H. TEBEAU

APPROVED
Design Engr.

APPLICATION FOR A DEPARTMENT OF THE ARMY PERMIT

One set of original drawings and two copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and checklist).

1. Application number (To be assigned by Corps).	2. Date. Day Mo. Yr.	3. For official use only.

4. Name and address of applicant.

Oregon Department of Transportation
Highway Division
State Highway Building
Salem, OR 97310

Attention Mr. E. S. Hunter

Telephone number ______ Social Security No. ______

5. Name, address, and title of applicant's authorized agent for permit application coordination.

Mr. E. S. Hunter
Assistant State Highway Engineer
Highway Building
Salem, Oregon 97310

Telephone Number 378-6888

6. Describe the proposed activity, its purpose and intended use, including a description of the type of structures, if any, to be erected on fills, or pile or float-supported platforms, and the type, composition and quantity of materials to be discharged or dumped and means of conveyance. Excavation for footings for I-205 highway bridge across the Columbia River at Portland, Oregon. Also excavation for temporary access channel to be used during bridge construction period. Approximately 1 million cu.y. total excavation for all piers and temporary access channel. (700,000 cu.yds. pier excavation and 300,000 cu.yd. access channel excavation.) Excavated material at pier sites to be side cast on river bottom and replaced when pier completed. Material from temporary access channel to be placed in highway fills or side cast and replaced upon completion of the work depending upon material suitability, construction sequence, or other factors.

7. Proposed use.
Private ☐ Public ☒ Commercial ☐ Other ☐ (Explain in remarks)

8. Name and addresses of adjoining property owners whose property also adjoins the waterway.

Oregon side:
Port of Portland
700 N.E.Multnomah Ave.
Portland, Oregon

Washington side:
Stanley Bishoprick Jr., P.O.Box 248
Vancouver, WA 98660

James F. Boone, 1501 N. Hayden Isl.Dr.
Portland, OR 97217

9. Location where proposed activity exists or will occur.

Sec. 3, 9 and 16 Twp 1 N Rge 2 E (Where applicable)

Oregon Washington	Multnomah Clark		Portland Vancouver
State	County	In - City or Town	Near - City or Town

10. Name of waterway at location of the activity. Columbia River

ENG FORM 1 APR 74 4345 REPLACES ENG FORMS 4345 AND 4345–1 (PART A), MAY 71 AND 4345–1 (PART B), JUN 71, WHICH ARE OBSOLETE.

(ER 1145–2–303)
(EP 1145–2–1)

11. Date activity is proposed to commence. August 1976

Date activity is expected to be completed. August 1980

12. Is any portion of the activity for which authorization is sought now complete? Yes ☐ No ☒
If answer is "Yes" give reasons in the remarks section. Month and year the activity was completed ______________________. Indicate the existing work on the drawings.

13. List all approvals or certifications required by other Federal, interstate, state or local agencies for any structures, construction, discharges, deposits or other activities described in this application.

Issuing Agency	Type Approval	Identification No.	Date of Application	Date of Approval
U.S.Coast Guard	Bridge Permit	41-70		May 20, 1970
(A revised bridge permit will be required because of need to lengthen the bridge.)				
Ore.Div.State Lands	Removal Permit		Have not yet applied.	

14. Has any agency denied approval for the activity described herein or for any activity directly related to the activity described herein? Yes ☐ No ☒ (If "Yes" explain in remarks)

15. Remarks (see paragraph 3 of Permits Pamphlet for additional information required for certain activities).

16. Application is hereby made for a permit or permits to authorize the activities described herein. I certify that I am familiar with the information contained in this application, and that to the best of my knowledge and belief such information is true, complete, and accurate. I further certify that I possess the authority to undertake the proposed activities.

____
Signature of Applicant

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up by any trick, scheme, or device a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false fictitious or fraudulent statement or entry, shall be fined not more than $10,000 or imprisioned not more than five years, or both.

The application must be signed by the person who desires to undertake the proposed activity; however, the application may be signed by a duly authorized agent if accompanied by a statement by that person designating the agent and agreeing to furnish upon request, supplemental information in support of the application.

If the activity includes the discharge of dredged or fill material in navigable waters or the transportation of dredged material for the purpose of dumping it in ocean waters, the application must be accompanied by a fee of $100 for quantities exceeding 2500 cubic yards and $10 for quantities of 2500 cubic yards or less. Federal, State and local governments are excluded from this requirement.

8905.

RECEIVED
MAY 10 1968
FOR FILING

May 8, 1968

bc Forrest Cooper
R. L. Porter
F. B. Klaboe
Victor D. Wolfe
Ivan Merchant
A. E. Johnson

67-22

Mr. J. E. Shields, Assistant Chief
Aids to Navigation Branch
13th Coast Guard District
618 Second Avenue
Seattle, Washington 98104

x 1-11-67
applic. to Corp.

Dear Sir:

Under date of January 11, 1967 the State Highway Department of the State of Oregon at Salem, Oregon made application to the District Engineer, Corps of Engineers, United States Army, for approval by the Chief of Engineers and the Secretary of the Army of plans of a bridge to be constructed across the Columbia River immediately east of the town of Vancouver, Washington and the easterly part of Portland, Oregon, 112.7 miles above the mouth of the waterway. Original tracings and four prints of each were enclosed therewith.

The application was made under legal authority found in the General Bridge Act of 1946 and enclosed was a copy of the authorization from the Secretary of the State Highway Commission, including excerpts from the Highway Commission meeting authorizing the construction.

On May 25, 1967 a hearing was held in the Auditorium of the Department of the Interior, Bonneville Power Administration Building in Portland, Oregon.

Very shortly thereafter and prior to the time that any ruling had been issued on the application, the Port of Portland, acting in the interest of air transportation, proposed a revision of the runways of the Portland International Airport. In a spirit of cooperation, the Highway Department did not request a ruling on the application.

The Port of Portland's plans have now become firm. There is agreement between the State Highway Commission and the Port of Portland as to the location of the proposed facility with respect to the improvement of the airport.

The location of the bridge on the Washington shore is identical with that in the original application. The location over the main channel is upstream only a few feet. The southerly end of the bridge has been swung to the east and shortened in accord with the development plan of the Port of Portland.

We would request, therefore, that the location map and clearance data attached be substituted for those submitted with our application under date of January 11, 1967.

In addition to the alignment change noted above, clearance changes have been made on Sheet 3 as follows:

1. A minimal clearance distance of 152 feet above mean low water datum at the south edge of the main 300-foot navigation channel has been provided for.

2. The clearance above the same datum is 157 feet at the centerline of the channel and 154 feet at the north edge of the main navigation channel.

3. The south channel will be shifted northward under the Port of Portland's improvement program.

4. A clear opening of 120 feet (the same as in the original application) has been provided but the clearance has been increased to 69 feet at the south edge of the secondary channel.

In submitting this revised data to be substituted for that attached to our original application, we reiterate that the changes have been made in close cooperation with the Port of Portland development and we request approval to proceed with the proposed construction.

Very truly yours,

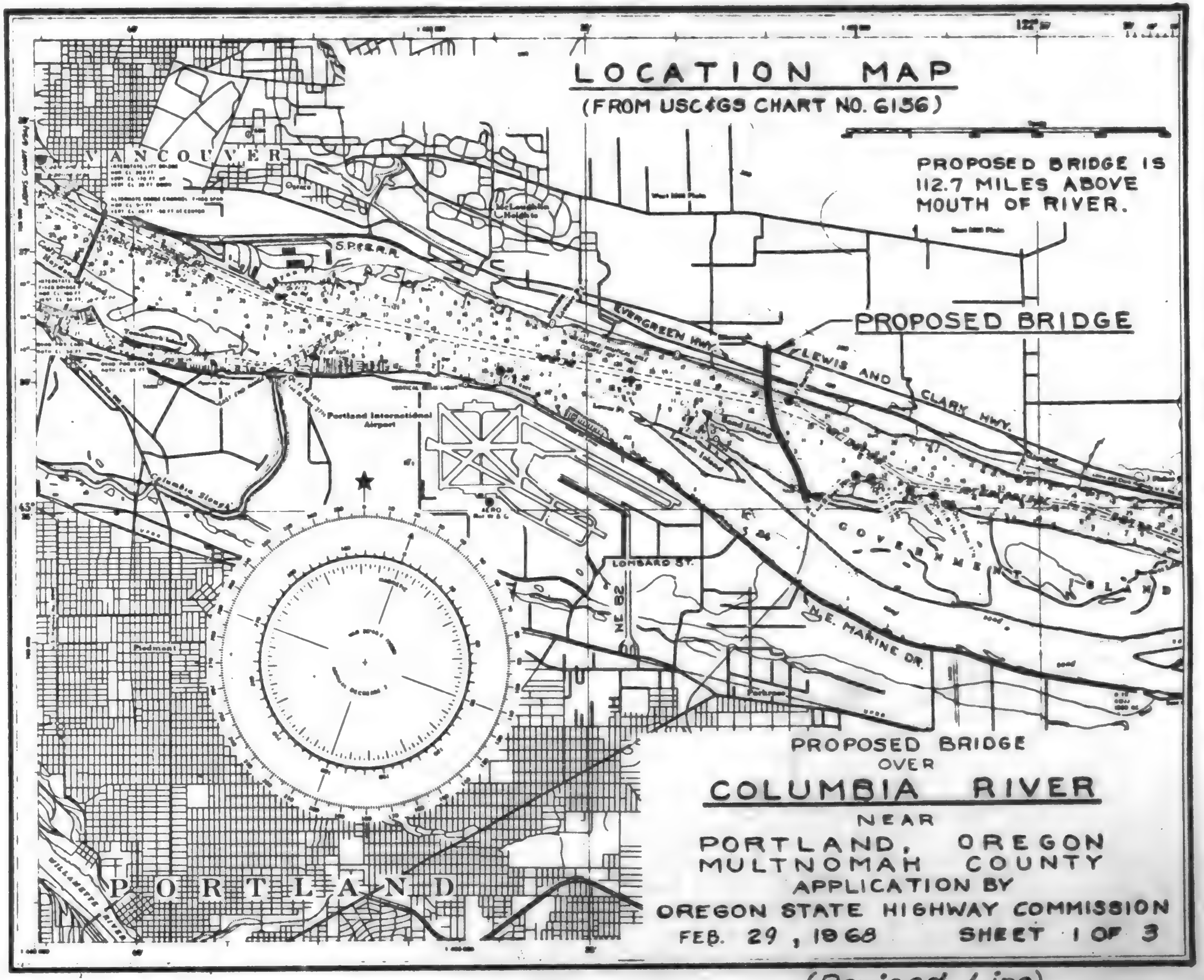
Forrest Cooper
State Highway Engineer

By

Tom Edwards
Assistant State Highway Engineer

Attachments

TE:ja


VANCOUVER
McLoughlin Heights
S.P.&S.R.R.
EVERGREEN HWY.
LEWIS AND CLARK HWY.
Portland International Airport
Columbia Slough
GOVERNMENT ISLAND
LOMBARD ST.
NE 82
N.E. MARINE DR.
Piedmont
Parkrose
PORTLAND
WILLAMETTE RIVER
122° 30'

LOCATION MAP

(FROM USC&GS CHART NO. 6156)

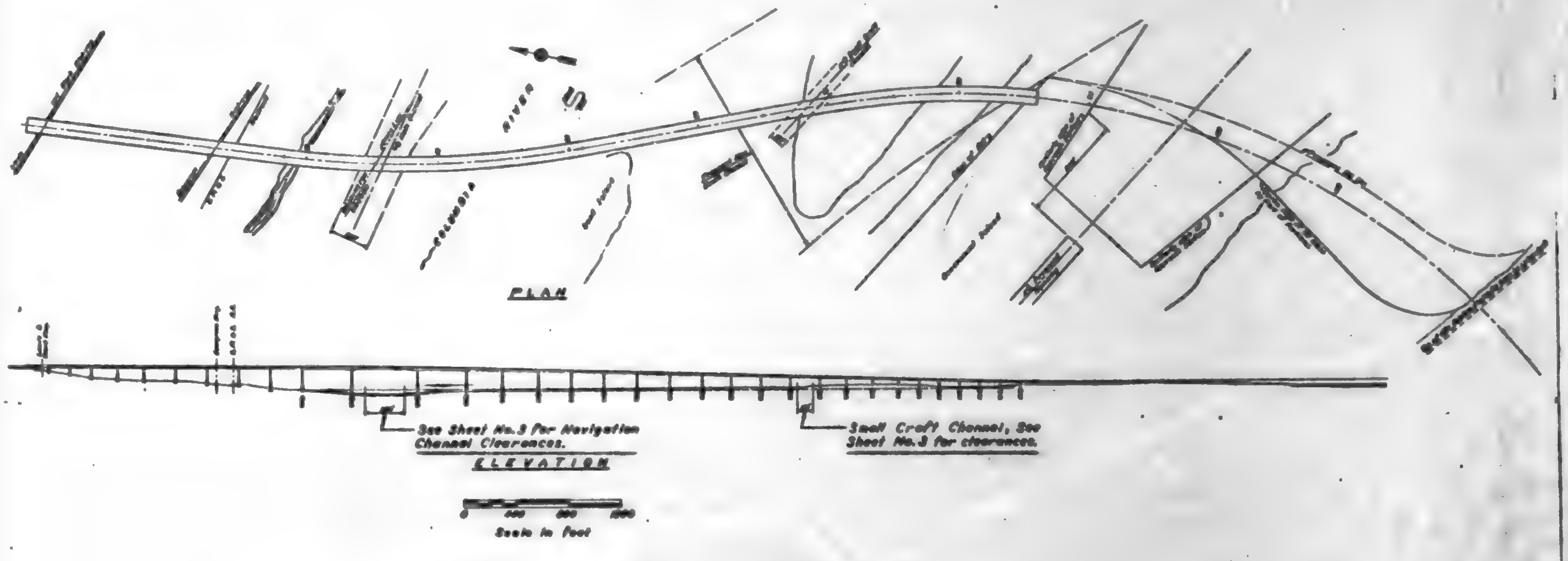
PROPOSED BRIDGE IS
112.7 MILES ABOVE
MOUTH OF RIVER.

PROPOSED BRIDGE

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY COMMISSION
FEB. 29, 1968 SHEET 1 OF 3

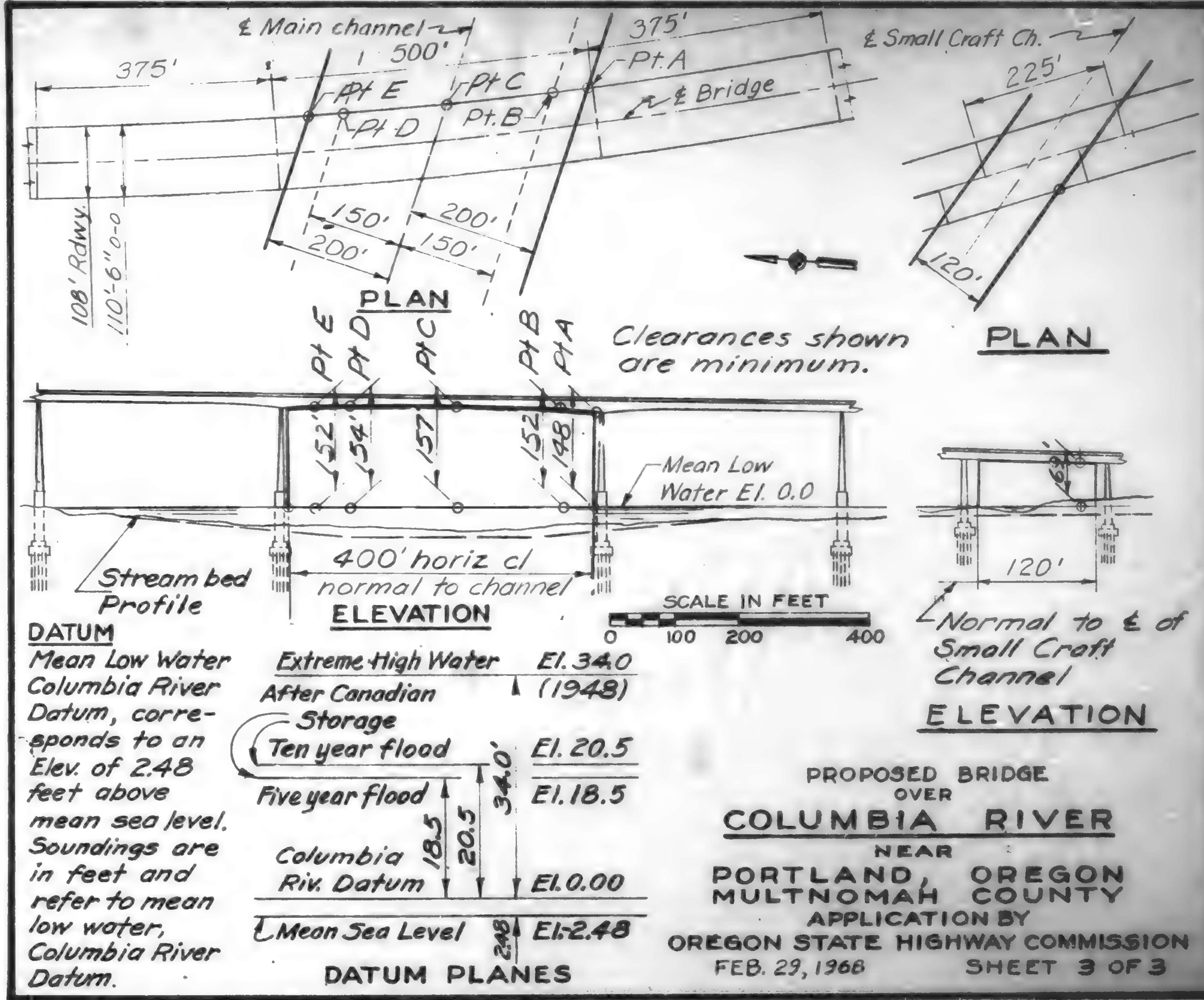
(Revised Line)

Corps Applic.


COLUMBIA RIVER
PLAN
See Sheet No. 3 for Navigation Channel Clearances.
ELEVATION
Small Craft Channel, See Sheet No. 3 for clearances.
0
Scale in Feet

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY COMMISSION
FEBRUARY 29, 1968 SHEET 2 OF 3

(Revised Line)


℄ Main channel
500'
375'
375'
Pt E
Pt D
Pt C
Pt B
Pt A
℄ Bridge
108' Rdwy.
110'-6" o-o
150'
200'
200'
150'
PLAN
℄ Small Craft Ch.
225'
120'
PLAN
Pt E
Pt D
Pt C
Pt B
Pt A
152'
154'
157'
152
148
Mean Low Water El. 0.0
400' horiz cl normal to channel
Stream bed Profile
ELEVATION
SCALE IN FEET
0
100
200
400
63'
120'
Normal to ℄ of Small Craft Channel
ELEVATION
Extreme High Water
El. 34.0
After Canadian Storage
(1948)
Ten year flood
El. 20.5
Five year flood
El. 18.5
34.0'
20.5
18.5
Columbia Riv. Datum
El. 0.00
Mean Sea Level
2.48
El. -2.48
DATUM PLANES

Clearances shown are minimum.

DATUM

Mean Low Water Columbia River Datum, corresponds to an Elev. of 2.48 feet above mean sea level. Soundings are in feet and refer to mean low water, Columbia River Datum.

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY COMMISSION
FEB. 29, 1968 SHEET 3 OF 3

(Revised Line)

8905

RECEIVED
OCT 5 - 1967
FOR FILING

STATE OF OREGON
STATE MARINE BOARD
OFFICE OF THE DIRECTOR
SALEM 97310

September 20, 1967

RECEIVED
SEP 21 1967
STATE WATER RESOURCES BOARD

1-11-67
applic to
Corps.

Mr. Donel J. Lane
State Water Resources Board
500 Public Service Bldg.

File 355

Dear Mr. Lane:

This letter is in regard to the Corps of Engineer's Public Notice 67-22 (55 revised).

Our agency recommends that the bridge design include a span near the south side of Government Island which would permit vessels to pass under when the main small-boat channel was restricted due to high water. This span should be so placed as to permit dredging a channel at some future date should development of the area above the bridge warrant dredging and maintaining such a channel.

Yours very truly,

R. F. Rittenhouse

RFR:mm

R. F. Rittenhouse
Director

Reg. 9-21-67

NOTED
TOM EDWARDS

Approved
STATE HWY. ENGR.

NOTED
TOM EDWARDS

NOTED
TOM EDWARDS

(19)

For your file!

RECEIVED
OCT 3 1967
OFFICE OF
STATE HIGHWAY ENGINEER

NOTED
VICTOR D. WOLFE

8905

9p

RECEIVED
AUG 17 1967
FOR FILING

August 17, 1967

5924

Col. Robert L. Bangert
District Engineer
Corps of Engineers, Portland District
628 Pittock Block
Portland, Oregon 97205

Dear Sir:

In response to your letter of August 7, enclosed are revised drawings to attach to our application of January 11, 1967, for a permit to construct a bridge across the Columbia River on Interstate 205.

Sheet 3 of these drawings has been revised to reflect the request set forth in the penultimate paragraph of Governor McCall's letter to you dated July 12, 1967, and in our letter dated July 27, 1967.

We ask an expeditious processing of the permit.

Very truly yours,

Forrest Cooper
State Highway Engineer

By

R. L. Porter
Deputy State Highway Engineer

Enclosures

cc Forrest Cooper
Tom Edwards
F. B. Klaboe
Victor D. Wolfe
I. D. Marchant
L. W. Rulien
A. E. Johnson

TE:js ms
(enclosures - three original tracings and four prints each.)

DEPARTMENT OF THE ARMY
PORTLAND DISTRICT, CORPS OF ENGINEERS
628 PITTOCK BLOCK
PORTLAND, OREGON 97205

-5891
9 67

NPPND-WM-P

7 AUG 1967

REFERRED TO
Admin
BY SECRETARY

Edwards

State of Oregon
State Highway Department
Salem, Oregon 97310

Reference: Proposed Highway Bridge across the Columbia River between Portland, Oregon and Vancouver, Washington

Gentlemen:

By reason of your letter dated 27 July 1967, inclosed are the original tracings which accompanied your original application and the subsequent revisions. Please revise these drawings and submit a revised application to reflect the 48-foot vertical clearance over the south channel.

Thank you for your cooperation.

Sincerely yours,

LTC CE

for ROBERT L. BANGERT
Colonel, Corps of Engineers
District Engineer

Incl
As stated

RECEIVED
OREGON STATE HIGHWAY DEPT.
BRIDGE DIVISION
AM AUG 9 1967 PM
7,8,9,10,11,12,1,2,3,4,5,6

Merchant
RO
NOTED
IVAN D. MERCHANT

RECEIVED
AUG 8 - 1967
OFFICE OF
STATE HIGHWAY ENGINEER

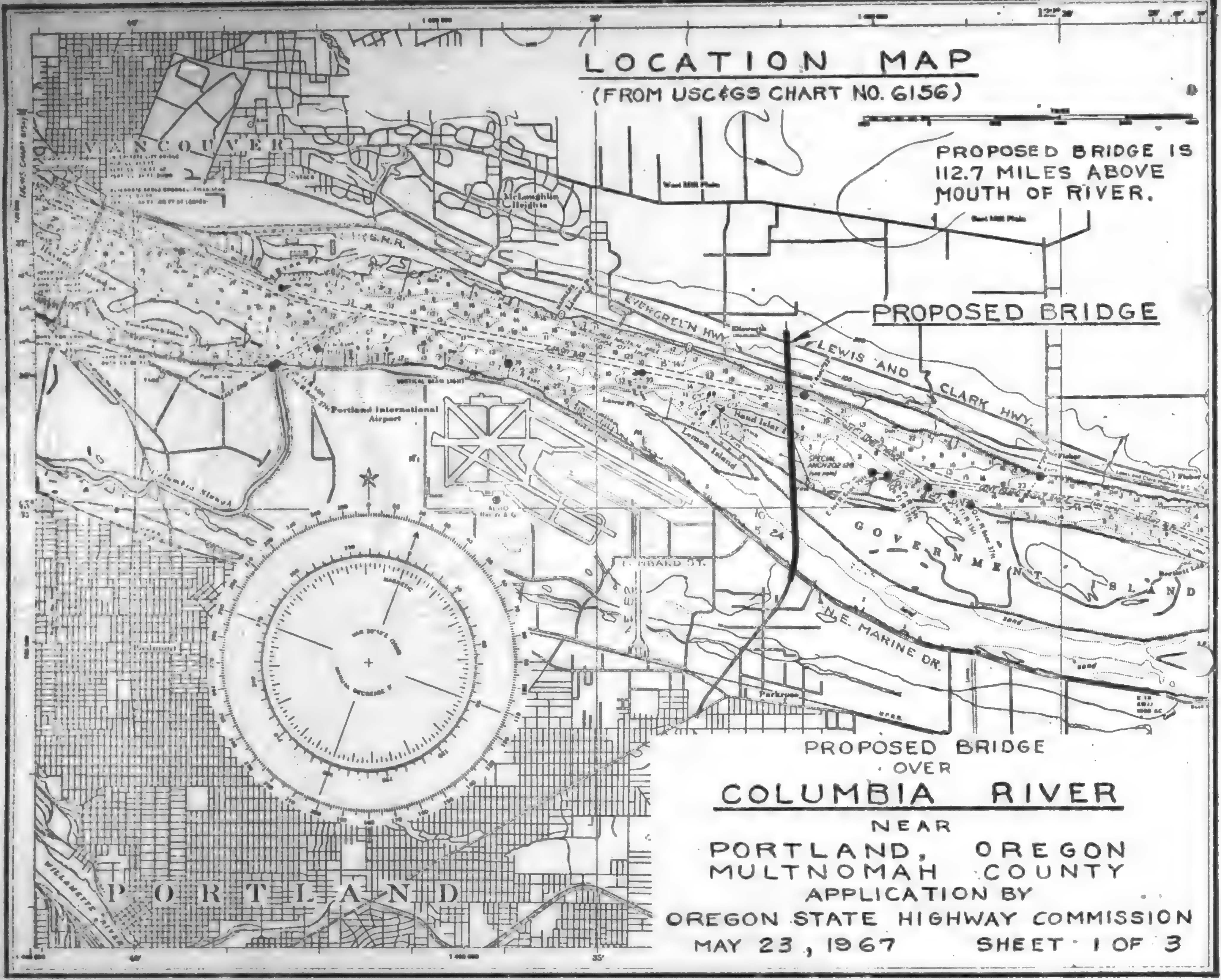
RECEIVED
AUG 8 1967
OREGON
STATE HIGHWAY COMMISSION

BRIDGE #9555. FILE COPY

LOCATION MAP

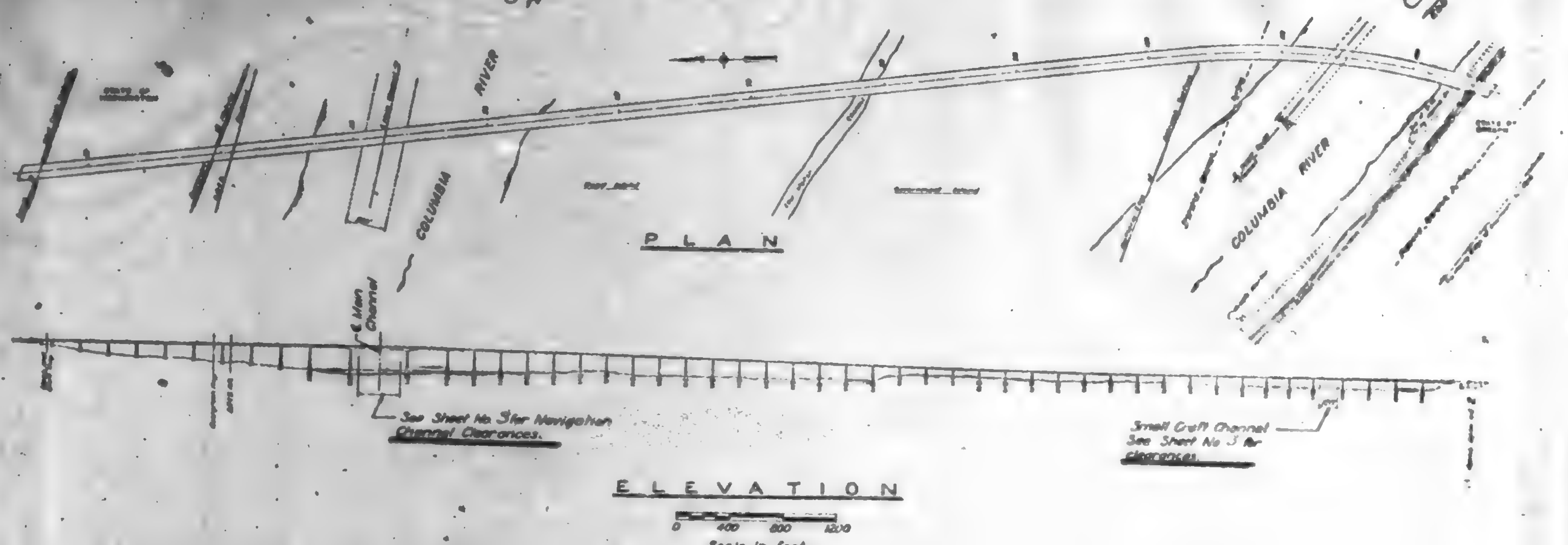
(FROM USC&GS CHART NO. 6156)

PROPOSED BRIDGE IS
112.7 MILES ABOVE
MOUTH OF RIVER.

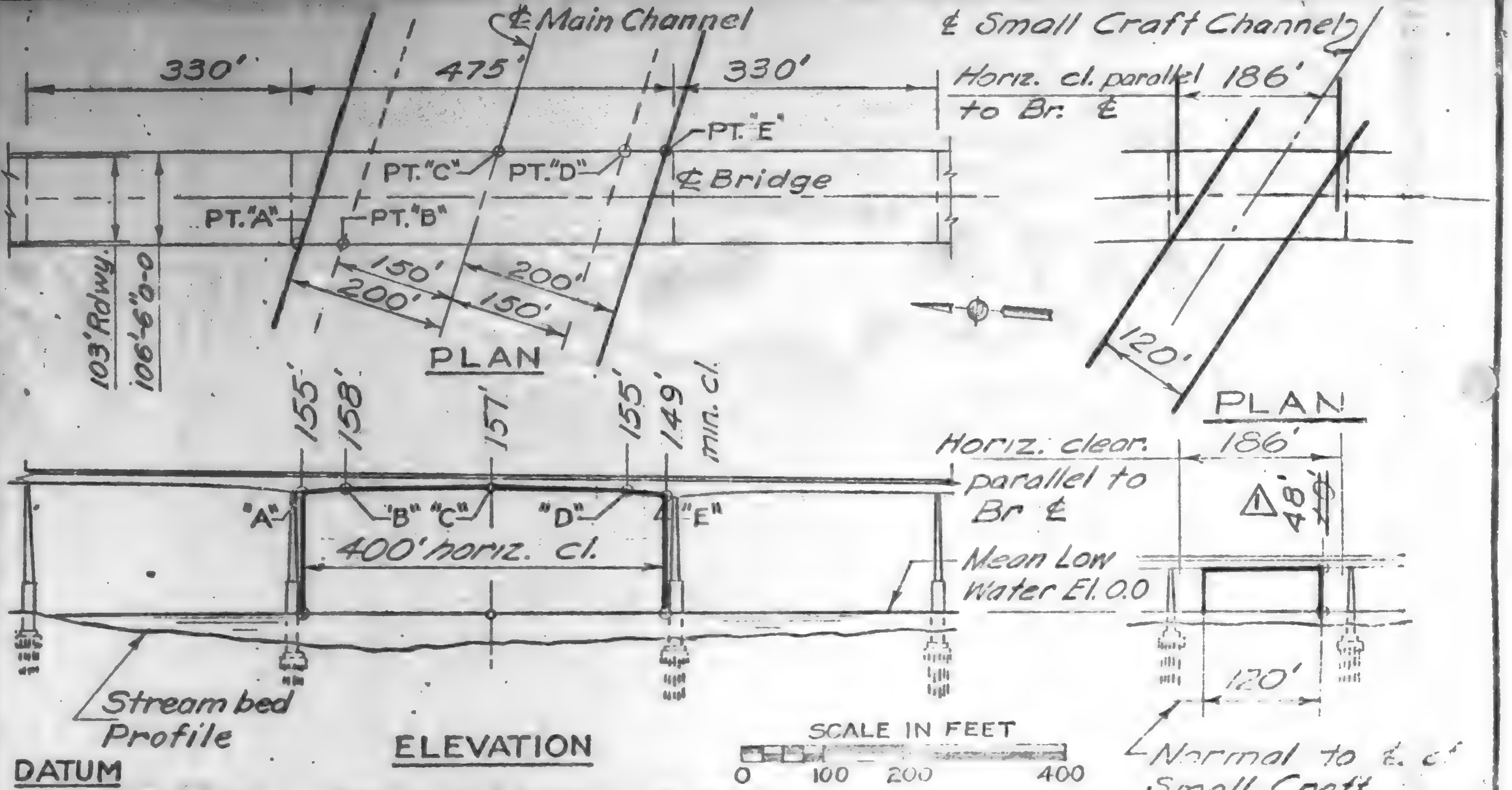

PROPOSED BRIDGE
VANCOUVER
McLoughlin Heights
EVERGREEN HWY.
LEWIS AND CLARK HWY.
Portland International Airport
Lemon Island
Sand Island
GOVERNMENT ISLAND
N.E. MARINE DR.
LOMBARD ST.
Parkrose
Columbia Slough
PORTLAND
WILLAMETTE RIVER

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY COMMISSION
MAY 23, 1967 SHEET 1 OF 3

(Revised Line)


COLUMBIA RIVER
COLUMBIA RIVER
PLAN
℄ Main Channel
See Sheet No. 3 for Navigation Channel Clearances.
Small Craft Channel See Sheet No. 3 for Clearances.
ELEVATION
0 400 800 1200
Scale in feet

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY COMMISSION
MAY 23, 1967 SHEET 2 OF 3
(Revised Line)



℄ Main Channel
330'
475'
330'
PT. "A"
PT. "B"
PT. "C"
PT. "D"
PT. "E"
℄ Bridge
150'
200'
200'
150'
103' Rdwy.
106'-6"0-0
PLAN
℄ Small Craft Channel
Horiz. cl. parallel 186' to Br. ℄
120'
PLAN
155'
158'
157'
155'
149'
min. cl.
"A"
"B"
"C"
"D"
"E"
400' horiz. cl.
Stream bed Profile
Horiz. clear. parallel to Br ℄
Mean Low Water El. 0.0
186'
48'
120'
SCALE IN FEET
0
100
200
400

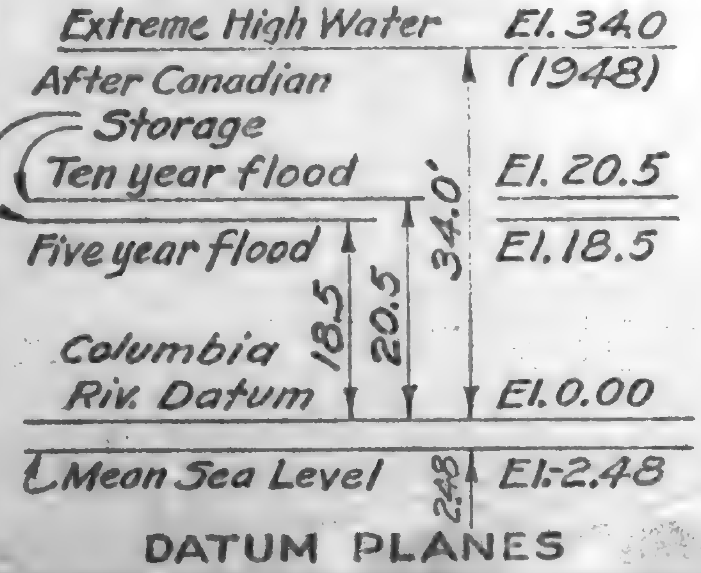
ELEVATION

Normal to ℄ of Small Craft Channel

ELEVATION

DATUM

Mean Low Water, Columbia River Datum, corresponds to an Elev. of 2.48 feet above mean sea level. Soundings are in feet and refer to mean low water, Columbia River Datum.



Extreme High Water
El. 34.0
(1948)
After Canadian Storage
Ten year flood
El. 20.5
Five year flood
El. 18.5
34.0'
20.5
18.5
Columbia Riv. Datum
El. 0.00
Mean Sea Level
2.48
El. -2.48

DATUM PLANES

⚠ Revised clearance, Aug 10, 1967

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY COMMISSION
MAY 23, 1967 SHEET 3 OF 3

(Revised Line)

8905

RECEIVED
JUL 28 1967

FOR FILING

July 27, 1967

The District Engineer
Portland District, Corps of Engineers
628 Pittock Block
Portland, Oregon 97205

Pub. Notice
67-22

Dear Sir:

5588

Re: Proposed highway bridge
across the Columbia River
Your File: NPPND-WM-P

This is in response to your July 25 letter soliciting our comments on Governor McCall's letter to you dated July 12.

The Highway Department will concur in the Governor's request that the south channel's vertical clearance be 48 feet. Also, we will, as the Governor suggested, carefully evaluate the horizontal clearance over the proposed south navigation channel. The Department will do everything it can to satisfy all parties on the pier spacing in line with a design that will receive Federal Bureau of Public Roads approval and assurance that this State will receive its statutory share of Federal-aid highway financing.

Very truly yours,

Forrest Cooper
State Highway Engineer

cc R. L. Porter
Tom Edwards
F. B. Klaboe
Victor D. Wolfe
Ivan Merchant
L. W. Rulien
A. E. Johnson

RLP:ms fn

DEPARTMENT OF THE ARMY
PORTLAND DISTRICT, CORPS OF ENGINEERS
828 PITTOCK BLOCK
PORTLAND, OREGON 97205

25 JUL 1967

NPPND-WM-P

State of Oregon
State Highway Department
Salem, Oregon 97310

Reference: Proposed Highway Bridge across the Columbia River between Portland, Oregon and Vancouver, Washington

Porter

Gentlemen:

Inclosed is a copy of a letter from the office of the Governor dated 12 July 1967 requesting the south channel's vertical clearance be 48 feet and that a careful evaluation be made of wider pier spacing over this proposed south navigation channel.

If you wish to offer comment or modify your present application to conform to above-noted requests by the Governor, please inform us as soon as practicable. Further action on your original request will be withheld pending receipt of a reply to this letter.

Sincerely yours,

LTC CE

1 Incl
As stated

for
ROBERT L. BANGERT
Colonel, Corps of Engineers
District Engineer

RECEIVED
JUL 26 1967
OFFICE OF
STATE HIGHWAY ENGINEER

RECEIVED
JUL 26 1967
OREGON
STATE HIGHWAY COMMISSION

RECEIVED
JUL 26 1967

FOR

NOTED
R. L. PORTER

July 12, 1967

District Engineer
Corps of Engineers
U.S. Army
Portland District
628 Pittock Block
Portland, Oregon 97205

Att: George E. Hyde, Chief
Navigation Division

Dear Sir:

In response to receipt of Public Notice 67-22 (S4 REVISED), 1507-21 (Columbia R. - Bridge) -9, applicant, Oregon State Highway Department, dated June 13, 1967, five (5) agencies, State of Oregon, replied with no objection or comment.

The State Marine Board recommended the following:

1. That the bridge design provide for a span and pier placing to allow for a potential secondary small-boat channel near the south side of Government Island where there would be additional vertical clearance.
2. That the vertical clearance of the small-boat channel be a minimum 48 feet.
3. That the horizontal clearance of the small-boat channel through the bridge be increased to at least 200 feet.

7-24-67
Copy Edwards
Merchant

We request the south channel's vertical clearance be 48 feet and that a careful evaluation be made of wider pier spacing over this proposed south navigation channel.

The State Game Commission indicated they had insufficient information to comment on the proposed bridge.

Sincerely,

Governor

RECEIVED
JUL 20 1967
OFFICE
STATE HIGHWA

Copy FC

cc: State Water Resources Board
State Marine Board

Oregon State Game Commission

8905

RECEIVED
JUL 7 - 1967

Commissioners
HAROLD S. HIRSCH
President
LEE E. CALDWELL
Vice-President
JOHN S. BRANDIS
Secretary
DONALD G. DRAKE
Treasurer
DENNIS J. LINDSAY
LEW S. RUSSELL
HOWARD B. SOMERS
ERLING E. JACOBSEN
ROBERT B. WILSON

General Manager
GEORGE M. BALDWIN

Ass't. General Manager
R. A. NEUMEISTER
Mgr. Aviation Dept.
G. D. HEXT
Mgr., Industrial Development Dept.
L. E. ARNOLD, JR.
Mgr., Marine Dept.
A. J. HEINEMAN
Comptroller
E. W. BAUER
Mgr., Research and Planning Dept.
W. S. DIRKER
Chief Engineer
R. F. DOW
Mgr., Public Affairs Dept.
W. G. PROCTOR

P.O. Box 3529, Portland, Oregon 97208
Telephone (503) 224-4260

cc Edwards,
Merchant
Rohde
Klaboe
7-7-67

July 6, 1967

Mr. Forrest Cooper
State Highway Engineer
Oregon State Highway Department
Salem, Oregon 97310

Dear Mr. Cooper:

Reference is made to your letter of June 28, 1967 regarding clearances for the I-205 Bridge over the Columbia River.

We recognize that you are required to obtain permits from the United States through its various agencies before proceeding with the proposed bridge. You are also required by O.R.S. 778.085 to obtain a permit from The Port of Portland.

It is because of this statutory responsibility of the Port that we have been actively working with you and other interested parties to determine river navigational requirements before issuing our permit.

In the recent meeting with your Commission, it was agreed that the bridge would be moved eastward and would be raised to 48 feet. This may satisfactorily meet navigational requirements, but we must review your drawings to determine this. It is therefore requested you submit drawings for approval at an early date.

If there are any further questions regarding this matter, please feel free to call.

Very truly yours,

THE PORT OF PORTLAND

George M. Baldwin

GEORGE M. BALDWIN
General Manager

cc: State Marine Board
Corps of Engineers

NOTED
R. L. PORTER

RECEIVED
JUL 7 1967
OFFICE OF
STATE HIGHWAY ENGINEER

8905

RECEIVED
JUN 29 1967
FOR FILING

June 28, 1967

Mr. George M. Baldwin
General Manager
The Port of Portland
Post Office Box 3529
Portland, Oregon 97208

Dear Mr. Baldwin:

This is in reference to your June 23 letter concerning a permit for the proposed I-205 bridge across the Columbia River easterly of Portland.

It is our understanding that a determination of river navigational clearances required will be made by the Federal Department of Transportation. The Highway Commission, of course, will comply with this determination. We question the necessity for a separate permit from the Port of Portland; however, as soon as river navigational requirements are known, we will cooperate with the Port and will extend to you every opportunity to review detailed plans as they are prepared.

In addition, if there is any other problem existing between our agencies on this matter we will be happy to discuss it at any mutually convenient time.

Very truly yours,

Forrest Cooper
State Highway Engineer

By

R. L. Porter
Deputy State Highway Engineer

RLP:mm
cc Corps of Engineers
bc Forrest Cooper
Tom Edwards
F. B. Klaboe
Victor D. Wolfe
G. E. Rohde
I. D. Merchant

Commissioners
HAROLD S. HIRSCH
President
LEE E. CALDWELL
Vice-President
JOHN S. BRANDIS
Secretary
DONALD G. DRAKE
Treasurer
DENNIS J. LINDSAY
LEW S. RUSSELL
HOWARD B. SOMERS
ERLING E. JACOBSEN
ROBERT B. WILSON

General Manager
GEORGE M. BALDWIN

Ass't. General Manager
R. A. NEUMEISTER
Acting Mgr.
Aviation Dept.
H. M. HANNA
Mgr., Industrial
Development Dept.
L. E. ARNOLD, JR.
Mgr., Marine Dept.
A. J. HEINEMAN
Comptroller
E. W. BAUER
Mgr., Research and
Planning Dept.
W. S. DIRKER
Chief Engineer
R. F. DOW
Mgr., Public
Affairs Dept.
W. G. PROCTOR

THE PORT OF PORTLAND
P.O. Box 3529, Portland, Oregon 97208
Telephone (503) 224-4260

NOTED
R. L. PORTER

NOTED
R. L. PORTER

June 23, 1967

Mr. Forrest Cooper
Highway Engineer
Oregon State Highway Department
Salem, Oregon 97310

Dear Mr. Cooper:

Subject: Permit for Columbia River I-205 Bridge

Reference is made to the Corps of Engineers' Public Notice 67-22 (S4 revised) covering your proposed I-205 bridge.

In addition to the permit from the Corps of Engineers, it will be necessary for your office to obtain a permit from The Port of Portland before construction of the bridge can commence. It is suggested that your application be submitted at an early date in order to avoid any delay.

It is noted that the proposed clearance over the South Channel continues to be 40 feet. No evidence has been submitted by your office indicating that the 48-foot clearance proposed by this office is unreasonable. Therefore, it is suggested that your application for a permit from The Port of Portland indicate a proposed clearance of 48 feet over the South Channel as previously discussed with you. It is also suggested that your permit application to the Corps of Engineers be amended.

Very truly yours,

THE PORT OF PORTLAND

George M. Baldwin

GEORGE M. BALDWIN
General Manager

cc: Corps of Engineers

Porter

RECE
JUN 26 1967
OFFICE
STATE HIGHW

June 23, 1967

District Engineer
U. S. Army Engineers
Portland District, Corps of Engineers
628 Pittock Block
Portland, Oregon 97205

Gentlemen:

Reference is made to your Public Notice 67-22 (84 revised) indicating the new proposed alignment and clearances for the Interstate Bridge to be constructed in the vicinity of the Portland International Airport.

As stated at the Public Hearing, The Port of Portland is opposed to the proposed clearance of 40 feet over the South Channel, and recommend 48 feet.

It is requested that the permit applicant be advised that The Port will not approve the present proposal. No Public Hearing is considered necessary, since the evidence was submitted at the earlier Public Hearing.

Very truly yours,

THE PORT OF PORTLAND

GEORGE M. BALDWIN,
General Manager

cc: Oregon State Highway Department
State Marine Board

RECEIVED
JUN 26 1967
OFFICE OF
STATE HIGHWAY ENGINEER

8905

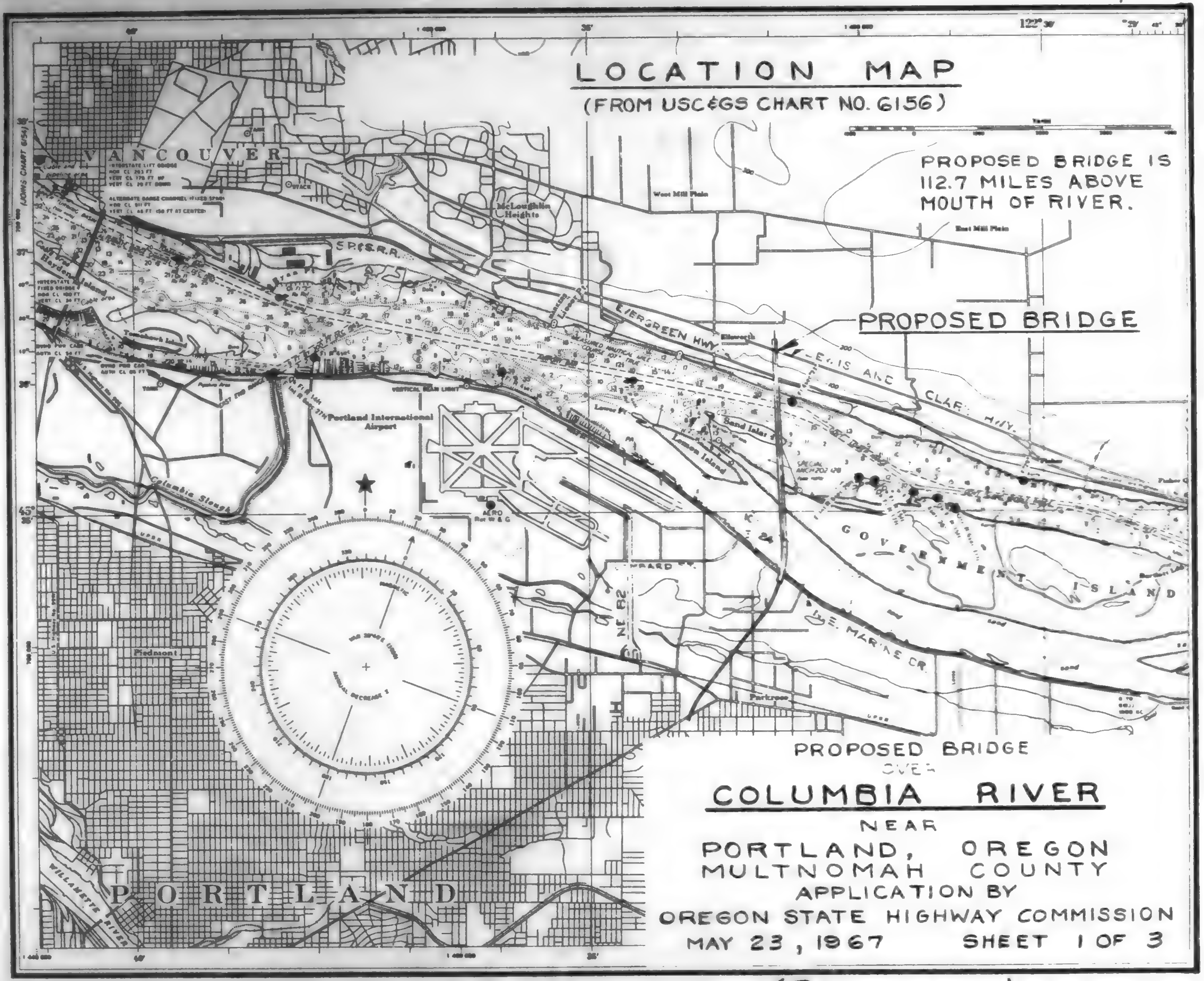
RECEIVED
MAY 29 1967
FOR FILING

On January 11, 1967, when the State Highway Department made application to the Corps for the establishment of river clearances, the location shown on the application maps had not been agreed upon by the Highway Department and the Port of Portland.

In recent weeks agreement has been reached, with the centerline location of the bridge being moved easterly to a point agreed upon by these two commissions. We therefore, at this time, enter into the record drawings which depict the new location.

LOCATION MAP

(FROM USC&GS CHART NO. 6156)

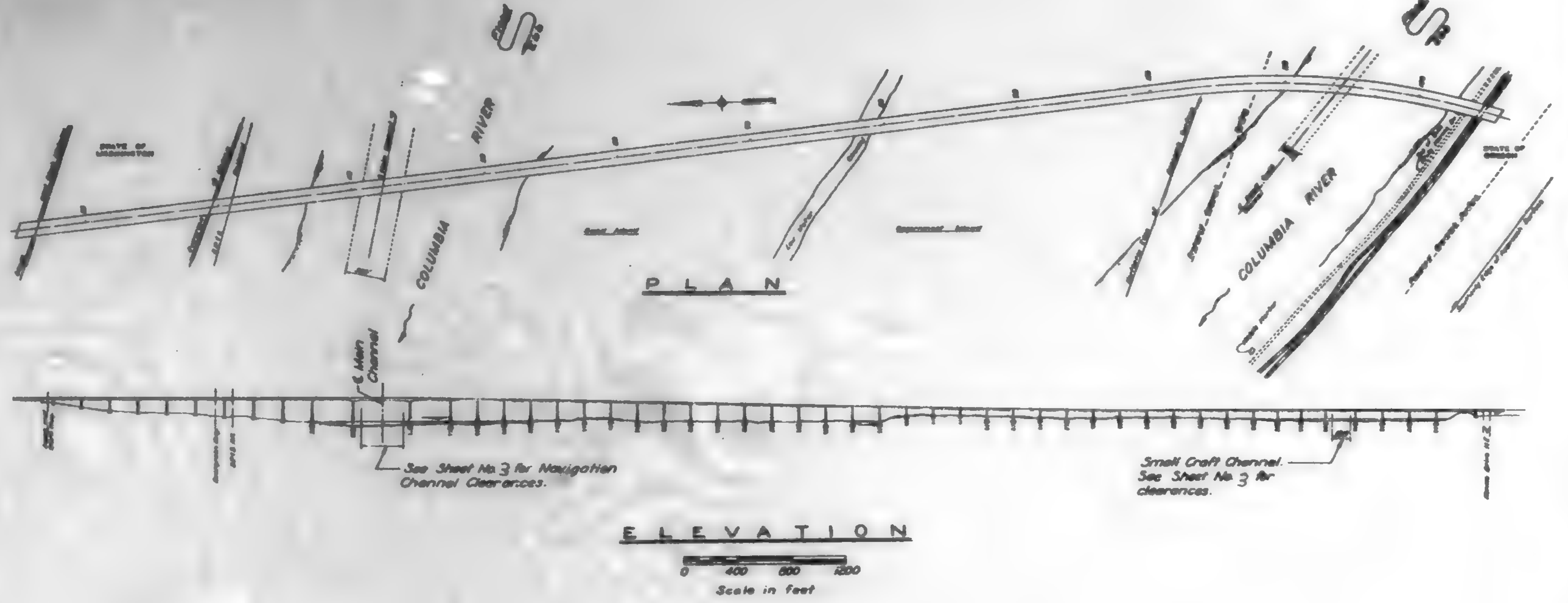

PROPOSED BRIDGE IS
112.7 MILES ABOVE
MOUTH OF RIVER.
PROPOSED BRIDGE
VANCOUVER
McLoughlin Heights
S.P.&S.R.R.
EVERGREEN HWY
Ellsworth
LEWIS AND CLARK HWY
West Mill Plain
East Mill Plain
Portland International Airport
Columbia Slough
Lemon Island
Sand Island
GOVERNMENT ISLAND
NE MARINE DR
NE 82
Parkrose
Piedmont
PORTLAND
WILLAMETTE RIVER
(JOINS CHART 6154)
122° 30'
45° 35'

PROPOSED BRIDGE
OVER

COLUMBIA RIVER

NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY COMMISSION
MAY 23, 1967 SHEET 1 OF 3

(Revised Line)



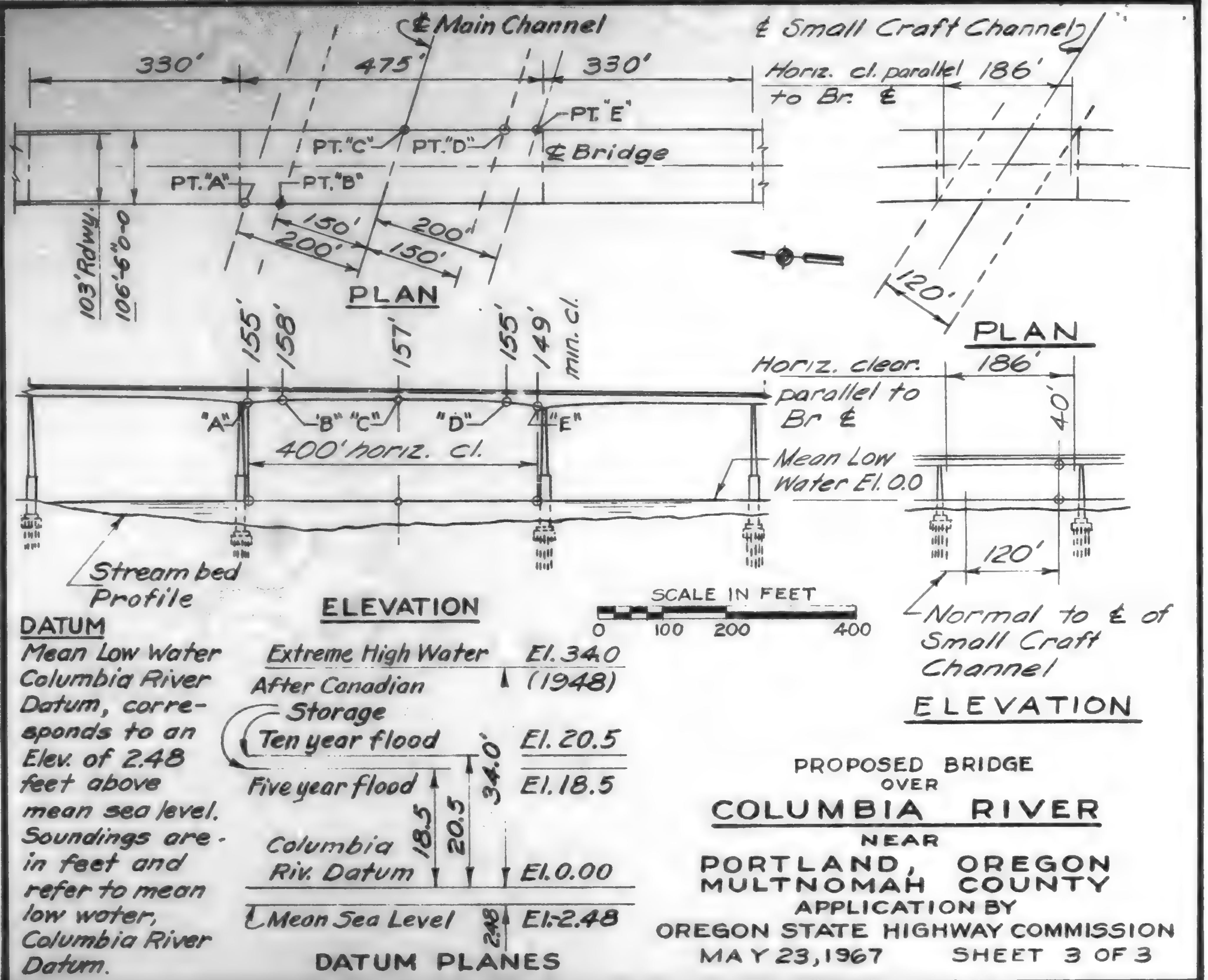
STATE OF WASHINGTON
COLUMBIA RIVER
COLUMBIA RIVER
Government Island
STATE OF OREGON
PLAN
℄ Main Channel
ELEVATION
0
400
800
1200
Scale in feet

See Sheet No. 3 for Navigation Channel Clearances.

Small Craft Channel. See Sheet No. 3 for clearances.

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY COMMISSION
MAY 23. 1967 SHEET 2 OF 3

(Revised Line)


℄ Main Channel
℄ Small Craft Channel
330'
475'
330'
Horiz. cl. parallel 186' to Br. ℄
PT. "A"
PT. "B"
PT. "C"
PT. "D"
PT. "E"
℄ Bridge
103' Rdwy.
106'-6"0-0
150'
200'
200'
150'
120'
PLAN
PLAN
155'
158'
157'
155'
149' min. cl.
"A"
"B"
"C"
"D"
"E"
400' horiz. cl.
Horiz. clear. parallel to Br ℄
186'
40'
Mean Low Water El. 0.0
120'
Stream bed Profile
Normal to ℄ of Small Craft Channel
ELEVATION
ELEVATION
SCALE IN FEET
0
100
200
400
Extreme High Water
El. 34.0
After Canadian Storage
(1948)
Ten year flood
El. 20.5
Five year flood
El. 18.5
34.0'
20.5
18.5
Columbia Riv. Datum
El. 0.00
Mean Sea Level
2.48
El. -2.48
DATUM PLANES

DATUM
Mean Low Water Columbia River Datum, corresponds to an Elev. of 2.48 feet above mean sea level. Soundings are in feet and refer to mean low water, Columbia River Datum.

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY COMMISSION
MAY 23, 1967 SHEET 3 OF 3

(Revised Line)

8905

RECEIVED
APR 28 1967
FOR FILING

April 27, 1967

5588

Colonel William J. Talbott
District Engineer
Portland District
Corps of Engineers
628 Pittock Block
Portland, Oregon 97205

Re: Proposed Columbia River Bridge
I-205

Your File: NPPND-WM

Dear Sir:

Your recent letter regarding the public hearing to be held on May 4 at 10:00 a.m., together with the copies of five letters in response to your public notice, has been received.

The State will make an opening statement at the request of the presiding officer and will have some exhibits to explain the proposed bridge construction. As requested, our exhibits will be revised to include the ten-year flood after Canadian storage at elevation 20.5 and the five-year flood after Canadian storage at elevation 18.5, all elevations above CRD.

Very truly yours,

Forrest Cooper
State Highway Engineer

By

Tom Edwards
Assistant State Highway Engineer

bc Forrest Cooper
R. L. Porter
F. B. Klaboe (enc.)
Victor D. Wolfe
Ivan Merchant
A. E. Johnson (enc.)

IDM:mb ja

DEPARTMENT OF THE ARMY
PORTLAND DISTRICT, CORPS OF ENGINEERS
628 PITTOCK BLOCK
PORTLAND, OREGON 97205

5359

APR 19 67

REFERRED TO Admin
BY SECRETARY

NPPND-WM

18 APR 1967

Edwards

State of Oregon
State Highway Department
Salem, Oregon 97310

Re: Proposed Columbia River Bridge I-205

Gentlemen:

This letter is to confirm earlier conversations with Mr. Merchant of your office. A Public Hearing will be held at 10:00 a.m. on 4 May 1967 in Room 36, State Office Building (Portland), to consider your application for the I-205 bridge crossing the Columbia River.

It is understood that your agency will furnish appropriate large scale drawings to explain your requested alignment and clearances. This office will furnish a large scale photograph or drawing showing river depths in the immediate vicinity of the proposed bridge. This office will have available for distribution copies of Sheets 1, 2 and 3 which accompanied Public Notice 67-22. However, Sheet 3 of 3 will be altered to read as follows: At El 20.5 (CRD) a single line will be struck through the words "ordinary high water" and the words "ten-year flood after Canadian storage" will be added. This change in wording will be explained in my opening statement. It is suggested that the ten-year flood height of 20.5 CRD be used in your drawings and presentations.

Your agency will be called upon to offer an opening statement (or statements) at the conclusion of my opening remarks. No cross-examination will be allowed from the floor but questions addressed to me will be noted and an opportunity for answering these questions will be allowed.

I have inclosed several of the responses to our Public Notice so you can anticipate some of the questions to be raised. Other correspondence on this bridge is available in this office for your examination.

If you have further questions, please contact this office.

Sincerely yours,

William J. Talbott
WILLIAM J. TALBOTT
Colonel, Corps of Engineers
District Engineer

RECEIVED
APR 1 9 1967
OFFICE OF
STATE HIGHWAY ENGINEER

RECEIVED
APR 1 9 1967
OREGON
STATE HIGHWAY COMMISSION

Merchant
RB

5 Incls
1-Ltr Port of Portland
2-Ltr Rose Cty Yacht Club
3-Ltr The Oregonian
4-Ltr Port of Camas-Washougal
5-Ltr Air Transport Assn

NOTED
IVAN D. MERCHANT

Commissioners
HOWARD B. SOMERS
President
HAROLD S. HIRSCH
Vice-President
ERLING E. JACOBSEN
Secretary
LEE E. CALDWELL
Treasurer
DONALD G. DRAKE
RAYMOND M. KELL
DENNIS J. LINDSAY
LEW S. RUSSELL
ROBERT R. WILSON

General Manager
GEORGE M. BALDWIN

Ass't General Manager
R. A. NEUMEISTER
Mgr., Aviation Dept.
J. V. FRYBERGER
Mgr., Industrial Development Dept.
L. E. ARNOLD, JR.
Mgr., Marine Dept.
A. J. HEINEMAN
Comptroller
E. W. BAUER
Mgr., Research and Planning Dept.
W. S. DIRKER
Chief Engineer
R. F. DOW
Mgr., Public Affairs Dept.
W. G. PROCTOR

Swan Island, P.O. Box 3529, Portland, Oregon 97208
Telephone 503-285-5271

In reply refer to:

ND

April 3, 1967

Department of the Army
Portland District, Corps of Engineers
628 Pittock Block
Portland, Oregon 97205

Attention: Colonel William J. Talbott
District Engineer

Gentlemen:

SUBJECT: PUBLIC NOTICE 67-22 COLUMBIA RIVER BRIDGE

The Port of Portland Commission strongly objects to the proposed location of a bridge across the Columbia River as described in your Public Notice 67-22 because of the severe limitation it would impose on the future development of the Portland International Airport and its ultimate capacity to serve the needs of this area. The Commission also questions the vertical clearance proposed over the south channel.

These objections have been called to the attention of the Oregon State Highway Department and pending further consultations between that body and the Port Commission, the Corps of Engineers is hereby requested to either withhold approval of plans for construction, or hold a public hearing at which time the Port might present evidence in support of its objections.

RECEIVED
APR 19 1967
OFFICE OF
STATE HIGHWAY ENGINEER

Very truly yours,

THE PORT OF PORTLAND

George M. Baldwin

GEORGE M. BALDWIN
General Manager

cc: Glenn L. Jackson, Chairman
Oregon State Highway Commission

AFFILIATED WITH TH
COLUMBIA RIVER
YACHTING ASSOCIAT

Rose City Yacht Club

7303 N. E. MARINE DRIVE
PORTLAND 13, OREGON

April 3, 1967

T
Ex

Col. William J. Talbott
District Engineer
Corps of Engineers
628 Pittock Block
Portland, Oregon 97205

ND

Dear Col. Talbott:

The subject of the alignment and clearance of the proposed 1-205 highway bridge has been considered by the membership of Rose City Yacht Club, and I have been directed to inform you that we are opposed to the present plan for two reasons.

First, the South Channel clearances are entirely inadequate. Sixty-eight sailing vessels in our organization would not be able to use the channel during high water and less than half of them would clear at low water. This channel is traditionally used during high water periods by sail craft because the current is not nearly as swift as the main channel. To close it for all practical purposes for all future generations would be extremely unfortunate. We say this at a time when boating is growing rapidly. Project this growth 20 years and need for navigable waters will be acute.

Our second point of opposition involves the alignment of the bridge as planned crossing the eastern tip of Sand or Tri-Club island. The lagoon between Sand and Lemon islands is the best recreational anchorage close to all of the yacht clubs on the Columbia in the Portland area. While the lagoon needs dredging to restore it to its former utility, a bridge crossing at this point would destroy the present function for all time.

In summary the position of Rose City Yacht Club concerning highway bridge 1-205 is that it should be located farther East than it is presently planned and that it should have a minimum clearance at the South Channel of 55 feet above high water.

We certainly favor a public hearing and we will have a spokesman available to represent the views of our organization if a hearing is scheduled.

RECEIVED
APR 10 1967
OFFICE OF
STATE HIGHWAY ENGINEER

Very truly yours,

W. A. Graydon

W. A. Graydon, secretary

cc: Mr. Don Becker
Mr. Rollie Calkins

The Oregonian
ESTABLISHED 1850
DAILY AND SUNDAY PORTLAND, OREGON 97201

T Ex 6

April 1, 1967

Colonel William J. Talbott
District Engineer
Corps of Engineers
628 Pittock Block
Portland, Oregon 97205

ND

Dear Colonel Talbott:

In reply to your Public Notice 67-22 regarding clearances for the proposed Columbia River bridge for Highway I-205, I would like to point out that the vertical clearance proposed for the south channel bridge would not permit the passage of sailboats except at extreme low water.

It is quite common for sailboats to have masts of more than 40 feet. If the bridge is constructed at the proposed clearance, all boats with masts of this height or higher would be prevented from passing at this point.

It is conceivable that future generations will desire to use this channel more than at present and I believe it would be wise to require a greater clearance than is now proposed. It seems to me that a clearance of at least 60 feet would be highly desirable.

I understand representatives of the Port of Portland are opposed to a higher span, so possibly if the bridge were to be located farther upstream - a mile or so - it would give everybody more room.

Yours respectfully,

Lawrence Barber
Lawrence Barber

LB

cc: Brig. General Elmer P. Yates

RECEIVED
APR 10 1967
OFFICE OF
STATE HIGHWAY ENGINEER

PORT OF CAMAS-WASHOUGAL

PHONE AC 206 835-5646 P. O. BOX 1017 CAMAS, WASHINGTON 98607

COMMISSIONERS
D. J. McDOUGALL, M. D.
JOSEPH A. GAINES
M. L. SCHWARY

TEXO

31 March 1967

District Engineer
U.S. Army Corps of Engineers
Portland District
628 Pittock Block
Portland, Oregon

ND

Dear Sir:

References made to your Public Notice No. 67-22 of 28 February 1967 re: Columbia River Bridge.

In answer to your request for comments, basically we take the position and will continue to, unless proven otherwise, that a 178 foot clearance is consistent with future navigational requirements on the Columbia River, based on growth potential.

The Port of Camas-Washougal appears to be the furthest inland free-water port on the river and, as such, we can visualize a future terminal operation potential at Camas-Washougal. As the demand for more waterfront facilities becomes greater, we have to assume that eventually there will be a definite need for the Camas-Washougal area to build deep-water port facilities.

If, when limitations are placed on the Columbia River which would hamper deep-water shipping in the future; the industrial sites which are now available may never be filled. A restricted clearance bridge would have the effect of closing the door, thus terminating deep-draft shipping at somewhere west of the proposed I 205 bridge.

We, therefore, support Resolution No. 66 (copy enclosed) adopted at the annual convention of the Inland Empire Waterways Association on 18 October 1967 because, although we have asked the question several times of several people, at this point no one has yet adequately answered the question of why the second span of the Interstate Bridge between Vancouver and Portland was built some seven years ago to the same height as the original span if, in fact, there was no need for the additional 30 feet. This span, we understand, is 178 feet above mean low water. If there is some reason why it was necessary, seven years ago, to build the second span identical to the first; we would like to have an explanation. It follows, then, that if, in fact, this was needed; why is 148 feet above mean low water sufficient at the proposed location of I 205 bridge?

We understand that the Portland International Airport approach patterns could possibly be in conflict with a 30 foot additional vertical clearance on this bridge; however, it is our understanding that Portland International employs a left-hand approach pattern and we wonder how a bridge located northeast of the airport could possibly have any effect on a left-hand approach into the airport from the east since, in order to make a left turn to the west, you must approach from the south.

Second enclosure is a brief ships characteristics tabulation. It is not all-inclusive, but it does show that during periods of high water when the proposed vertical clearance of the bridge is 123 feet, that in the case of American President Line ships, States Line ships, and the C3 hull, as listed on the enclosure, these ships could not pass beneath the bridge when in a light ship condition.

Your consideration in determining final clearances for subject bridge is appreciated and, we are confident, will reflect sound future planning so as not to hamper the navigational requirements of the Columbia River.

Sincerely,

PORT OF CAMAS-WASHOUGAL

W R Volpentest
William R. Volpentest

WRV:dg

Enclosures

Copy to:
Inland Empire Waterways Association
Washington Public Ports Association
Port of Walla Walla
Port of Klickitat
Port of The Dalles

RECEIVED
APR 1[illegible] 1967
OFFICE OF
STATE HIGHWAY ENGINEER

AIR TRANSPORT ASSOCIATION
of America

1000 CONNECTICUT AVENUE, N. W. • WASHINGTON, D. C. 20036 • TELEPHONE 296-5800

REPLY TO:
WESTERN REGIONAL OPERATIONS OFFICE
P. O. BOX 90086, AIRPORT STATION
LOS ANGELES, CALIFORNIA 90009

6

March 30, 1967

ExO

Col. William J. Talbot
Corps of Engineers
Department of the Army
628 Pittock Block
Portland, Oregon

ND

Dear Sir:

Reference is made to your study of the proposed Columbia River bridge adjacent to the Portland International Airport.

We have been asked by the scheduled airlines serving Portland to submit a statement of position on this proposal for consideration in your study.

As you may know, the Federal Aviation Agency is conducting an aeronautical study to determine if this bridge will create an adverse effect on aviation with particular regard to the Portland International Airport. Since our interests lie in the area of airspace and airport utilization, we have corresponded with the FAA at some length on the initial bridge plan and more recently the revised proposal.

I am enclosing copies of our letters to the FAA starting in December of 1966 following the airspace meeting held on this matter, and secondly, our latest letter which, in effect, merely restates our opposition to this construction under the final approach path to the Portland Airport.

We assume that your concern is largely involved in navigable waterway matters; however, we also trust that you wish to consider all facets of the problem and therefore take the liberty of outlining the position of opposition held by the airline industry.

If additional clarification of the attached correspondence with the FAA is needed, please let us know.

Very truly yours,

John [illegible]

[illegible]c. D. Ewing
Regional Director

RECEIVED
APR 1[illegible] 1967
OFFICE OF
STATE HIGHWAY ENGINEER

Encs. 2

TRAVEL . MAIL . SHIP . BY AIR — BETTER AND FASTER

8905

RECEIVED
MAR 14 1967

FOR [illegible]

March 13, 1967

5433

Commander
13th Coast Guard District
618 Second Avenue
Seattle, Washington 98104

Attention Mr. Victor Koll

Re: Columbia River Bridge on
Highway 205 at Portland

Dear Sir:

I have your letter of March 7 with accompanying Aids to Navigation Regulations.

Plans for the structure are in the development stage. As soon as they are complete, copies will be forwarded to you for your consideration and approval. The completed plans will show the navigation warning light system proposed.

Construction specifications will place responsibility on the contractor to conduct all construction in accord with your regulations.

You will be advised of the construction schedule for the project as soon as it is firm.

Very truly yours,

Forrest Cooper
State Highway Engineer

By ORIGINAL SIGNED BY
F. B. KLABOE

Tom Edwards
Assistant State Highway Engineer

bc Forrest Cooper
R. L. Porter
Victor D. Wolfe
Ivan Merchant

CAG:jf ja

TREASURY DEPARTMENT
UNITED STATES COAST GUARD

Address reply to:
COMMANDER
13TH COAST GUARD DISTRICT
618 ~~XXX~~ SECOND AVENUE
SEATTLE, WASHINGTON 98104

4991

MAR 7 67

3267/713
6 March 1967

REFERRED TO
admin
BY SECRETARY

MAR 7 1967
OFFICE OF
STATE HIGHWAY ENGINEER

REFERRED TO
Edwards

Oregon State Highway Department
Salem, Oregon 97310

Bowler

Gentlemen:

Reference is made to Public Notice No. 67-22, issued by the District Engineer, Corps of Engineers, U. S. Army, Portland, Oregon, regarding your application for approval of plans for construction of a highway bridge across the Columbia River between Portland, Oregon and Vancouver, Washington, on proposed Highway I-205. The proposed site is immediately upriver from the International Airport at Portland, Oregon. The Coast Guard has no objection to the proposed bridge.

If construction of the bridge is approved, bridge markings will be required by the Coast Guard in accordance with Title 33, Code of Federal Regulations, Part 68. This will include bridge navigation lighting, and quite possibly, one or more fog signals. Please submit drawings in duplicate for Coast Guard approval showing plan and elevation views of the bridge and proposed navigation lights. A booklet entitled Aids to Navigation Regulations (CG-208) is enclosed herewith for your aid in determining the bridge lighting required. (See Part 68, page 32). The requirements for fog signals will be the subject of further correspondence.

Construction lights will be required by the contractor during actual construction and until permanent approved bridge lighting is installed and operating. The contractor should contact this office regarding the requirements for temporary construction lights. The Coast Guard should also be advised as early in advance as possible of the proposed construction schedule, so that this information may be published in an advance Local Notice to Mariners. It is requested that the above be made a part of the specifications for the bridge, so that the contractor will provide the necessary notification to the Coast Guard and markings for the bridge while under construction.

RECEIVED
OREGON STATE HIGHWAY DEPT.
BRIDGE DIVISION
AM MAR 8 1967 PM
7,8,9,10,11,12,1,2,3,4,5,6

Sincerely yours,

Victor Koll
VICTOR KOLL
Commander, U. S. Coast Guard
Chief, Aids to Navigation Branch
By direction of the District Commander

Meacham
RO Dr. (if nec)

Encl: CG-208

RECEIVED
MAR 7 1967
OREGON
STATE HIGHWAY COMMISSION

Keep Freedom in Your Future With U.S. Savings Bonds

8905

FEB 17 1967

8

February 16, 1967

Colonel William J. Talbott
District Engineer
Corps of Engineers
Portland District
628 Pittock Block
Portland, Oregon 97205

Re: Proposed Columbia River Bridge
I-205
Your File NPPND-WM

Dear Sir:

The matter of clearances to be established on the Columbia River crossing of I-205 outlined in your letter of February 13 has been considered.

The State Highway Commission and the Port of Portland Commission held a joint meeting with respect to this. At that meeting, the decision of the Highway Commission and the Port of Portland was to apply to the Corps of Engineers for a crossing permit to determine what the minimum clearances to meet the Corps' requirements would be. After this is established, the Highway Commission will again meet with the Port of Portland with a concrete proposal in hand.

We have recently submitted to the Federal Aviation Agency a profile showing a clearance of 152 feet over the main channel and 40 feet over the south channel. Any increase of the 40-foot clearance would merely be an encroachment into the area which the Port of Portland desires to keep free of intrusion.

We would, therefore, ask that you proceed with action on the request for a crossing permit as outlined in our letter of January 11. We will accept the 152-foot vertical clearance and 400-foot horizontal clearance over the main channel, but would request 40-foot vertical and 186-foot horizontal clearances over the south channel.

We would request that you revise the dimensions on the drawings with the application we have on file to conform to these clearances.

Very truly yours,

Forrest Cooper
State Highway Engineer

By

Tom Edwards
Assistant State Highway Engineer

TE:ja

cc Federal Aviation Agency
Room 188, FAA Building
Boeing Field
Seattle, Washington

cc/enc. Mr. C. G. Prahl
Director of Highways
Washington State Highway Department
Highways-Licenses Building
Olympia, Washington

Mr. W. A. Bulley
District Engineer
Washington State Highway Department
4200 Main Street
Vancouver, Washington

bc Forrest Cooper
R. L. Porter
F. B. Klaboe
Victor D. Wolfe
Ivan Merchant (enc).
A. E. Johnson (enc.)

DEPARTMENT OF THE ARMY
PORTLAND DISTRICT, CORPS OF ENGINEERS
628 PITTOCK BLOCK
PORTLAND, OREGON 97205

REFERRED TO
Edwards
See me please

NPPND-WM

REFERRED TO
Admin
BY SECRETARY

13 FEB 1967

1865
FEB 14 67

info copy to [illegible] 2-14

State of Oregon
State Highway Department
Salem, Oregon 97310

Gentlemen:

Please refer to your letter of 11 January 1967 and the inclosed plans of the I-205 crossing of the Columbia River.

In developing information on the proposed crossing, this office has held preliminary talks with representatives of the FAA and the Port of Portland. It is understood there may be coordination required between your agency and the Port of Portland as to the location of the South Channel crossing. It is suggested that this coordination between two state agencies should be accomplished prior to public advertisement of your proposal by this office.

It is difficult to anticipate all of the responses of navigation interests to our public notice. However, preliminary investigation reveals that 152' (CRD) x 400' would be a good starting point for advertising on the main span. The responses to the South Channel span proposal are difficult to anticipate. It is anticipated that a 48' (CRD) clearance would probably have little opposition from commercial interests. Clearances less than that would probably bring forth varying degrees of opposition. It is noted that an upstream move of the South Channel span would probably make possible an increase of vertical clearance (over and above the 40' proposed in your letter) and still allow flexibility in the planning for future use and expansion of the Portland Airport.

Further action on your letter of 11 January 1967 will be withheld pending reply to this letter.

Sincerely yours,

RECEIVED
FEB 14 1967
OFFICE OF
STATE HIGHWAY ENGINEER

WILLIAM J. TALBOTT
Colonel, Corps of Engineers
District Engineer

RECEIVED
FEB 14 1967
OREGON
STATE HIGHWAY COMMISSION

Copy furnished:
Federal Aviation Agency
Rm 108, FAA Bldg.
Boeing Field
Seattle, Washington 98108

8705

FORM E-123

COMMISSIONERS
GLENN L. JACKSON, CHAIRMAN
MEDFORD
KENNETH N. FRIDLEY, MEMBER
WASCO
DAVID B. SIMPSON, MEMBER
PORTLAND
FLOYD QUERY, SECRETARY
SALEM

RECEIVED
JAN 13 1967
FOR FILING

STATE OF OREGON
STATE HIGHWAY DEPARTMENT
SALEM 97310

FORREST COOPER
STATE HIGHWAY ENGINEER
R. L. PORTER
DEPUTY STATE HWY. ENGR.
G. E. ROHDE
CHIEF COUNSEL

January 11, 1967

The District Engineer
Corps of Engineers
U.S. Army
628 Pittock Block
Portland 5, Oregon

Dear Sir:

Application is hereby made by the State Highway Department of the State of Oregon at Salem, Oregon, for approval by the Chief of Engineers and the Secretary of the Army of plans of a bridge to be constructed across the Columbia River immediately east of the Town of Vancouver, Washington, and the easterly part of Portland, Oregon, 112.7 miles above the mouth of the waterway. The original tracings and four prints are enclosed herewith.

NOTED
F.B. KLABOE

Legal authority for the structures is found in the General Bridge Act of 1946. Enclosed herewith, is a copy of authorization from the Secretary of the State Highway Department, including excerpts from the Highway Commission meeting authorizing this construction.

Reference to Sheet 2 of the enclosed drawings, will indicate the proximity of the proposed structure to the Portland International Airport and more particularly, to Runway 28R which is parallel to and immediately south of N.E. Marine Drive. Because of the location with respect to the International Airport, air navigation clearances as well as navigation clearances are critical. To provide the maximum clearance below the instrument landing glide surface for Runway 28R, the south end of the structure has been lowered to the greatest possible extent and will cross over N.E. Marine Drive approximately two feet above the existing surface. This, of necessity, limits the vertical clearance in the small craft channel parallel to N.E. Marine Drive and which vertical clearance is indicated on Sheet 4 as 40' above Columbia River datum.

Your attention is called to the horizontal clearances shown on Sheet 4 of 120' perpendicular to the small craft channel and 186' parallel to the bridge center line. These clearances are shown as there is no well-defined stable deep water channel for commercial navigation because of filling actions due to river flow.

Sheet 4 of 4 indicates a minimum vertical clearance of 135' above mean low water datum at the south edge of the main 300' navigation channel. The clearance above the same datum is 140' at the channel center line because of the proposed girder configuration. The structure, as indicated with the 135' of vertical clearance, encroaches on the "horizontal surface" as established by the FAA. However, due to surrounding terrain, this encroachment is not considered serious by air navigation interests. Any further increase in vertical clearance over the 135', however, could become objectionable to the air navigation interests.

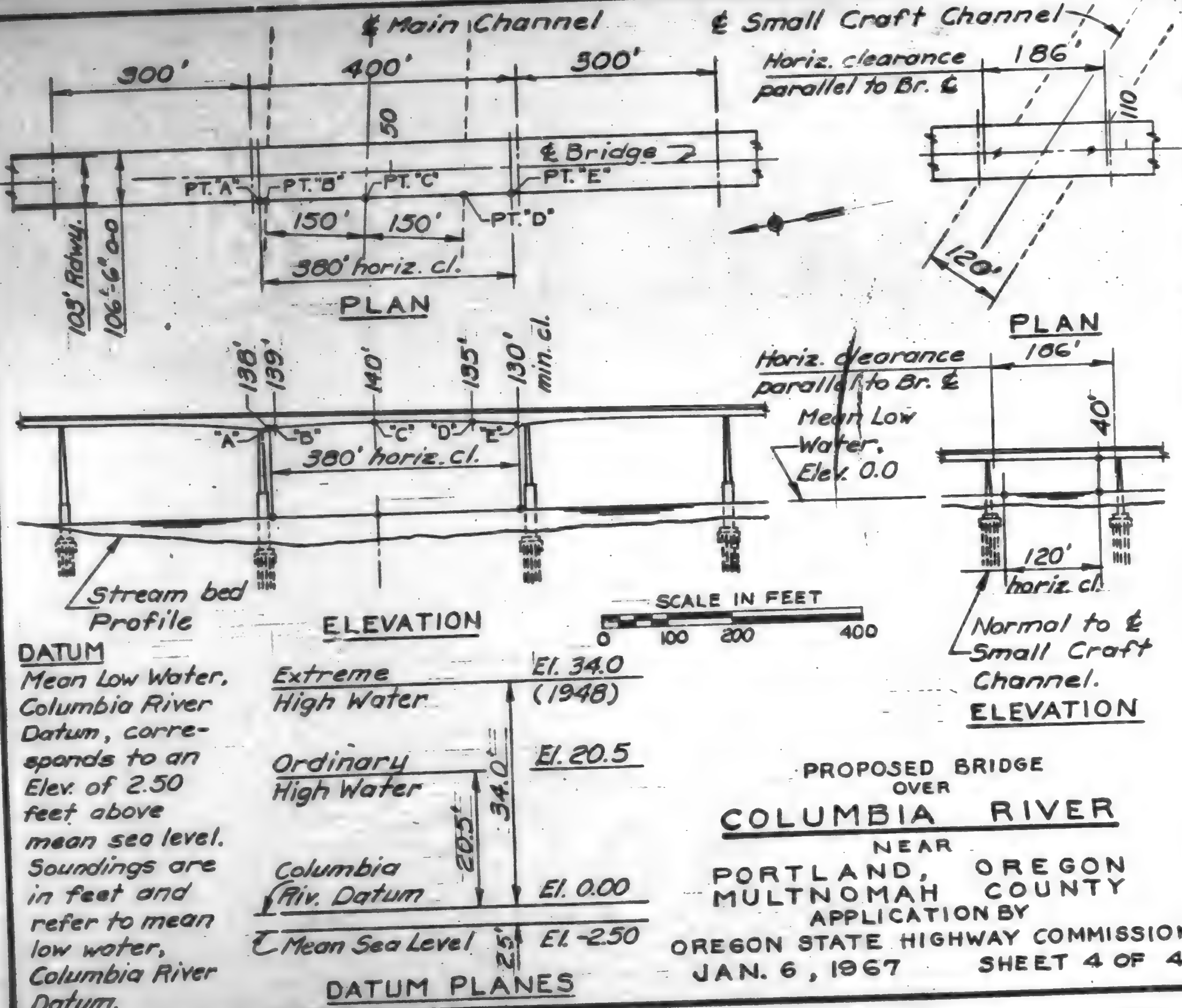
The State Highway Department submits the enclosed drawings with horizontal and vertical clearances which it believes, is a fair compromise between water and air navigation interests and desires your approval of the proposed construction.

Very truly yours,

Ivan D. Merchant
Bridge Engineer

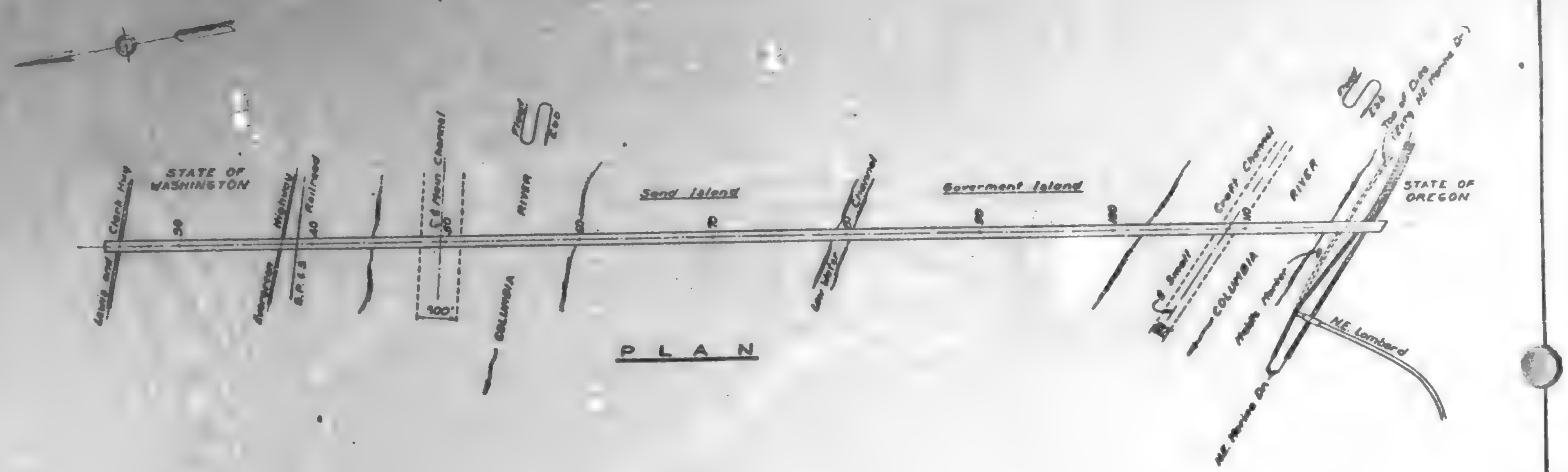
IDM:mb
Encls.
cc: Forrest Cooper (w/4 att.)
R. L. Porter (w/4 att.)
Tom Edwards (w/4 att.)
F. B. Klaboe (w/4 att.)
A. E. Johnson (w/4 att.)
C. G. Prahl, Dir. of Hwys. Highways-Licenses Bldg., Olympia (w/4 att.)
W. A. Bulley, Dist. Engr., 4200 Main St., Vancouver, Wash. (w/4 att.)

RECEIVED
JAN 12 1967
OFFICE
STATE HIGHWAY ENGINEER

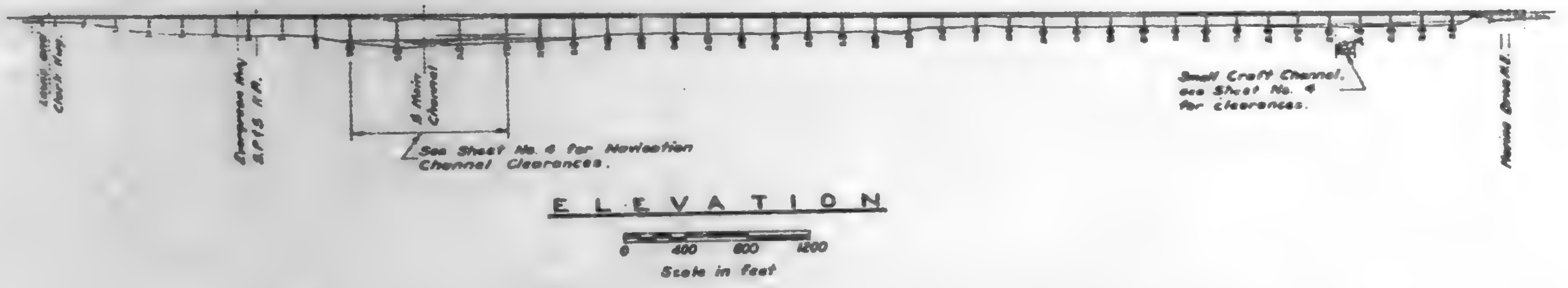

℄ Main Channel
300'
400'
300'
50
℄ Bridge
PT. "A"
PT. "B"
PT. "C"
PT. "D"
PT. "E"
150'
150'
380' horiz. cl.
103' Rdwy.
106'-6" o-o
PLAN
138'
139'
140'
135'
130' min. cl.
"A"
"B"
"C"
"D"
"E"
380' horiz. cl.
Stream bed Profile
ELEVATION
℄ Small Craft Channel
Horiz. clearance parallel to Br. ℄
186'
110
120'
PLAN
Horiz. clearance parallel to Br. ℄
186'
40'
Mean Low Water, Elev. 0.0
120' horiz. cl.
Normal to ℄ Small Craft Channel.
ELEVATION
SCALE IN FEET
0
100
200
400
Extreme High Water
El. 34.0 (1948)
Ordinary High Water
El. 20.5
Columbia Riv. Datum
El. 0.00
Mean Sea Level
El. -2.50
34.0'
20.5'
2.5'
DATUM PLANES

DATUM
Mean Low Water, Columbia River Datum, corresponds to an Elev. of 2.50 feet above mean sea level. Soundings are in feet and refer to mean low water, Columbia River Datum.

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY COMMISSION
JAN. 6, 1967 SHEET 4 OF 4

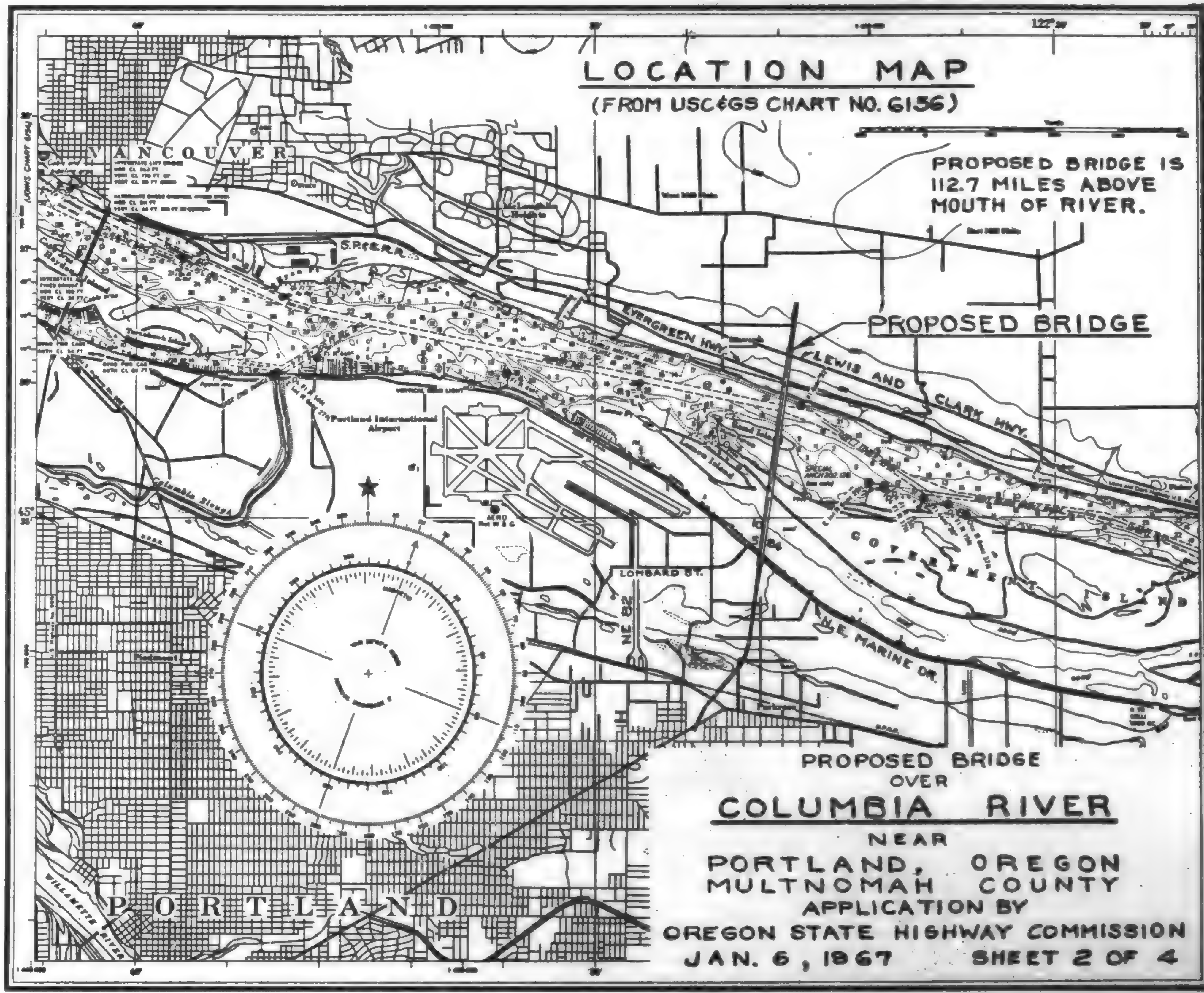

STATE OF WASHINGTON
Lewis and Clark Hwy
30
Evergreen Highway
S.P.& S. 40 Railroad
℄ Main Channel
50
400'
Flood Zoo
RIVER
COLUMBIA
60
Sand Island
Low Water Channel
Goverment Island
Small Craft Channel
COLUMBIA
RIVER
Marine Harbor
Flood Zoo
Toe of Dike (Exist. NE Marine Dr.)
STATE OF OREGON
NE Marine Dr.
N.E. Lombard

P L A N


Lewis and Clark Hwy
Evergreen Hwy S.P.& S. R.R.
℄ Main Channel
See Sheet No. 4 for Navigation Channel Clearances.
Small Craft Channel, see Sheet No. 4 for clearances.
Marine Drive N.E.
0
400
800
1200
Scale in Feet

E L E V A T I O N

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY COMMISSION
JAN. 6, 1967 SHEET 3 OF 4


VANCOUVER
PORTLAND
S.P.&S.R.R.
EVERGREEN HWY.
LEWIS AND CLARK HWY.
Portland International Airport
LOMBARD ST.
NE 82
N.E. MARINE DR.
GOVERNMENT ISLAND
Columbia Slough
WILLAMETTE RIVER
122°30'

LOCATION MAP

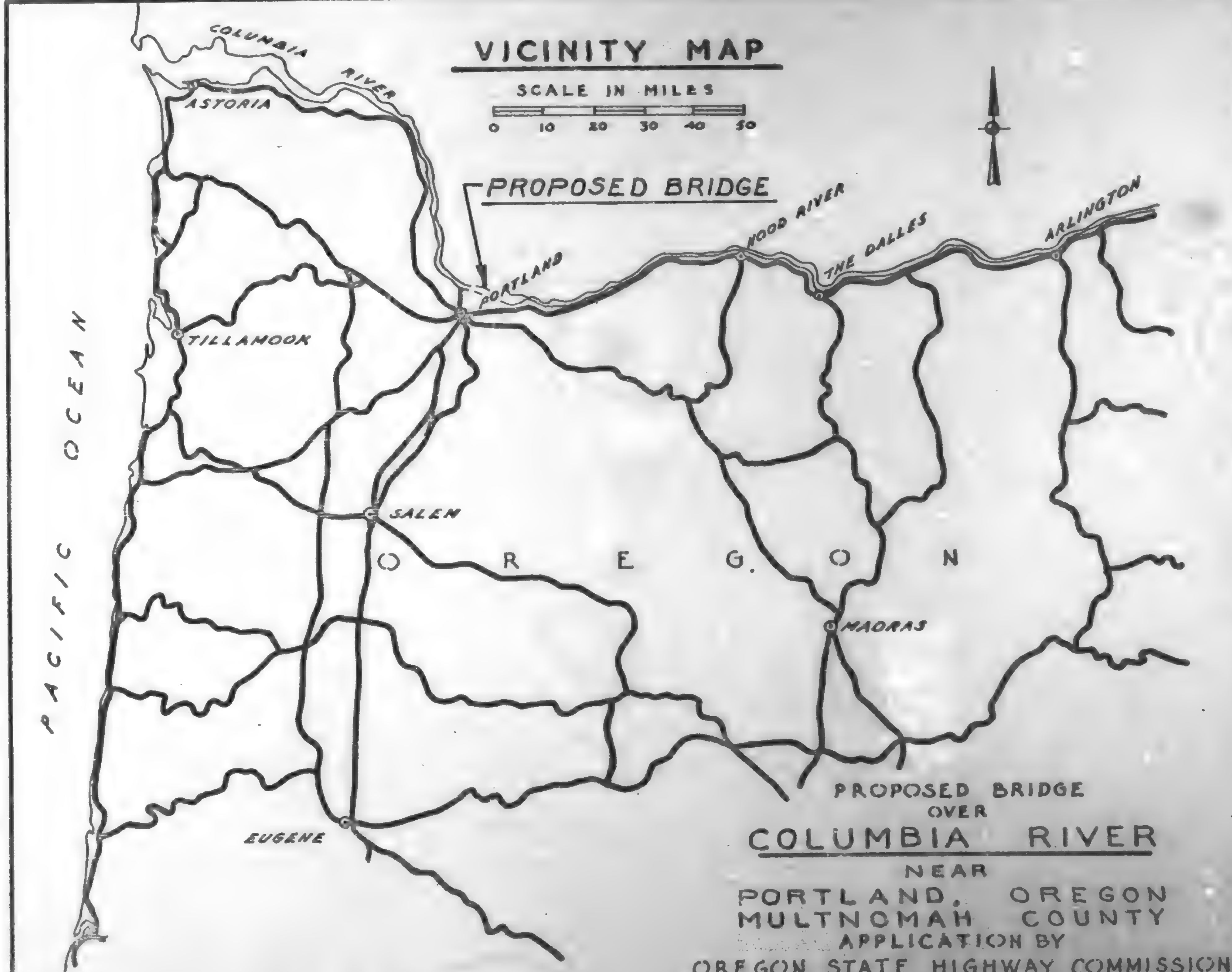
(FROM USC&GS CHART NO. 6156)

PROPOSED BRIDGE IS
112.7 MILES ABOVE
MOUTH OF RIVER.

PROPOSED BRIDGE

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY COMMISSION
JAN. 6, 1967 SHEET 2 OF 4

FILE COPY BR. # 9555


VICINITY MAP
SCALE IN MILES
0 10 20 30 40 50
PROPOSED BRIDGE
PACIFIC OCEAN
COLUMBIA RIVER
ASTORIA
TILLAMOOK
PORTLAND
HOOD RIVER
THE DALLES
ARLINGTON
SALEM
OREGON
MADRAS
EUGENE

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY COMMISSION
JAN. 6, 1967 SHEET 1 OF 4

1979 Auburn Ave. & Wash. Ave. 8906
(Baker) Sec. of FAU 4860 & 4890
(Paving)

89C6

Form 734-1191 (Rev. 5/77)

OREGON STATE
HIGHWAY DIVISION

REQUEST FOR OUTSIDE BILLING

(OR ADVICE OF CASH TRANSACTION)

DATE	BILLING REQ. NO.	YOUR ORDER NO.
5-28-81	81-29	

CREDIT DISTRIBUTION

301-1955-295	$ 78.26
334-1034-295	$1,517.53

BILL TO: Code:

City of Baker
City Hall
Baker, Oregon 97814
ATTN: Roger L. Bennett, City Manager

DESCRIPTION: (Describe the service rendered, location, etc. Refer to agreements, letters and orders by which payer authorized the service.)	QUANTITY	UNIT PRICE	TOTAL PRICE
FINAL BILLING Per Attached Itemized Statement: Federal Aid Urban Project M-0000(9) Auburn Avenue and Washington Avenue Baker County Agreement No. 6773 Contract No. 8906			
TOTAL COST			$58,180.14
Less Federal Funds			45,440.92
Less State Share			6,343.43
City Share			6,395.79
City's Advance Deposit			6,000.00
(Please attach Itemized Statement to Invoice)			

Advance Deposit Amount	$ 6,000.00
Advance Deposit Previously Transferred to Highway Fund	$ 4,800.00
Balance	$ 1,200.00
Transfer to Highway Fund	$ 1,200.00
Refund Due	$ - - -
Partial or final request for billing	FINAL
Number of the previous request in connection with this service.	CC-1995

Amount Due . . . . . . $ 395.79

Submitted by: Gary E. Zehner
Gary E. Zehner

Approved: D E Swan
D. E. Swan

SP*35736-734

3906

OREGON STATE HIGHWAY DIVISION

FORM 81-734-1190

HIGHWAY DIVISION INVOICE

NO. 132066

DATE	BILLING REQ. NO.	YOUR ORDER NO.
6-24-81	CC 81-29	

CREDIT DISTRIBUTION

	78,26
	1517.53
301-1001-296-00-000	395.79
301-1001-297-00-000	(395.79)

BAKERCY

City of Baker
City Hall
Baker, Or 97814
Attn: Roger L. Bennett, City Manager

MAKE CHECKS PAYABLE TO
THE OREGON STATE HIGHWAY DIVISION
SEND REMITTANCE TO:
OREGON STATE HIGHWAY DIVISION
TRANSPORTATION BUILDING
SALEM, OREGON 97310

DESCRIPTION	QUANTITY	UNIT PRICE	TOTAL PRICE
Federal Aid Urban project M-0000(9) Auburn Avenue and Washington Avenue Baker County Agreement No. 6773 Contract No. 8806			
Total Cost			$58,180.14
Less Federal Funds			45,440.92
Less State Share			6,343.43
City Share			6,395.79
City's Advance Deposit			6,000.00
Amount Due			$ 395.79
Final billing per attached itemized statement			G

OREGON STATE HIGHWAY DIVISION

ITEMIZED STATEMENT OF FINAL COSTS **DATE:** 5-28-81

CITY BAKER **Contract No.** 8906 **Date Completed** 10-12-79

PROJECT # M-0000(9) **Section** Auburn Ave. and Washington Ave.

PAYMENTS TO CONTRACTOR

ITEM		TOTAL COST
Preliminary Engineering		$ 678.78
Payment to Contractor		55,682.35
Construction Engineering		1,566.28
Interest Paid Contractor		47.60
Project Management		64.53
Specifications		140.60
TOTAL COST		$58,180.14
Less Federal Funds		45,440.92
BALANCE		$12,739.22
Less Non-Participating Costs:		
Preliminary Engineering	$ 4.76	
Interest Paid Contractor	47.60	
Construction Engineering	11.76	64.12
AMOUNT TO BE SHARE BY STATE & CITY		$12,675.10

State Share: 50% of $12,675.10 + $11.76) = $6,343.43

City Share: 50% of $12,675.10 + ($64.12 - $5.88) = $6,395.79

Reference: Billing Form 81-29

(MEMORANDUM)

FORM APPROVED BY
COMPTROLLER GENERAL,
U.S. MAY 12, 1966

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

STATE VOUCHER NO.

VOUCHER FOR WORK PERFORMED UNDER PROVISIONS OF THE FEDERAL AID AND FEDERAL HIGHWAY ACTS, AS AMENDED

FHWA VOUCHER NO.

APPROPRIATION

FHWA SCHEDULE NO.

THE UNITED STATES, DR., TO *(Insert official or depositary named in project agreement)*

Treasurer of the State of Oregon

ADDRESS

Capitol Bldg.
Salem, OR 97310

PAID BY

(For use of Paying Office)

STATE

Oregon

VOUCHER TYPE *(Check Appropriate Block)*

☐ CURRENT BILLING

☐ OTHER PROGRESS

☒ FINAL VOUCHER (*)

VOUCHER PERIOD

FROM 10-17-78

TO 8-11-80

FEDERAL AID PROJECT NO. M-0000(9)

(*) Use Form FHWA-1447 for Final Voucher for a project constructed under certification acceptance or secondary road procedures (23 U.S.C. 117).

TOTAL ACTUAL COST	TOTAL PARTICIPATING COST	PRO-RATA OF PARTICIPATING COST CLAIMED FROM U.S.	TOTAL AMOUNT CLAIMED FROM U.S.	LESS PREVIOUS PAYMENTS	NET AMOUNT CLAIMED
$58,166.38	$58,116.02	78.19%	$45,440.92	$45,440.92	$ 0.00

RECEIVED DIVISION OFFICE	DIVISION OFFICE REVIEW MADE	PASSED FOR PAYMENT
BY DATE	BY DATE	BY DATE

REMARKS Oregon 3/15/81 V.E. Skoog, Controller

$ 0.00

FORM PR-20A
(Rev. 5-70)

PREVIOUS EDITIONS ARE OBSOLETE

STATEMENT OF COSTS INCURRED UNDER PROJECT AGREEMENT

ITEM NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT	NOTATIONS (Payee must not use this column)
	Auburn Ave. and Washington Ave. (Baker) Section City Streets in Baker, Baker County					
	Preliminary Engineering Type Code P.E. State	All Required			$ 674.02	
	Construction Type Code 6106 Roadway (Wash. Ave., Sta. 0+72 To Sta. 6+12)(Auburn Ave. Sta. 0+32 To Sta. 14+52) Final Contract Payment Summary	All Required			55,682.35	
	Construction Engineering State	All Required			1,759.65	
	Total Participating Project Cost				$58,116.02	
	Nonparticipating Cost Interest on Final Payment	All Required			47.60	
	Preliminary Engineering	All Required			4.76	
	Total Nonparticipating Cost				$ 52.36	
	Total Project Cost				$58,168.38	
	Prepared based on Participating Costs as shown on Federal Billing as of 2/29/81					
	AMOUNT CARRIED FORWARD					

```
                                     301   1951   9[illegible]   00 P 1                                          [illegible]
                                     301   1951   905    00 P 1                                          123.49
                                     301   1951   905    00 M 1                                          268.38
                                     301   1951   920    00 P 1                                           [illegible].50
                                     301   1951   921    00 M 1                                          554.28
                                     301   1951   922    00 P 1                          .30CR             19.68
                                     301   1951   922    00 M 1                          .30                 .30
                                                  TOT       P1                          .30CR           9,181.67
                                                  TOT       M1                          .30             1,914.86
                                              ** JOB TOTALS **           **           **           11,096.53  **

OAK BALM BIRCH STS          CONT NO      X FA PROJ NHS H    000000 1A0                                          STATE
                                     301   1955   296    00 M 9                          .21CR            527.02CR
                                     301   1955   298    00 M 9                          .21              527.02
                                     301   1955   901    00 P 1                                            21.18
                                     301   1955   905    00 P 1                                           249.08
                                     301   1955   910    00 P 1                                            59.12
                                     301   1955   911    00 P 1                                            83.96
                                     301   1955   914    00 P 1                                             3.20
                                     301   1955   920    00 P 1                                            95.11
                                     301   1955   921    00 P 1                                           165.80
                                     301   1955   922    00 P 1                                            22.92
                                     301   1955   922    00 M 1                                             4.76
                                     301   1955   923    00 P 1                                            12.17
                                                  TOT       P1                                           674.02
                                                  TOT       M1                                             4.76
                                              ** JOB TOTALS **           **           **              678.78  **

POWDER RIV DR BROOKY ST     CONT NO      X FA PROJ NHS SOS 103001 1B0                                          STATE
                                     301   1959   295    00 M 9                                            440.00
                                     301   1959   296    00 M 9       305.79          5,359.76CR         9,939.76CR
                                     301   1959   298    00 M 9       305.79CR        5,359.76           9,499.76

TOTAL TO DATE JOB COST SUMMARY                                                   APRIL 1981         PAGE  721
                                                                                    FISCAL           GRAND TOTAL
DESCRIPTION OF JOB OR DEPARTMENT      PREFIX        FUNCTION   GR   CURRENT MONTH   YEAR TO DATE        TO DATE
                                     301   1959   901    00 P 1                         229.25          [illegible]
                                     301   1959   901    00 M 1                                          [illegible]
                                     301   1959   905    00 P 1                         [illegible]     [illegible]
                                     301   1959   906    00 P 1                       1,[illegible]     1,[illegible]
                                     301   1959   915    00 P 1                         [illegible]     [illegible]
                                     301   1959   918    00 P 1                         [illegible]     [illegible]
                                     301   1959   920    00 P 1                         [illegible]     [illegible]
                                     301   1959   92[illegible]    00 P 1                         [illegible]     [illegible]
                                     301   1959   92[illegible]    00 P 1                         [illegible]     [illegible]
                                     301   1959   92[illegible]    00 P 1                         [illegible]     [illegible]
                                     301   1959   92[illegible]    00 P 1                         [illegible]     [illegible]
                                     301   1959   92[illegible]    00 P 1                            [illegible].31     1,[illegible]
                                     301   1959   92[illegible]    00 P 1                         [illegible]     [illegible]
                                     301   1959   92[illegible]    00 M 1                            [illegible]     [illegible]
                                                  TOT       P1                        [illegible].33     10,[illegible].67
```

```
                                  TOT       P1                                                    7,711.85
                                  TOT       N1                                                      377.46
                              ** JOB TOTALS **               **                    **             8,089.31  **

DIST 5 WARNING SIGNS      CONT NO      ≠ FA PROJ NOS SRS 00S099 100                                          STATE
                              237    1052      270      01 P 1                                    1,219.27    77    78
                              237    1052      276      01 P 1                                   22,031.66    77    78
                              237    1052      296      00 N 9                   2,368.32CR      23,607.27CR  77    81
                              237    1052      298      00 N 9                                   21,238.95    77    79
                              237    1052      299      00 N 9                   2,368.32         2,368.32    81    81
                              237    1052      900      00 P 1                                      347.90    76    78
                              237    1052      900      00 N 1                                        8.44    80    80
                                  TOT       P1                                                   23,598.83
                                  TOT       N1                                                        8.44
                              ** JOB TOTALS **               **                    **            23,607.27  **

AUBURN AVE-WASH AVE       CONT NO 8906 ≠ FA PROJ NOS M    000009 100                                         STATE
                              301    1001      201      00 P 1 Cont Pay.                         55,682.35 ✓  79    80
                              301    1001      206      00 N 1 Int.                                  47.60 ✓  80    80
                              301    1001      295      00 N 9 Tr. City                           4,800.00 ✓  79    79
                              301    1001      296      00 N 9 " St.           2,064.27          49,713.90CR ✓ 79   81
                              301    1001      298      00 N 9 " Fed           2,064.27CR        44,913.90 ✓  79    81
                              301    1001      900      00 P 1 Const. Engr.       12.26           1,554.52 ✓  79    81
                              301    1001      900      10 P 1 "      "             .78CR                     79    81
                              301    1001      920      00 P 1 P.M                                   64.53 ✓  79    79
                              301    1001      921      00 P 1 Specs.                               140.60 ✓  79    79
                              301    1001      948      00 N 1 Const Engr 11.76      11.76             11.76 ✓  81    81
                                  TOT       P1                            11.48                  57,442.00
                                  TOT       N1              11.76         11.76                      59.36
                              ** JOB TOTALS **              11.76  **     23.24        **        57,501.36  **

UPRR XING-LAGRANDE/BAKER  CONT NO 9139   FA PROJ NOS M    950001 100                                         STATE
                              301    1004      201      00 P 1                    64,204.99      64,204.99    80    81
                              301    1004      270      01 P 1                       715.50         715.50    80    80
                              301    1004      294      02 N 1                       101.34CR       101.34CR  81    81
                              301    1004      295      00 N 9                     5,200.00       5,200.00    81    81
                              301    1004      296      00 N 9     14.89CR        61,503.63CR    61,503.63CR  80    81
                              301    1004      298      00 N 9     14.89          56,303.63      56,303.63    80    81
                              301    1004      900      00 P 1                     2,599.29       2,680.81    80    81
                              301    1004      900      02 P 1                     1,113.64       1,113.64    81    81
                              301    1004      920      00 P 1                        68.85          97.70    80    80




TOTAL TO DATE JOB COST SUMMARY                                              APRIL 1981        PAGE  172

                                                                              FISCAL          GRAND TOTAL      ACTIVE YRS
DESCRIPTION OF JOB OR DEPARTMENT     PREFIX       FUNCTION   OR  CURRENT MONTH   YEAR TO DATE      TO DATE        BEG   END
                              301    1004      945      00 P 1                        11.94          11.94    81    81
                              301    1004      948      00 P 1                         6.26           6.26    81    81
                                  TOT       P1                                    68,720.47      68,830.99
                                  TOT       N1                                       101.3          101.3
```

U.S. GOVERNMENT PRINTING OFFICE: 1974 — 731-676

cc: State (H S Coulter)

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

FINAL INSPECTION AND
FINAL ACCEPTANCE REPORT

8966

8-11-80

REGION NO. 10	REPORT NO. 1	COUNTY Baker	DIVISION Oregon
DATE OF REPORT 8-7-80	REPORT MADE BY David B. Carter, Area Engineer		PROJECT NO. M-0000(9)
COMPLETION DATE 10-12-79	ACCEPTANCE DATE BY CONTRACT AGENCY 1-22-80	TIME ELAPSED 5 %	CONTRACT TIME 60 calendar days
APPROVED EXTENSIONS None	LOCATION City streets, City of Baker, Baker County, Oregon		

*The PR-47, Statement of Materials and Labor Used by Contractors on Highway Construction Involving Federal Funds, has been submitted.

*A copy of the State's materials certificate is attached to the Division office copy of this report.

There is compliance with section 1.23 of the Regulations pertaining to encroachments on the right-of-way.

REMARKS: *The project has been completed in reasonably close conformity with the approved plans and specifications including authorized changes and extra work.*

RECEIVED
STATE HWY ENGR
AUG 15 '80
REFER TO
FOR
Info | Inves | ... | ... | ... | Act.

AUBURN AVE. & WASHINGTON AVE. (BAKER) SECTION
FAU-4860 & FAU-4890
Paving

This project provided for the paving of approximately 0.4 miles of City streets in Baker, Oregon. The City had previously reconstructed the roadbed, placed concrete curbing and constructed any required drainage facilities.

The project was awarded on April 23, 1979 in the amount of $58,265.00 to Baker Redi-Mix, Inc., of East "H" Street, Baker, Oregon 97814. Sixty calendar days were allotted to do the work. Contract time began on May 4, 1979.

The City of Baker experienced some delay in completing their portion of the work on schedule. Therefore, the contractor was delayed somewhat in beginning the work included under the contract. The count of time was suspended during the delay period. The time count was resumed on October 10, 1979 and the contractor completed the project on Octer 12, 1979.

8-18-80
Copies to:
W. E. [illegible]
J. J. Schlieski
Robert [illegible]
[illegible]
Don [illegible]
O. F. [illegible]

A final inspection of the completed work was made on January 16, 1980 in company with J. Schlieski, Resident Engineer, OSHD. The final amount of the original contract items was $56,548.54 or a 2.9 percent underrun of the bid price. The final cost of the project including engineering and all changes was $57,898.52. The project authorization was $66,713.43. All participating work has been completed.

*NOTE: Not applicable for direct federal projects.

ACCEPTANCE OF PROJECT IS RECOMMENDED		ACCEPTED BY FEDERAL HIGHWAY ADMINISTRATION	
SIGNATURE Original Signed by D. B. Carter Area Engr David B. Carter		SIGNATURE Original Signed By G. K. HOSSNER Field Operations Engineer G. K. Hossner	
TITLE Area Engineer	DATE 8-11-80	TITLE Field Operations Engineer	DATE 8-11-80

FORM FHWA-1446 B (12-73) FORMERLY PR-33E

Previous Editions of PR-33E Will Not Be Used.

1706.

REPORT OF ACTION UNDER DELEGATED AUTHORITY BY

STATE HIGHWAY ENGINEER

2-6-80

On behalf of the Commission and under authority delegated to me to accept contracts completed according to specifications, I accepted the following:

Contractor and Contract No.	Section and County	Acceptance Date
Superior Asphalt & Concrete Co., No. 8925	Lone Rock Jct.-Rock Creek, Gilliam County	January 3, 1980
Superior Asphalt & Concrete Co., No. 8953	Shaniko-The Dalles/Calif. Hwy., Wasco County	January 3, 1980
M & F Building, No. 8968	Brookings (Wharf St.), Curry County	January 7, 1980
St. Helens Paving, Inc., No. 8984	Columbia County Line-Buxton, Washington Co.	January 7, 1980
Willamette-Western Corp., No. 8788	Monitor Road Junction Project, Marion County	January 9, 1980
North Santiam Paving Co., No. 9010	Shaff Rd.-W. Washington St. (Stayton), Marion Co.	January 14, 1980
Ausland Const., Inc. No. 8845	Grandview Ave. @ Cloverlawn Dr. (Grants Pass Vicinity) Josephine County	January 14, 1980
Bomac Construction, Inc., No. 8876	Jantzen Beach Information Center, Multnomah County	January 17, 1980
Don Haisch Const. Co., No. 8988	Jantzen Beach Information Center, Multnomah County	January 17, 1980
North Santiam Sand & Gravel, Inc., No. 8885	Power Line-China Hollow Creek, Sherman County	January 18, 1980

Contractor and Contract No.	Section and County	Acceptance Date
Ross Bros. Construction, No. 8726	Upper Calapooia River Bridge, Linn County	January 22, 1980
Baker Redi-Mix, Inc., No. 8906	Auburn Ave. & Washington Ave. (Baker), Baker County	January 22, 1980
R. L. Coats, No. 8926	Madras/Prineville Hwy.-Culver Hwy., Jefferson Co.	January 23, 1980
Olson Electric Co., Inc., No. 8792	Hermiston Ave. @ SW Highland Ave. (Hermiston), Umatilla County	January 24, 1980
Morse Bros., Inc., No. 8833	6th, 8th & Quincy Sts. (Harrisburg), Linn County	January 30, 1980
Babler Bros., Inc., No. 8863	Del Rey Beach Access Rd.-Neawanna Creek, Clatsop County	January 30, 1980
Columbia West Matls. & Constructors, No. 8967	D St. - F St. (Rainier), Columbia County	January 30, 1980
Roy L. Houck Const. Co., No. 8796	Millican Creek (Lafayette), Yamhill County	January 30, 1980
Porter W. Yett Co., No. 8996	Troutdale (SW 7th St.), Multnomah County	January 30, 1980
Gervais Construction Co., No. 8807	Lone Tree Bar State Park, Marion and Yamhill Counties	February 5, 1980

February 6, 1980

H. S. Coulter, State Highway Engineer

x106

January 28, 1980

Seaboard Surety Company
Seattle First National Bank Building
1001 4th Avenue
Seattle, WA 98154

CON 3
Contract #8906

Gentlemen:

On January 14, 1980, we wrote to you concerning release of final payment on Contract No. 8906 awarded to Baker Redi-Mix, Inc. for paving on Auburn Avenue and Washington Avenue in Baker in Baker County.

Final payment on this contract is $2,799.66 and the total contract amount is $55,682.35. No work was performed under force account.

Sincerely,

Robert W. Gormsen
COMMISSION SERVICES

dmc

cc: Baker Redi-Mix, Inc.
East "H" Street
Baker, OR 97814

bc: C. T. Keasey
Walt Hart
W. E. Schwartz

8906

Baker
City

Road Design Section 378-6558

Joseph A. Schlieski
Resident Engineer
Fred Eriksen
Fred Eriksen
Design Engineer Supervisor

December 7, 1979

Auburn Ave.-Washington Ave. (Baker)
City Streets
Baker County

The "as constructed narrative" covered a couple of problems during the construction that were interesting. One was an unexpected delay on the City's part in performing the grading, drainage and curbs. If the contractor had not been local, this could have been a bigger problem.

The other problem was inspection. The City had indicated a desire to provide their own inspection. Until such time as their inspectors are properly certified this is not possible.

FE:ab
cc: W. E. Schwartz

#8906

2

STATE OF OREGON 1859
VICTOR ATIYEH
GOVERNOR

Department of Transportation
STATE HIGHWAY DIVISION

In Reply Refer to
File No.: CON 5

Routed
H. S. COULTER

RECEIVED
STATE HWY ENGR
JAN 25 '80
REFER TO
FOR
Info Inves R/D D/R Sign Act File ✓

DATE: November 5, 1979

TO: G. L. Green, Division Administrator
Federal Highway Administration

FROM: C. T. Keasey
Ass't. State Highway Engineer

SUBJECT: Request Contract Acceptance
Federal-aid Project No. M-0000(9)

Contract 8906, Work Completed October 12, 1979
Project Auburn Ave. & Washington Ave. (Baker)
Highway FAU 4860 & 4890 (City Streets)
County Baker

We request that your office return a signed copy of this letter indicating acceptance or list conditions which would prevent your final acceptance of the contract work.

Acceptance Date January 16, 1980

for G. L. Green
Division Administrator

RDC:mk

cc: H. S. Coulter
✓C. T. Keasey
W. E. Schwartz
R. D. Church

RECEIVED
JAN 23 1980
CONSTRUCTION
BRANCH
Keasey
Jackmond
Hopkins
Williams
Johnson
Glenn
Richards
Berg
Inloes
Widmer
Gebauer
Church

8906

Report # 3 Final

FORM 81-734-3001

OREGON STATE HIGHWAY DIVISION

FIELD ENGINEER'S WEEKLY REPORT

FOR CONSTRUCTION PROJECTS ONLY
CONSTRUCTION AND BRIDGE SECTION

SECTION: Auburn Ave. & Washington Ave. (Baker)

WEEK ENDING: October 12, 1979

SECTION PREFIX: 301-1001

HIGHWAY: FAU 4860 & 4890 (City St.)

COUNTY: Baker

NAME OF JOB: Auburn Ave. & Washington Ave. (Baker)

KIND OF WORK: Paving

CONTRACTOR: Baker Redi-Mix, Inc.

CONTRACT NUMBER: 8906

FEDERAL AID PROJECT NUMBER: M-0000(9)

DATE OF CONTRACT: April 23, 1979

DATE WORK STARTED: Oct. 10, 1979

ESTIMATED COMPLETION DATE: 10-79

AVERAGE FORCE ON PROJECT FOR THE WEEK: MEN: 8 SUPERVISION: 1

SPECIFIED WORK DAYS:

WORK DAYS USED:

SPECIFIED CALENDAR DAYS: 60

CALENDAR DAYS USED: 3

SPECIFIED COMPLETION DATE:

PERCENT OF TIME ELAPSED: 3

PROJECT AUTHORIZATION: $ 66,713.43

PERCENT OF CONTRACT COMPLETED BASED ON ESTIMATED COST: 93

EXCLUSIVE OF ENGINEERING: $ 60,886.93

ENGINEERING AUTHORIZATION: $ 5,826.50

PERCENT OF CONTRACT COMPLETED BASED ON TOTAL AUTHORIZATION: 82

ESTIMATED COST OF COMPLETED PROJECT, EXCLUSIVE OF ENGINEERING: $ 60,886.93

ENGINEERING COST TO DATE: $ 734.44

DATE PROJECT WAS COMPLETED: Oct. 12, 1979

ESTIMATED PERCENT: OVERRUN UNDERRUN 0 %

PERCENT OF AUTHORIZATION: 13 %

ESTIMATED PERCENT COMPLETE (ROADWORK)

CLEARING	DRAINAGE	GRADING	BASE	OIL AND/OR PAVE.	MAT'L. PROD.		

	GRADING	SURFACING	MAINTENANCE MATERIALS	OIL & BITUMINOUS MACADAM	PAVING
MILES IN PROJECT					0.4
MILES PARTIALLY COMPLETED					
MILES COMPLETED					
TOTAL ESTIMATED QUANTITIES (CONTRACT)					2710
TOTAL QUANTITIES CORRECTED TO DATE					2710
ESTIMATED QUANTITIES MOVED OR PLACED TO DATE					2400
AVERAGE DAILY QUANTITIES					900
AVERAGE DAILY QUANTITIES NECESSARY TO COMPLETE PROJECT ON TIME					
NUMBER OF SHIFTS PER DAY					1
HOURS PER SHIFT					

EQUIPMENT USED DURING THE WEEK:

Paver, roller

ESTIMATED PERCENT COMPLETE (STRUCTURES)

BRIDGE NO.								
PERCENT								

		WEATHER	WORK DAYS CHARGED	HOURS DELAY	CAUSE OF DELAY
SUNDAY	7	Clear, hot	0		
MONDAY	8	Clear, hot	0		
TUESDAY	9	Clear, hot	0		
WEDNESDAY	10	Clear, warm	1		Calendar day count resumed
THURSDAY	11	Clear, warm	1		
FRIDAY	12	Clear, warm	1		Suspension of calendar day count
SATURDAY	6	Clear, hot	0		Effective 5-4-79

RECEIVED
OCT 15 1979
CONSTRUCTION
BRANCH

Kessey K
Jackmond
Hopkins
Williams
Johnsen
Glenn
Richards
Berg
Inloes
Widmer
Gebauer
Church

GENERAL DESCRIPTION OF ACTIVITIES FOR THE WEEK

7 SUNDAY	No activity
8 MONDAY	No activity
9 TUESDAY	No activity
10 WEDNESDAY	Paved Washington & Auburn (First course)
11 THURSDAY	Paving continued on Washington & Auburn
12 FRIDAY	Paving conpleted.
6 SATURDAY	No activity

REMARKS

Status: Paving completed.

Semi-final records will be submitted on or before 10-22-79.

SIGNED Joseph A. Schlieski LOCATION La Grande
Joseph A. Schlieski

PRIME RESIDENT SUBMIT 2 COPIES. WHEN BRIDGES AND GRADING BOTH ARE INVOLVED, SUBMIT 3 COPIES.

SP-7216

-8906

STATE COPY

9

OMB No. 04-R2089

TO BE COMPLETED BY FHWA MONTHLY TRANSACTION NO. 5-156	U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION FEDERAL-AID PROJECT AGREEMENT 5-14-79	Oregon County Baker Project No. M-0000(9)

The State, through its Highway Agency, having complied, or hereby agreeing to comply, with the applicable terms and conditions set forth in (1) Title 23, U.S. Code, Highways, (2) the Regulations issued pursuant thereto and, (3) the policies and procedures promulgated by the Federal Highway Administrator relative to the above designated project, and the Federal Highway Administration having authorized certain work to proceed as evidenced by the date entered opposite the specific item of work, Federal funds are obligated for the project not to exceed the amount shown herein, the balance of the estimated total cost being an obligation of the State. Such obligation of Federal funds extends only to project costs incurred by the State after the Federal Highway Administration authorization to proceed with the project involving such costs.

PROJECT TERMINI

City Sts., Auburn & Wash. Ave. (Baker)

PROJECT CLASSIFICATION OR PHASE OF WORK	EFFECTIVE DATE OF AUTHORIZATION	APPROXIMATE LENGTH *(Miles)*
HIGHWAY PLANNING AND RESEARCH (HP & R)		
PRELIMINARY ENGINEERING		
RIGHTS-OF-WAY		
CONSTRUCTION	3-21-79	0.371
OTHER *(Specify)*		

FUNDS Pro Rata 88.1%

ESTIMATED TOTAL COST OF PROJECT	FEDERAL FUNDS
$ 67,282.00	$ 58,920.00

The State further stipulates that as a condition to payment of the Federal funds obligated, it accepts and will comply with the applicable provisions set forth on the reverse hereof.

OREGON STATE HIGHWAY DIVISION
(Official name of Highway Agency)
By
Asst. Highway Engineer
(Title)
~~By~~ For: W. S. Coulter
State Highway Engineer
(Title)
By
(Title)

U. S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
By
(Division Administrator)
For: G. L. Green

Date executed by Division Administrator MAY 14 1979

Form PR-2 (Rev. 10-75) PREVIOUS EDITIONS ARE OBSOLETE

AGREEMENT PROVISIONS

1. RESPONSIBILITY FOR WORK

a. Except for projects constructed under Certification Acceptance procedures, the State highway agency will perform the work, or cause it to be performed, in compliance with the approved plans and specifications or project proposal which, by reference, are made a part hereof.

b. With regard to projects performed under Certification Acceptance procedures, the State highway agency will perform the work, or cause it to be performed, in accordance with the terms of its approved Certification, or exceptions thereto as may have been approved by the Federal Highway Administration.

2. HIGHWAY PLANNING AND RESEARCH (HP&R) PROJECT. The State highway agency will (a) conduct or cause to be conducted, under its direct control, engineering and economic investigations of projects for future construction, together with highway research necessary in connection therewith, pursuant to the work program approved by the Federal Highway Administration and (b) prepare reports suitable for publication of the result of such investigations and research, but no report will be published without the prior approval of the Federal Highway Administration.

3. PROJECT FOR ADVANCE ACQUISITION OF RIGHTS-OF-WAY. In the event that actual construction of a road on this right-of-way is not undertaken by the close of the tenth fiscal year following the fiscal year in which this agreement is executed, the State highway agency will repay to the Federal Highway Administration the sum or sums of Federal funds paid to the highway agency under the terms of this agreement.

4. PRELIMINARY ENGINEERING PROJECT FOR PREPARATION OF RIGHT-OF-WAY PLANS OR FOR PREPARATION OF CONSTRUCTION PLANS, SPECIFICATIONS AND ESTIMATES. In the event that right-of-way acquisition for, or actual construction of the road for which this preliminary engineering is undertaken is not started by the close of the fifth fiscal year following the fiscal year in which this agreement is executed, the State highway agency will repay to the Federal Highway Administration the sum or sums of Federal funds paid to the highway agency under the terms of this agreement.

5. INTERSTATE SYSTEM PROJECT. (a) The State highway agency will not add or permit to be added, without the prior approval of the Federal Highway Administration any points of access to, or exit from, the project in addition to those approved in the plans and specifications for the project. (b) The State highway agency will not permit automotive service stations, or other commercial establishments for serving motor vehicle users, to be constructed or located on the right-of-way of the interstate system. (c) The State highway agency will not after June 30, 1968, permit the construction of any portion of the Interstate Route on which this project is located, including spurs and loops, as a toll road without the written concurrence of the Secretary of Transportation or his officially designated representative. The term 'toll road' does not include toll bridges or toll tunnels.

6. PROJECT FOR CONSTRUCTION IN ADVANCE OF APPORTIONMENT. (a) This project authorized pursuant to 23 U.S.C. 115 as amended, will be subject to all procedures and requirements, and conform to the standards applicable to projects on the system on which located, financed with the aid of Federal funds. (b) No obligation of previously apportioned Federal funds is created by this agreement, its purpose and intent being to provide that, upon application by the State highway agency, and approval thereof by the Federal Highway Administration, any Federal-aid funds of the class designated by the project number prefix, apportioned to the State under 23 U.S.C. 104 subsequent to the date of this agreement, may be used to reimburse the State for the Federal share of the cost of work done on the project.

7. STAGE CONSTRUCTION. The State highway agency agrees that all stages of construction necessary to provide the initially planned complete facility, within the limits of this project, will conform to at least the minimum values set by approved AASHTO design standards applicable to this class of highways, even though such additional work is financed without Federal-aid participation..

8. BOND ISSUE PROJECT. Construction, inspection and maintenance of the project will be accomplished in the same manner as for regular Federal-aid projects. No present or immediate obligation is created by this Agreement against Federal funds, its purpose and intent being to provide aid to the State, as authorized by 23 U.S.C. 122, for retiring maturities of the principal indebtednesss of the bonds referred to below. When the State requests Federal reimbursement to aid in the retirement of such bonds, the request will be supported by the appropriate certification required by 23 CFR Part 140, Subpart F, and Volume 1, Chapter 4, Section 8 of the Federal-Aid Highway Program Manual or the alternative State procedure set forth in the State's Certificate, and payment of the authorized Federal share will be made from appropriate funds available. If in any year there is no unobligated balance of any apportioned Federal funds available from which payments hereunder may be made, there will be no obligation on the part of the Federal Government on account of bond maturities for that year. Funds available to the highway agency for this project are the proceeds of bonds issued by the governmental unit indicated on the attached tabulation, pursuant to the authority and in the amounts by date of issue and beginning date of maturities set forth therein.

9. SPECIAL HIGHWAY PLANNING AND RESEARCH PROJECT. The State Highway agency hereby authorizes the Federal Highway Administration to charge the State's pro rata share of costs incurred against funds apportioned to the State under 23 U.S.C. 307 (c), as amended. In the event a project is financed with both Federal-aid funds and State matching funds, the State agrees to advance to The Federal Highway Administration the State matching funds for its share of the estimated cost. For a National Pooled Fund study, the State hereby assigns its responsibility for the work to the Federal Highway Administration. For an Intra-Regional Cooperative Study, the State hereby assigns its responsibility for the work to the lead State for the study.

10. PARKING REGULATION AND TRAFFIC CONTROL. The State highway agency will not permit any changes to be made in the provisions for parking regulations and traffic control as contained in the agreement between the State and the local unit of Government referred to in the paragraph on "Additional Provisions," without the prior approval of the Federal Highway Administration, unless the State determines, and the Division Administrator concurs, that the local unit of Government has a functioning traffic engineering unit with the demonstrated ability to apply and maintain sound traffic operations and control.

file

Oregon State Highway Division
Salem, Oregon, May 7, 1979

Federal Aid Project
No. M-0000(9)

AUBURN AVE. AND WASHINGTON AVE. (BAKER) SECTION CITY STREETS IN BAKER, BAKER COUNTY

Project Agreement Estimate.

Type Code P.E. Preliminary Engineering	All Required		$ 2,900.00

Type Code 6105
Roadway (Wash. Ave., Sta. 0+72 to Sta. 6+12) (Auburn Ave. Sta. 0+32 to Sta. 14+52)

Mobilization	All Required		$ 2,710.00
Class "B" Asphalt Concrete	2710 Ton	20.50	55,555.00
	Subtotal		$ 58,265.00
	Engineering		6,117.00
	Total		$ 64,382.00

Length of Project - - - - - - - - - - - - - - 0.371 mi.
Cost of Roadway Per mile - - - - - - - - - $ 173,536.38

SUMMARY OF FUNDS (* 81.8%)

Description	Total Cost	Federal Funds	State Funds	City Funds
Preliminary Engineering	$ 2,900	$ 2,372	$ 264	$ 264
Roadway	64,382	52,664	5,859	5,859
Total	$ 67,282	$ 55,036	$ 6,123	$ 6,123

Group 1 100%
Contract No. 8906
Prefix 301-1955
Prefix 301-1001

* Note: Clause "A" only.

8906

April 12, 1979

City of Baker
City Hall
Baker, Oregon 97814

Attn: Mr. George Hiatt
City Manager

Gentlemen:

On April 12, 1979, a satisfactory bid was received from Baker Redi-Mix, Inc., P.O. Box 525, Baker, Oregon 97814 for construction on Auburn Avenue and Washington Avenue (Baker) Section, FAU 4880, 4890. The advance deposit based on the anticipated construction cost of their bid is as follows:

Bid Item	$58,255.00
4½% Contingencies	$ 2,621.93
10% Engineering	5,926.50
ESTIMATED TOTAL COST	$66,713.43

City's Advance Deposit:
9% of $66,713.43 = $6,004.21 or say $6,000.00

This project will be awarded upon receipt of your advance deposit, which should be in this office no later than May 3, 1979.

Please make your check for $6,000.00, payable to the Oregon State Highway Division. Send the check to Highway Accounting, Room 434, Transportation Building, Salem, Oregon 97310.

Very truly yours,

Gerald Wimer

Gerald Wimer
Local Government Engineer

Awarded - 4-23-79
notified Larry
H

GW:pf

bcc w/AD # 616: Region 5 Federal Aid Specialist
Vern Skoog - Please return completed AD # 616 when check is received.

8906 U.S. DEPARTMENT OF TRANSPORTATION · FEDERAL HIGHWAY ADMINISTRATION

3-21-79

LETTER OF APPROVAL A[illegible]OR AUTHORIZATION

FEDERAL AID PROJECT NO. M-0000(9)

STAT[illegible]JECT NO. See below

COUNTY NAME Baker

PROGRAM STAGE (Check) ☐ 1. ☐ 2.

FROM:
G. L. Green, Division Administrator
Salem, Oregon

PROGRAM NO.

ITEM NO. 90002

TO:

Mr. H. S. Coulter
State Highway Engineer, ODOT
Salem, Oregon

RECEIVED
STATE HWY ENGR
MAR 22 '79
REFER TO
Mockmig
FOR

Info	Inves	R/D	D/R	Sign	Art	File

DATE PS & E APPROVED	DATE AUTHORIZATION EFFECTIVE	FEDERAL ROUTE NUMBER
3-21-79	3-21-79	FAU 4860 & 4890

STATE ROUTE NUMBER City Streets

GENERAL LOCATION:

Auburn Avenue and Washington Avenue (Baker) Section

GENERAL DESCRIPTION OF WORK:

Paving

YOU ARE AUTHORIZED TO PROCEED WITH THE WORK CHECKED BELOW

PRELIMINARY ENGINEERING TO DETERMINE
☐ LOCATION ONLY
PRELIMINARY ENGINEERING FOR SURVEY AND PLAN
☐ PREPARATION
☐ OTHER (Specify)

☐ ACQUISITION OF RIGHT-OF-WAY
CONSTRUCTION - ADVERTISE FOR RECEIPT
☒ OF BIDS
☐ CONSTRUCTION - PROCEED ON AN AGREED PRICE AND/OR FORCE ACCOUNT BASIS

REMARKS

Mr. Swan's March 19, 1979 request and certifying statements are accepted.

PS&E documents for the subject project have been reviewed and are approved at a total estimated cost of $73,760 - Federal Funds $60,334.

A signed copy of the Title Sheet is returned herewith.

DATE	SIGNATURE OF APPROVING OFFICIAL	TITLE
3-21-79		for Division Administrator

FORM PR-1240 (REV. 8-70) EXISTING STOCKS OF FORM PR-1240 (REV. 6-68) WILL BE USED

★ U.S. GOVERNMENT PRINTING OFFICE: 1976—626-787

8

8966

Department of Transportation
STATE HIGHWAY DIVISION

REGION 5 OFFICE

W. E. Schwartz
Region Engineer

P. O. Box 850 .. .. .. La Grande, Oregon 97850 .. .. .. Phone 963-3177

January 23, 1979

Mr. George Hiatt
City Manager
City Hall
Baker, Oregon 97814

Dear George:

RE: Auburn Avenue-Washington Avenue, FAU 4860 and 4890

Enclosed is a copy of the latest cost estimate prepared by the Engineering Section, Office of Technical Services, Department of Transportation in Salem.

It is apparent the cost estimating by our Salem personnel does not consider the additional work under city contract which will be going on at the same time. While costs have escalated since the project was submitted last July, I am optimistic the project cost will be less than the enclosed estimate.

Also, the City of Baker has been requesting federal participation at the lowest rate the State would furnish 50% of the local match. In the past this has been 78% federal, 11% state, and 11% city. Under the 1978 Surface Transportation Assistance Act, the base assistance is now 82% federal and the state will match 50% of the local share (9%) as shown in the Construction-Finance Agreement, page 3, item 1, General Provisions, approved October 5, 1978. If the city wishes to retain the 78% federal participation rate, it will be necessary for the city to furnish 13% of the difference between the actual total costs of the project and the amount contributed by the federal government.

Please advise me if the city wishes to finance the project at 78% federal, 9% state, 13% city, or 82% federal, 9% state, 9% city.

Sincerely,

Roger Lang for

Roger C. Lang
Region 5 Federal Aid Specialist

PROJECT MANAGEMENT
PME ☒ CCE ☐ OM ☐
LCE ☐ FAE ☐ OPE ☐
JAN 26 197
File: LM FA
[✓ LG]
TMA Zehner

RCL:sh
Enclosure

cc Gerald Wimer
J. A. Schlieski w/attach

Form 81-734 3123

8966

Section Auburn Av. and Washington Ave (Baker) Sec Programming Estimate $ ____

Highway City Streets Project Length .4 miles

County Baker 1-22-79 Completion Time 60 Cal. days

Kind of Work Paving ____

Prefix 301-1955-921 FA Project No. M-0000(9)

ESTIMATED CONSTRUCTION AUTHORIZATION

Estimated Contract Amount		$ 64,420.⁰
Anticipated Additional Items:		
Royalty Payment		
Building Permit Fees		
Slide Correction		
Railroad Protective Costs		
Other Railroad Costs		
Permanent Signing		
Permanent Pavement Striping		
Temporary Pavement Striping		
Remove Pavement Striping (Exist. & Temp.)		
Temporary Erosion Control		
State Furnished ____		
Install Water Meter		$ —
Furnish Water		
Laboratory Fees		
On the Job Trainees		
State Responsibility for Damages		
Signal Controller Testing		
Bikeway Signs		
Furnish Mail Box Posts		
Adjust Utilities ____		
____		
____		
Misc. Permit Fees ____		
____		$ 64,420.⁰⁰
Contingencies (4-1/2%)		2,898.⁹⁰
Engineering (10 %)		6,442.⁰⁰
	SUBTOTAL	$
Credit for ____		
Estimated Net Authorization, Construction		$ 73,760.⁹⁰

APPROVED

____

Road Design Engineer

REC'D. 1-22-79
cc: Roger Lang

April Letting

EGON STATE HIGHWAY DIVISION
SUMMARY--BID SCHEDULE--COST ESTIMATE

Sheet 1 of 1
Date Jan 11
Section Auburn Ave and Washington Ave. (Baker) Sec.
County Baker
Kind Of Work Paving
Length .4
Name Bergstedt

No	Item	Code	Unit	Quant.	Unit Cost	Total
	Mobilization (8%)		All	All	—	$4{,}800^{00}$
	Roadwork					
	Class "B" Asphalt Concrete		Ton	2710	22^{00}	$59{,}620^{00}$
						$\$64{,}420^{00}$

8906

OREGON STATE HIGHWAY DIVISION
Location Section
Surfacing Design Unit

Section: Auburn Ave. and Washington Ave. (Baker)

Date January 16, 1979

Highway F.A.U. 4860 and 4890

Ten Year Traffic Coefficient 5.5

County: Baker

18 kip s.a. per day 4.3

Prefix: 301-1955

R value 9

Res. Engr. P. F. Burnett

Frost Penetration 36"±

CBE Total Requirement 18.0"

STRUCTURAL SECTION
NEW WORK

ACTUAL THICKNESS	COMPONENT	CREDIT
1.5"	A.C.W.S. (Cl. B)	3.0
3.5"	A.C.B. (Cl. B)	7.0
10.0"	L.T.S.	10.0
15.0"		20.0"

1.0" Asphaltic Concrete Wearing Surface & Base = 2.0" Aggregate Base
1.0" Cement Treated Base = 1.8" Aggregate Base
1.0" Plant Mix Bituminous Base = 1.8" Aggregate Base
1.0" Emulsion Treated Wearing Surface & Base = 1.8" Aggregate Base
1.0" Soil Cement (Existing Roadway Material) = 1.5" Aggregate Base
1.0" Oil Mat = 1.1" Aggregate Base
1.0" Lime or Cement Treated Subgrade = 1.0" Aggregate Base
1.0" Aggregate Subbase = 0.8" Aggregate Base

Above Factors apply to materials that comply with Standard Specifications and Special Provisions.

F.H.W.A.
Location Engineer
Construction Engineer
Materials
Region Engineer
Resident Engineer
Specifications Engineer
Final Design Engineer
Regional Geologist
R. H. Prange

PROJECT MANAGEMENT
DME ☐ CCE ☐ OM ☐
LCE FAE ☐ OFE ☐
JAN 1[illegible]
LG

8906

FORM 81-734-3030

☐ RE ☐ RCE ☐ RME ☐ ROE

☒ RFA DEC 11 1978 ~~FILE~~ Baker ☐

RECEIVED
REGION 5 OFFICE

OREGON STATE HIGHWAY DIVISION
INTER-OFFICE CORRESPONDENCE
Salem, Oregon
December 6, 1978

Duane O. Christensen

FROM: Duane O. Christensen
Final Design Engineer

TO: W. E. Schwartz
Region 5 Engineer

SUBJECT: Auburn Ave. & Washington Ave.
(Baker) Section
FAU 4860 and 4890 (City Streets)
Baker County

Attention: Roger Lang, Federal Aid Engineer

We have reviewed the City's plan for the project and have indicated the corrections necessary for compliance with Federal requirements and plan standards. We are returning the tracings and one set of prints.

Some additions and corrections to the title sheet will be necessary as we have indicated on the print and a few corrections are noted on the other prints. Actually, we found little to comment on and offer our compliments to the City on a nice set of plans.

Please have the corrections made, the City sign off in the appropriate box and return the tracings to us.

We are tentatively setting the project up for an April 26, 1979, contract letting. If that date is not satisfactory to the City, please advise us.

Versteeg
I Christensen DOC
George
Olson
Terpin
Sullivan
Scott
Anderson

RECEIVED
DEC 27 1978
ENGINEERING SECTION

Trout
Do Not File ☐
Return To
Bring Up / /
Action

FE:jh

Duane Christensen
Corrections made per your request

REFERRED TO
~~Beard~~ Stoudenmeyer
Cole Sample
Eriksen F.E. Watson
Hager Dorn Lau
[✓ Return] Discuss Do File Copy Due
BY FINAL DESIGN ENGINEER

If ok preliminary
DOC

8906

OREGON STATE HIGHWAY DIV[illegible]ION
State Highway Building, Room 203
Salem, Oregon 97310

10-27-78

Attention: County-City Unit

Baker 701

Subject: Federal Aid Project No. 4860 & 4890
Project Name Auburn Avenue and Washington Avenue FAU 4860,4890

Regarding the above referred to federal aid project, we hereby certify that to the best of our knowledge and belief:

A. Existing Right-of-Way

☒ 1. All construction can be accomplished completely within the existing right-of-way. This existing right-of-way was acquired prior to January 2, 1971.

B. New Right-of-Way

☐ 1. This project required additional right-of-way purchased after January 2, 1971. Right-of-way, easements, or rights-of-entry required for this project have been secured in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, and all incidental charges related to the transfer of property will be paid by the county in accordance with said act.

☐ a. There has been no displacement of persons from residences, farms or businesses.

OR

☐ b. There has been displacement of persons from either residences, farms or businesses and in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, displaced persons, businesses, or farm operations have been provided relocation payments, if eligible, and relocation assistance. Displaced individuals or families have been relocated to decent, safe and sanitary housing or have been offered decent, safe, sanitary and fair housing immediately available on the open market.

C. Utilities

☒ 1. The occupancy and/or adjustment of existing utilities within the right-of-way of the above referred to federal aid project have been authorized by permit, franchise, or other approved procedure.

Signed at Baker, Oregon, this 27th day of October, 1978

County of Baker

Certified ~~APPROVED~~
Regional Right of Way Supervisor

November 1, 1978

George W Heath
City Manager

CC: D.E. SWAN
C.T. KEASEY
R. TRYGSTAD

Commissioner

Commissioner

Instructions: Complete A or B and C.
R/W File No.

8706

"Center of Oregon's Adventureland"

CITY OF BAKER OREGON

P.O. Box 650
BAKER, OREGON 97814

Office: City Hall
Ph. 523-4437

October 27, 1978

Mr. Joe Schlieski
Resident Engineer
P.O. Box 850
LaGrande, OR 97850

Re: FAU Project 4860 & 4890; Auburn and Washington Avenues

Dear Mr. Schlieski:

Because of the severe winters, along with the unique soil conditions and high water table in Baker, the streets constructed, using a standard aggregate base are often seriously damaged each spring, requiring extensive maintenance.

In 1967 the City of Baker started lime stabilizing the base of our new streets. In the last ten years we have stabilized nearly a half million square yards of base for both arterial and residential streets including two other FAU projects, with very satisfactory results.

Therefore the city feels a lime stabilized base is the best and most economical base for the project.

The city has budgeted time and has experienced personnel and equipment available to ensure the project is completed without delay.

The city recommends the above mentioned project be closed to thru traffic during construction and for the city to furnish the required barricades, with the contractor having the responsibility for ensuring the barricades are properly maintained and placed during construction. Also that the contractor be responsible for the valve and manholes damaged during construction.

Should you have any further questions, please feel free to contact me.

James L. Adamson
James L. Adamson
Director of Public Works

11-8-78
Survey data
Recieved.

JLA:clr

June 7, 1978

SECTION: Auburn - Oak/Birch
Washington - Balm/Birch
HIGHWAY: FAU 4860 & 4890

COUNTY: Baker
CITY: Baker
Paving Project

LOCATION NARRATIVE REPORT

The proposed project will consist of furinshing and placing a 5" asphaltic concrete surface. The City of Baker will prepare and furnish the base, curb and driveways, at their own cost. The base will be lime stabilized ten inches in depth.

Right-of-
ay:

The project will be constructed within existing rights-of-way. No serious grade problems are expected in matching the new street grades with the existing property grades.

Auburn Avenue	60' R/W
Washington Avenue	60' R/W

roposed
ypical
ection:

See attached drawings for typical sections. These typical sections meet the city's standards for primary streets.

tilities:

C.P. National Electric Company: Maintains a powerline 18 feet south of centerline on Auburn and 21 feet south of centerline on Washington. They have been notified and will have them relocated prior to construction.

American Televison Communication Company: Maintains an aerial TV signal line generally on CP National's poles. They have been notified and will coordinate the moving of their lines with C.P. National.

Cascade Natural Gas Company: Maintains an underground distribution system in the area, generally running North and South. They have been notified and will check the grade of their line to see if a conflict exists. If there is a problem the line will be adjusted by the gas company.

Pacific Northwest Bell Telephone Company: Maintains underground service along Auburn and Washington Avenues genrally 23 feet from centerline. There should be no conflict with the construction of streets.

ity
tilities:

Sanitary Sewer: The city maintains sanitary sewer in the area. The mains run generally north and south with the manhole 6 feet west of centerline. The city will adjust manholes as required. There should be no problems.

Storm Sewer: The city maintains a seperate storm sewer in the area, and will adjust manholes as required. There should be no problems.

Water: The city maintains water distribution mains in the area. The main will be checked and any that is not cast iron will be replaced. All water services not constructed with copper will be replaced. Also water stubs will be installed for vacant lots. The city will make any adjustments required.

Available Contractors: Baker Redi-Mix Inc.: Is located in Baker and have the equipment and personnel to do this job. There should be no trouble getting at least one qualified contractor to bid on this job.

Signing: Signing work will consist of salvaging and reinstalling existing signs. The work will be done by the City of Baker at the city's cost.

Illumination: Illumination will consist of 250 watt mercury vapor lights mounted on California-Pacific poles and furnished and installed by the city under an existing contract between the city and California-Pacific Company.

Minorities: No minorities have been noted within the project limits.

James L. Adamson
Director of Public Works

JLA:clr

Elm St.-Mt. Hope Cemetery (Baker) Sec. Paving

SUBJECT TO SUCH CHANGE OR CHANGES AS MAY BE MADE WITH NOTICE TO PLAN HOLDERS BY ADDENDUM LETTER OR LETTERS, THE BID ITEMS AND QUANTITIES TO WHICH THE FOREGOING SPECIFICATIONS AND PROVISIONS APPLY WILL BE AS LISTED IN THE FOLLOWING BID SCHEDULE. THIS BID SCHEDULE IS FOR INFORMATION ONLY AND IS NOT TO BE USED IN BIDDING. THE BID SCHEDULE TO BE USED IN BIDDING IS BOUND IN THE PROPOSAL FORM.

BID SCHEDULE

Item No.	Item	Unit	Quantity	Unit Price (In Figures)	Total (In Figures)
1.	Mobilization	Lump Sum	All	Lump Sum	$3,000
	ROADWORK				
2.	Class "B" Asphalt Concrete	Ton	2,710 ~~2,860~~	$20.00	$54,200
			Total Amount of Bid	$57,200.00	

+ 4½% = 2574.00
+ 10% = 5720.00

Total Est. = $65,494.00

8906

U.S. DEPARTMENT OF TRANSPORTATION - FEDERAL HIGHWAY ADMINISTRATION

10-17-78

LETTER OF APPROVAL [illegible]D/OR AUTHORIZATION

FEDERAL AID PROJECT NO. M-0000(9)

ST[illegible]ROJECT NO. See below

FROM:

G. L. Green, Division Administrator
Salem, Oregon

PROGRAM NO.

ITEM NO. 90002

COUNTY NAME Baker

PROGRAM STAGE (Check) ☐ 1. ☐ 2.

TO:

Mr. F. B. Klaboe
Asst. Director for Operations, ODOT
State of Oregon
Salem, Oregon

DATE PS & E APPROVED

DATE AUTHORIZATION EFFECTIVE 10-17-78

FEDERAL ROUTE NUMBER FAU 4860 & 4890

STATE ROUTE NUMBER City Streets

GENERAL LOCATION:

Auburn Avenue and Washington Avenue (Baker) Section

GENERAL DESCRIPTION OF WORK:

Preliminary Engineering

YOU ARE AUTHORIZED TO PROCEED WITH THE WORK CHECKED BELOW

PRELIMINARY ENGINEERING TO DETERMINE
☐ LOCATION ONLY
PRELIMINARY ENGINEERING FOR SURVEY AND PLAN
☒ PREPARATION TEC NTE $2,900 - F.F. $2,200
☐ OTHER (Specify)

☐ ACQUISITION OF RIGHT-OF-WAY
CONTRUCTION - ADVERTISE FOR RECEIPT
☐ OF BIDS
☐ CONSTRUCTION - PROCEED ON AN AGREED PRICE AND/OR FORCE ACCOUNT BASIS

REMARKS

As requested in Mr. Swan's letter of 10-4-78.

Swan
10-26

DATE 10-17-78

SIGNATURE OF APPROVING OFFICIAL G. K. Hossner

TITLE for Division Administrator

FORM PR-1240 (REV. 8-70) EXISTING STOCKS OF FORM PR-1240 (REV. 6-68) WILL BE USED

☆ U.S. GOVERNMENT PRINTING OFFICE: 1976--626-787

8906

8

October 6, 1978

City of Baker
City Hall
Baker, OR 97814

MISC. CONTRACTS and
AGREEMENTS No. 6773

Attention: Roland C. Campbell
City Recorder

Gentlemen:

Attached for your records is a fully executed copy of an agreement to widen and improve the Oak Street-Birch Street Section of Auburn Avenue and the Balm Street-Birch Street Section of Washington Avenue in Baker.

We have retained a fully executed copy of this agreement for the Transportation Commission's files.

Very truly yours,

C. W. Head
COMMISSION SERVICES

dda
Attachment

bc Don Harwell (Agreement attached)

8906

ROBERT W. STRAUB
GOVERNOR

Department of Transportation

TRANSPORTATION BUILDING, SALEM, OREGON 97310

October 4, 1978

TO G. L. Green, Division Administrator
Federal Highway Administration

Original Signed By
D. E. Swan

FROM D. E. Swan
Federal Aid Manager

SUBJECT Project Data Submission
Item No. 90002
Project No. M-0000(9)
Auburn Ave. & Washington Ave. (Baker) Sec.
Baker County

Attached data consists of PR-1 forms with project maps for the subject project.

This project has been originated by local officials and concurred in by the Oregon Transportation Commission and the State Highway Division.

We request authorization to proceed with all phases of preliminary engineering necessary to obtain PS&E approval at an estimated total cost of $2,900 with an obligation of $2,200 in Federal funds.

JLG:dmc
Attachments
cc: W. E. Schwartz (Region 5)
Gary Zehner w/att.

No ADV. DEP REQD.

Budget Bureau No. 41-R2067

U.S.

MONTHLY TRANSACTION NO.

DATE SUBMITTED TO W.O.

FORM PR-1 (REV. 4-61)

October 4, 1978

FEDERAL-AID PROGRAM DATA

(PPM 21-1)

CARD 2	REPORT NUMBER (19) (20)	PROJECT LOCATION (45 typewriter spaces) 21 City Sts, Auburn & Wash. Ave. (Baker) 65	**ADT**	PRESENT 1) 400 2) 400	FUTURE (66) --- (70)	YEAR (71) (72)	REGION 10	STATE NAME Oregon

CARD 3	CHARACTER OF PROPOSED WORK (35 typewriter spaces) 28 PE & H.T. Pavement 62	NATL. FOREST (63) (65)	FH ROUTE NO. (66) (68)	SUPV AGCY (69)	DA CLASSIF. (70)	DA AREA (71)	EMERG. YR. (72) (73)	PL. AUTH YR (74) (75)	PROJECT NUMBER PREFIX LETTER(S) 14 M- 23	NUMBER 7 0000

CARD	CLASS OF FEDERAL FUNDS Urban System	COUNTY NAME Baker		CO 001 (14)
	NAME OF URBAN AREA 17-31 Baker	ROUTE NO. U	FEDERAL-AID 1)4860 2)4890	STATE (32) Streets (36)	U.S. (37) ---

CARD	LINE NO.	CHANGE CODE	PROJECT CODE	CLASS	WORK TYPE	WORK STEP	TERMINI (Full description)	MILES	TOTAL ESTIMATED COST	FEDERAL FUNDS	STATE FUNDS	OTHER FUNDS
1	(14-15)	(16	41	42	43 46	53		(54) (58)	(59) (66)	(67) (76)		
5					**PE**		Oak St.-Birch St. (Auburn Ave.) & Balm St.-Birch St. (Wash. Ave.) in City of Baker	0.40	2,900	2,200	350	350 (City)
5					**ROW**							
5					**CONST** (CODE)			0.40	57,900	45,200	6,350	6,350 (City)

CARD 1	CODE 1	PREPARED BY JLG	PROJECT TOTALS	0.40	60,800	47,400	6,700	6,700 (City)
1	14	PROGRAM APPROVAL DATES ---		(16)	(23)	(24) (33)	REMARKS	

1) Auburn Ave.
2) Washington Ave.

-over-

Budget Bureau No. 41-R2067; Approval Expires February 28, 1968

FORM PR-1
(REV. 4-61)

U.S. DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS

FEDERAL-AID PROGRAM DATA
(PPM 21-1)

October 4, 1978

JECT LOCATION (45 typewriter spaces) ty Sts, Auburn & Wash. Ave. (Baker)	ADT	PRESENT 1) 400 2) 400	FUTURE --- YEAR	REGION 10	STATE NAME Oregon	STATE CODE 41	APPN CODE W32	ITEM NO. 90002

WORK (35 typewriter ement	NATL. FOREST	FH ROUTE NO.	SUPV AGCY	DA CLASSIF.	DA AREA	EMERG. YR.	PL. AUTH YR	PROJECT NUMBER PREFIX LETTER(S) M- NUMBER 0000 SEQ. NO. (9)	I. Projects Only POST MI. DESIG.

COUNTY NAME Baker CODE 001

ROUTE NO. U FEDERAL-AID 1)4860 2)4890 STATE Streets U.S. ---

PROGRAM STAGE ☐ 1 OR ☐ 2

ESTIMATED PROJECT COST BY PHASES

WORK TYPE	STEP	TERMINI (Full description)	MILES	TOTAL ESTIMATED COST	FEDERAL FUNDS	STATE FUNDS	OTHER FUNDS	CHARACTER OF PROPOSED WORK (Full description)
E		Oak St.-Birch St. (Auburn Ave.) & Balm St.-Birch St. (Wash. Ave.) in City of Baker	0.40	2,900	2,200	350	350 (City)	
OW								
ONST CODE)			0.40	57,900	45,200	6,350	6,350 (City)	ROW-1)60';2)80"; Access Control-none; Parking Restrictions-None
		JLG PROJECT TOTALS	0.40	60,800	47,400	6,700	6,700 (City)	

ROVAL DATES

REMARKS

1) Auburn Ave.
2) Washington Ave.

-over-

USCOMM DUSCOMM-DC 48805-P61

AUBURN AVE. & WASHINGTON AVE. (BAKER) SECTION
PROJECT NO. M-0000(9)

Existing Facility: 20' gravel surfaced 2-lane streets.

Adjacent Sections:
W. End: 44' curbed 2-lane section.
E. End: 20' gravel surfaced 2-lane streets (N-S street---44' curbed 2-lane section).

Project Data: The work consists of:
1) All phases of preliminary engineering.
2) High-type pave a 44 foot curbed section and incidental work common to this type of project.

Note: City will construct curbs, gutters, lime treated base and adjust or replace city owned utilities without Federal participation.

Right-of-Way: No additional required

System Action, Railroads, Airports, Water Developments, Historical and Recreational Areas: None involved.

FHPM 4-1-4 Requirements:
a) State Clearinghouse---A-95 review exempt under working agreement.
b) District 13 Clearinghouse---It is our contention that this is a quasi-clearinghouse, for if it were fully operational or representative of its respective district or both that it would have a signed working agreement in effect. Furthermore, it is our opinion that A-95 review is not necessary as the work involved is such that it will not adversely affect decisions of the other public work involved activities of concern to the clearinghouse agencies.

FHPM 7-7-2 Requirements: Non-major action project concurred in by FHWA on September 12, 1978.

FHPM 7-7-5 Requirements:
a) Public Hearings---Not required under Oregon Action Plan.
b) Location/Design---Not a factor in the development of this project.

Accommodation of Utilities: State-City agreement will be executed.

Maintenance:
Section 116,

Note: 1) Thi
2) Pro
by
#14
Se

Maintenance: State-City agreement will be executed to comply with Section 116, Title 23, U.S.C.

Note: 1) This project is in Congressional District No. 2.
2) Project added to the "Six-Year Highway Improvement Program" by Commission action on August 15, 1978. Shows as project #14 on page 21 of the "Schedule of Contract Lettings" dated September 1978.

curbed

common

d adjust
ation.

cal and

ment.
a
re-
ave
r
ed
ther
use

by

oject.

ed.

8906

ROBERT W. STRAUB
GOVERNOR

Department of Transportation
STATE HIGHWAY DIVISION
REGION 5 OFFICE

W. E. Schwartz
Region Engineer

P. O. Box 850 La Grande, Oregon 97850 Telephone 963-3177

September 22, 1978

Project Assessment
Auburn Ave. and Washington Ave.
FAU-4860, 0701
Baker County FAUS

Mr. George O. Hiatt
City Manager
Baker, Oregon 97814

Dear George:

Re: Final Project Assessment

Under the terms of the project application, the City shall perform and document responsibilities as found in the Oregon Action Plan.

The Federal Highway Administration and the Department of Transportation have concurred with your draft assessment of Category 3 Non-Major action.

Enclosed is an approved copy of the assessment for your records and use in complying with the Action Plan.

Proposed standards, design, specific details contained in the assessment and deviations from the scope of the project will be subject to review at the appropriate stage of project development.

I will advise you when funding of the project is accomplished with FHWA and when Preliminary Engineering may begin.

Sincerely,

Roger C Lang
Roger C. Lang
Region Federal Aid Specialist

PROJECT MANAGEMENT
PME ☑ CCE ☐ OM ☐
LGE ☑ FAE ☐ OPE ☐
SEP 25 1978
File: PM FA
TAA ______ LG OP

RCL/vmt
Enc.
cc: Gerald Wimer
J. A. Schlieski

Form 81-734 3123

8906

Form FHWA 121 (Rev. 5-73)

UNITED STATES GOVE MENT

Memorandum

PARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
The Equitable Center, Suite 100
530 Center NE. - Salem OR 97301

DATE: September 12, 1978

In reply refer to: HFO.4/5-OR

SUBJECT: Project Assessment
Auburn Ave. and Washington Ave.
FAU-4860,4890 0701
Baker County

FROM : G. L. Green, Division Administrator

TO : Mr. Gary A. Potter, Manager, Environmental Section
Oregon Department of Transportation
Salem, Oregon

The subject project assessment submitted with Mr. Potter's August 18, 1978, letter has been reviewed.

We concur with your finding that the proposed project constitutes a non-major action.

P. V. Reid
G. L. Green
for

cc:
ODOT (Moehring, Mgr, Proj Mgmt)
OSHD (Reg 5, Env)

Environmental Section
September 20, 1978

D. H. Moehring
J. B. Boyd (3)
L. E. George
W. H. Hart
C. T. Keasey
J. H. Versteeg (4)
F. E. Terpin (3)
George Bell
Surfacing Design
W. E. Shwartz
C. K. Ansell
Vernal Moore
John Preston
Gerald Wimer
B. L. Gifford

M-4860(-) + M-4890(-)

OREGON STATE HIGHWAY DIVISION
PROJECT ASSESSMENT

PART 1. GENERAL INFORMATION

A. Project Identification:

Date August 18, 1978

Section Auburn Ave. and Washington Ave.

Unit (if appl)

County Baker FAUS

City Baker

Highway FAU-4860, 4890 0701

State Hwy. No.

Termini: M.P. (if appl)

Length 0.4 Mile

Region 5

Construction Estimate $60,773
Program Amount

B. Purpose of Project:

To widen and pave Auburn Avenue and Washington Avenue so they may be effectively utilized as arterials. The proposed project is planned to be completed as part of a 1.7 mile city street improvement project in the same area.

C. Origin & History of Project:

The paving of Washington and Auburn is priority No. 2 & 3 on a list of seven adopted by the Baker City Council December 13, 1974. Priority No. 1 and 4 are already complete.

D. General Description of Project:

The project will consist of constructing approximately 0.40 mile of street paved 44 feet wide. The curbs, gutters and a 10" lime stabilized subgrade to be provided by the City at the City's expense.

Alignment: New ___ Existing X Combined ___

Typical Section: Existing: No. Lanes 2 ; Med. 0 ; Shldrs. 4 ; Parking ___

Proposed: No. Lanes 2 ; Med. 0 ; Shldrs. N/A ; Parking 0

Traffic: Existing Facility: Existing ADT 400 est. ; Projected ADT 550 ; Yr. 1995

Existing Level of Service

Proposed Facility: Projected ADT 600 ; Yr. 1998

Projected Level of Service

Right of Way: Additional anticipated No ; if yes, give approx. No. Parcels N/A
Yes, No

Acres N/A ; Type of Relocation Req. N/A ; No. N/A

Materials Source, Borrow, Waste Disposal Requirements, if any:
Required materials to be obtained from existing sources or commercial suppliers.

Type of Structure(s):

None.

Brief Description of River or Stream and Type of Involvement, if any:

None.

Local City, County or COG priorities of project:

Top priority as established by Baker City Council.

FHWA and/or OSHD approvals given, if any:

None.

Location or Design Alternatives (identify and describe):

The general traffic plan for the City of Baker was formulated after consideration of a number of options. The present FAU system and boundary was established in compliance with the 1973 Highway Act. The improvements of Auburn Avenue and Washington Avenue are a part of that plan.

Other Descriptive Information or Comments:

By paving this portion of Auburn and Washington Avenues, the arterial streets in this area will be complete.

(Attach project sketch map.)

PART II. ENVIRONMENTAL ASSESSMENT

A. Brief Environmental Setting of Project Area:

1. Natural:

The proposed project is located in a predominantly residential area of Baker (population 9660). The neighborhood is built on the relatively level Powder River flood plain at an elevation of about 3440 feet msl. The climate of Baker is semi-arid; average annual precipitation is 8.67 inches, most of which occurs during the winter months. The average snowfall is about 35 inches. The nearby sage and bunchgrass covered hill promote rapid run-off of water originating from snow melt or summer thunder showers. Vegetation is representative of many neighborhoods, i.e. a variety of shrubs and occasional cottonwood trees. The residential setting of the project area precludes significant detrimental impacts on the natural environment.

2. Cultural:

Auburn Avenue and Washington Avenue are principally composed of low-middle income housing. The existing streets are unimproved. Utility adjustments will be minimal. Air quality will be benefited by the proposed project in that the paving of the streets will alleviate a summer dust problem. If sidewalks are deemed necessary, they will be installed by the City. The attractiveness and safety of the area will be enhanced by the project.

B. Preliminary Assessment of Environmental Impacts:

1. Consequences and Significance of Right-of-Way Acquisition:

No new right-of-way required.

2. Estimated Impact on Traffic Patterns:

Completed project may generate some additional traffic, but will not amount to any significant consequence since ADT for 1998 is projected for 600 ADT.

Consequences--Air Quality, Noise, Safety, etc.:
Additional traffic would raise noise levels. However, noise increases would not likely be perceptible. The widening and paving of the streets would improve safety and eliminate summer dust problems.

3. Estimated Impact on Land Use:

No significant changes.

Consequences:

N/A

4. Expected Impact on Natural Ecological Resources:

No significant adverse effects have been identified.

Consequences:

N/A

5. Expected Impact on Cultural and Scenic Resources:

Additional traffic may raise noise levels, but not to a degree where it would be readily perceptible. Some moving of utilities--i.e., powerlines and telephones--may be necessary.

Consequences:

No serious consequences.

6. Preliminary Identification of Areas of Critical Concern:

None identified.

7. Potential for Controversial Issues:

None.

8. Potential for Consistency of Proposal With:

a. Clean Air Implementation Plans

N/A

b. Noise Standards

Some temporary noise increase during the construction period. Residential setting presents numerous receptors adjacent to the project area. A noise study will be required.

c. Water Quality Standards

N/A

d. Area Land Use and Transportation Plans, and Zoning

Project is part of area transportation plan.

C. Recommended Type of Action and Documentation:

-------------MAJOR ACTION----------------- ----NON-MAJOR ACTION-----

SIGNIFICANT:	NON-SIGNIFICANT:	
___ D & FEIS	___ D & F Neg.Dec.	X ASSESSMENT ONLY
___ Section 4(f)	___ Section 4(f)	___ STATEWIDE ASSESSMENT

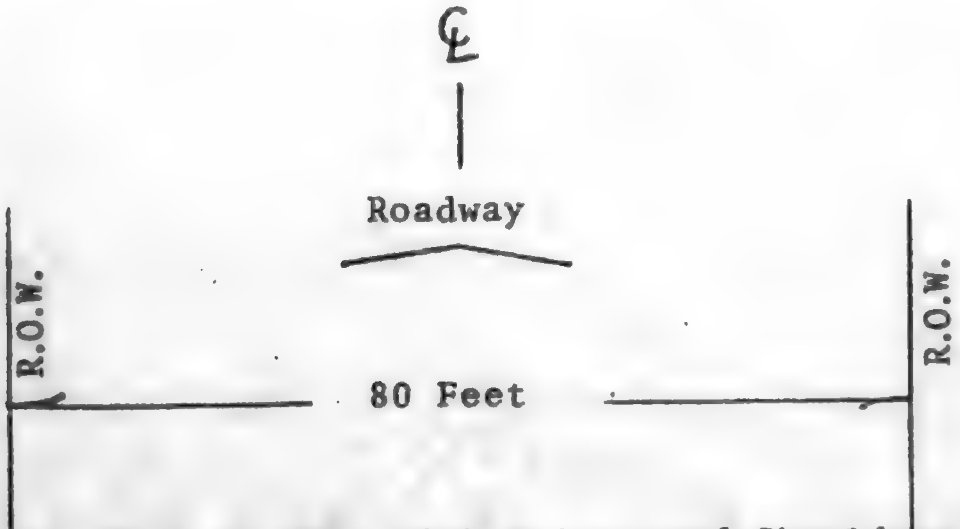
Basis for Type of Action and Documentation:

No impacts on natural environment and minimal adverse impacts on the human environment -- temporary noise increase, utility adjustments and some potential long term traffic increases. No additional right-of-way will be required.

D. Recommended Project Category: ___ 1 ___ 2 X 3 ___ 4

EXISTING TYPICALS

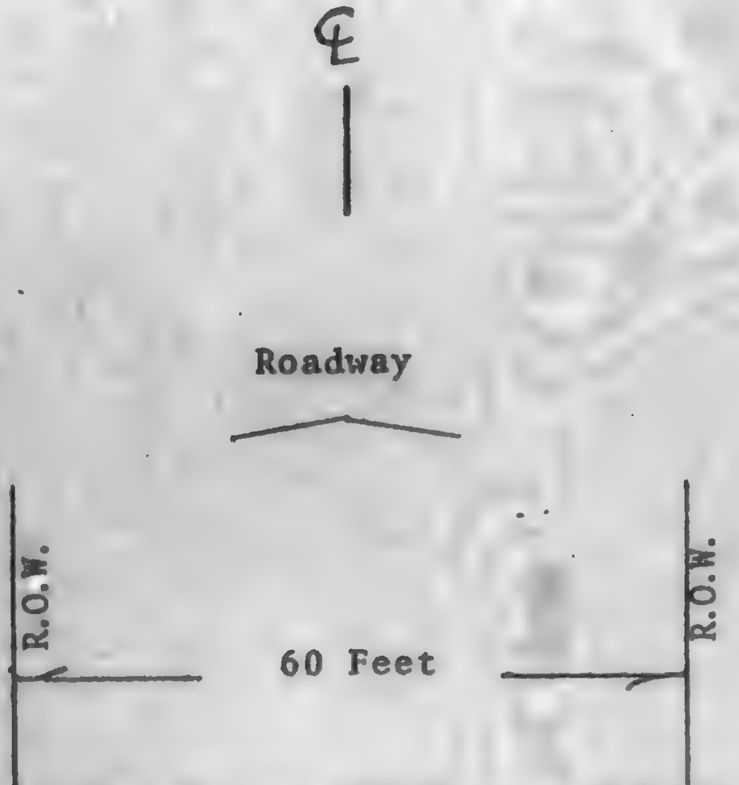
WASHINGTON AVENUE



℄
Roadway
R.O.W.
80 Feet
R.O.W.

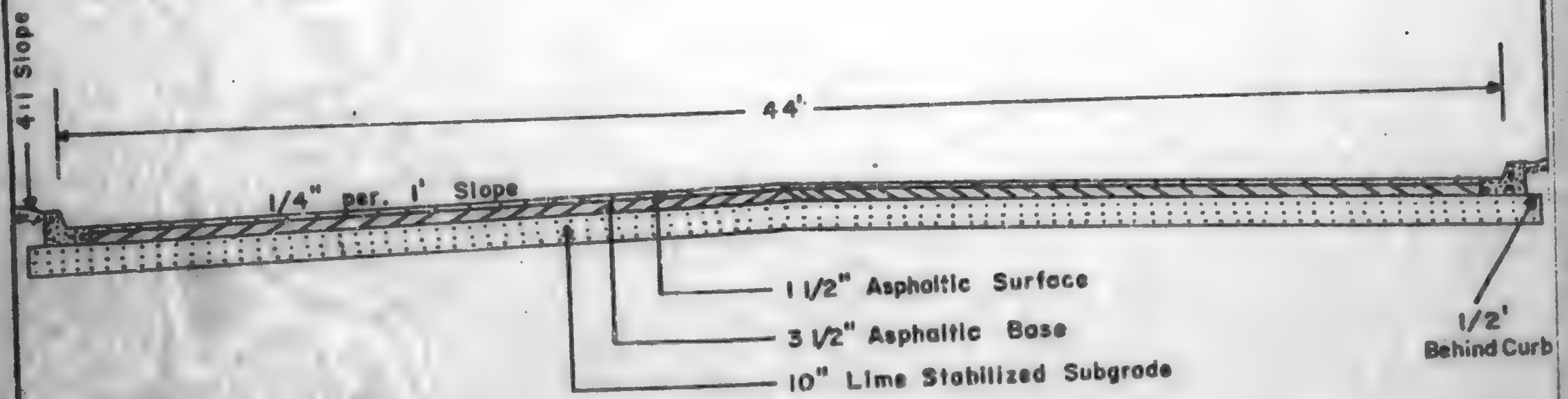
20' Rock Surface with Unimproved Shoulders

AUBURN AVENUE



℄
Roadway
R.O.W.
60 Feet
R.O.W.

20' Rock Surface with Unimproved Shoulders


4:1 Slope
44'
1/4" per. 1' Slope
1 1/2" Asphaltic Surface
3 1/2" Asphaltic Base
10" Lime Stabilized Subgrade
1/2'
Behind Curb

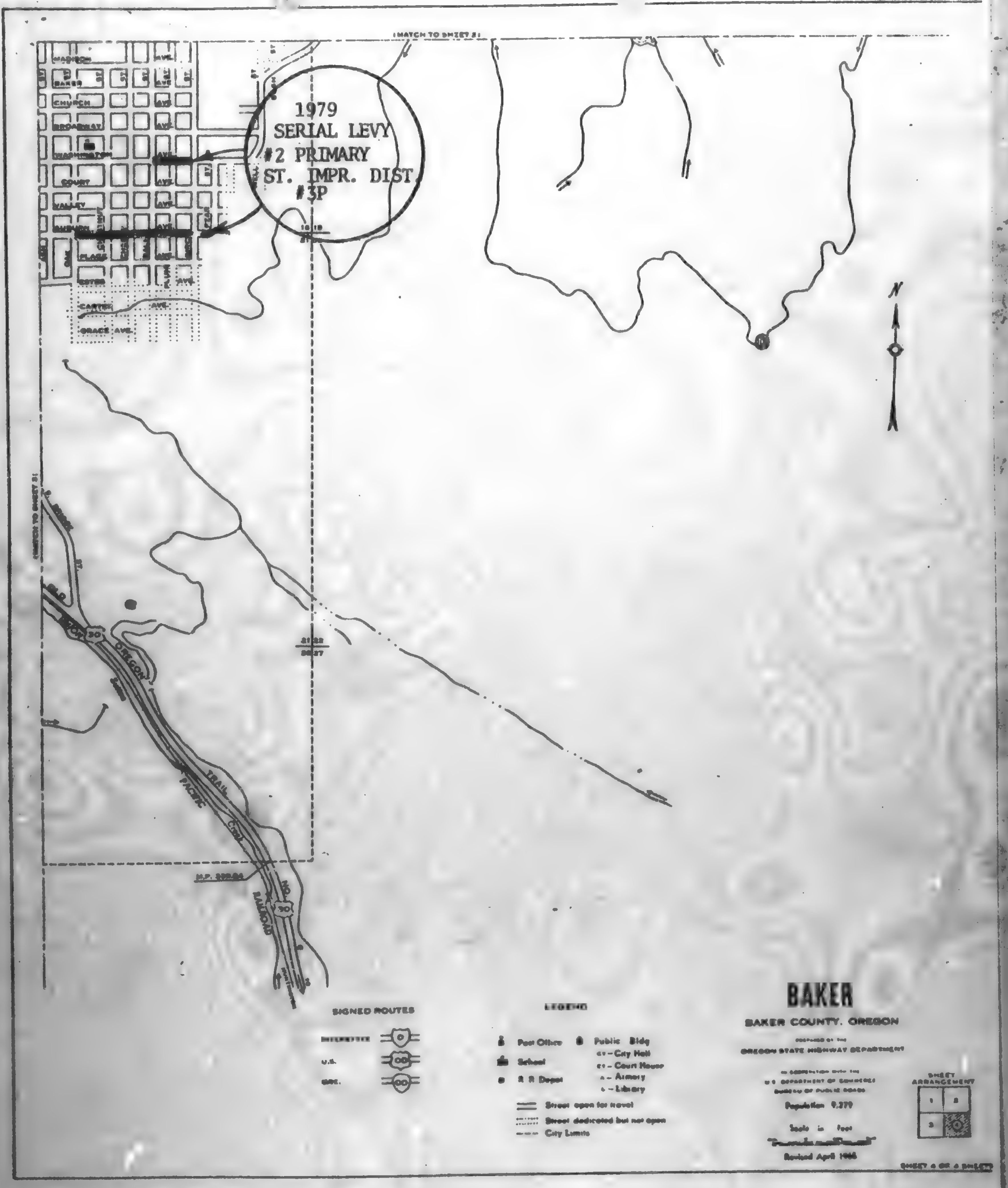
CITY OF BAKER

DN: J. W. DATE: Mar., 1977

CKD: D. S. SCALE: 1"= 6'

ENGINEERING DEPARTMENT

STANDARD ARTERIAL STREET


MATCH TO SHEET 3
MATCH TO SHEET 3
MADISON AVE.
BAKER AVE.
CHURCH AVE.
BROADWAY AVE.
WASHINGTON AVE.
COURT AVE.
VALLEY AVE.
AUBURN AVE.
PLACE
ESTES AVE.
CARTER AVE.
GRACE AVE.
OLD OREGON TRAIL
OREGON SHORT LINE
UNION PACIFIC RAILROAD
30
M.P. 305.84
N
SIGNED ROUTES
INTERSTATE
U.S.
ORE.
LEGEND
Post Office
Public Bldg
CY – City Hall
CT – Court House
A – Armory
L – Library
School
R R Depot
Street open for travel
Street dedicated but not open
City Limits
SHEET ARRANGEMENT
1
2
3
4

1979
SERIAL LEVY
#2 PRIMARY
ST. IMPR. DIST.
#3P

BAKER

BAKER COUNTY, OREGON

PREPARED BY THE
OREGON STATE HIGHWAY DEPARTMENT

IN COOPERATION WITH THE
U.S. DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS

Population 9,279

Scale in Feet

Revised April 1966

SHEET 4 OF 4 SHEETS

8906

8

August 3, 1978

TO OREGON TRANSPORTATION COMMISSION

FROM H. S. Coulter
State Highway Engineer

SUBJECT Federal Aid Urban System Project Requests (3)
and Urban System Project Cancellation

On the Consent Calendar for the August 15 meeting will be three requests for approval of Urban System projects and a request to cancel a previously approved project.

Baker is requesting a $60,800 project to furnish and place a 5-inch asphaltic concrete surface on a 0.4 mile segment of Auburn and Washington Avenues.

The request from Portland is for a $52,300 project to add left-turn phases to existing traffic signals at ten intersections.

A $40,000 project to signalize the intersection of Stewart Parkway and Harvard Avenue is being requested by the City of Roseburg.

Cancellation of a previously approved $5,000 traffic study in the Medford central business district is being requested.

Federal Urban System funds for these projects are estimated at $126,800 with the State providing approximately $13,150 in match funds and a like amount being contributed by local government.

These projects have been investigated and are eligible for funding under the Federal Aid Urban System Program. I recommend your approval and request authorization to sign the project agreements for and on your behalf.

Attachments

bc: R. A. Burco
F. B. Klaboe
C. W. Head
E. S. Hunter
D. H. Moehring
R. N. Bothman
V. E. Skoog
J. H. Versteeg
E. L. Hardt
A. Shirley, Jr.
W. E. Schwartz
D. N. Harwell
George Bell

CITY OF BAKER
Proposed Urban System Project

Oak Street-Birch Street Section
Auburn Avenue, FAU 4860 &
Balm St.-Birch Street Section
Washington Avenue, FAU 4890
Pave 0.4 miles
$60,800

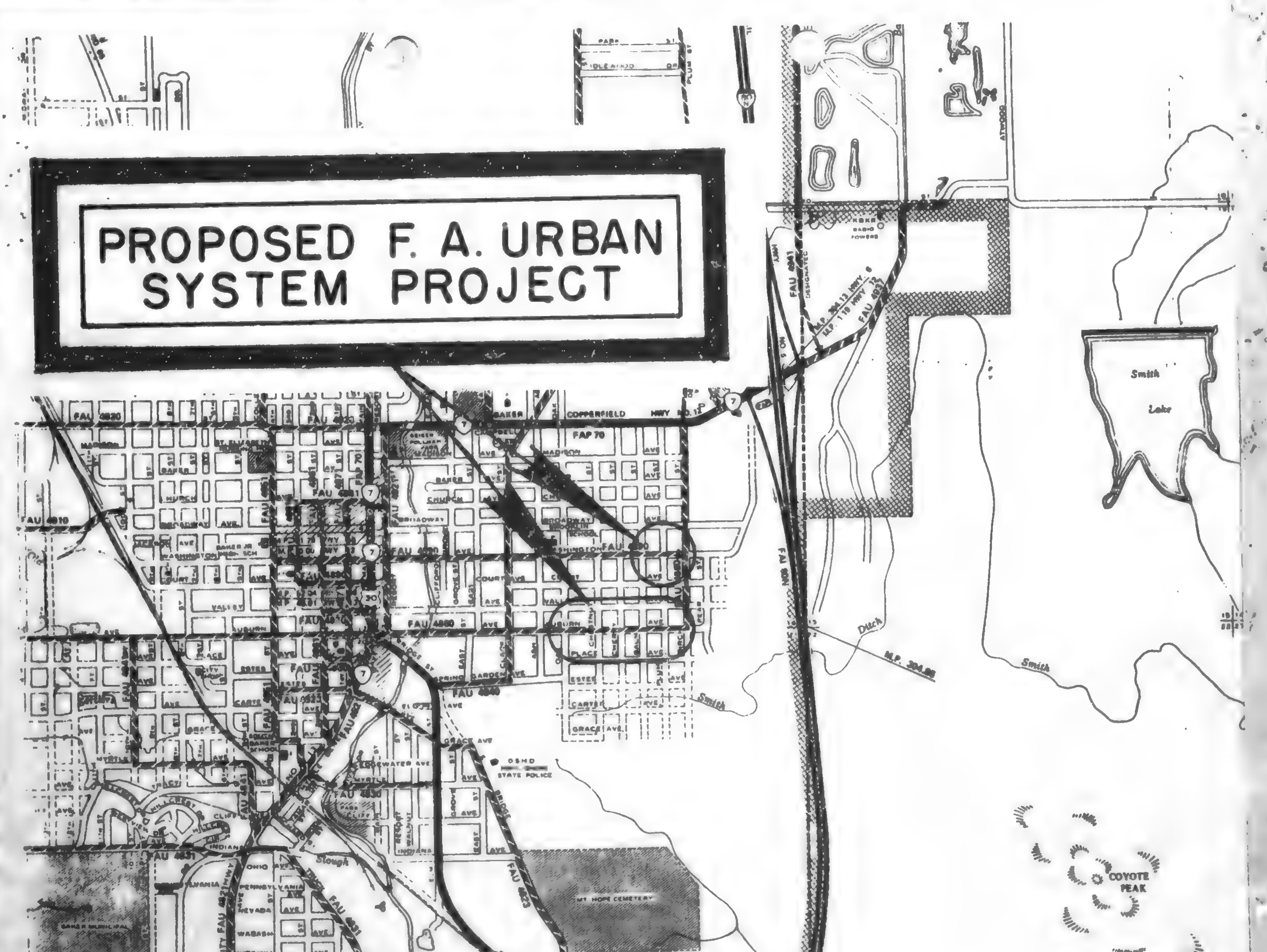
This project was approved by the Commission on October 26, 1976 and subsequently cancelled on December 21, 1976 due to objection voiced by local residents to proposed assessments. A public hearing was held on May 23, 1978 and the City has indicated that there was not sufficient remonstrance to the project, therefore the City is requesting approval of the project for the second time.

The project consists of furnishing and placing a 5-inch asphaltic concrete surface. The City will prepare and furnish the ten-inch lime stabilized base, curbs and driveways, at their own cost.

City will perform the bulk of preliminary engineering. State will perform construction engineering.

78-g
8-3-78

PROPOSED F. A. URBAN SYSTEM PROJECT


BAKER
T9S R40E
WILLAMETTE MERIDIAN
COYOTE PEAK
Smith Lake
MT HOPE CEMETERY
STATE POLICE
FAU 4820
FAU 4821
FAU 4831
FAP 70
Smith Ditch
Sutton
POWDER RIVER
Slough
CENTRAL BUSINESS DISTRICT
N
U S DE

8906

Form 81-734-3030

OREGON STATE HIGHWAY DIVISION

INTER-OFFICE CORRESPONDENCE

FILE:

La Grande, Oregon

July 18, 1978

R C Lang

FROM: R.C. Lang
Region Federal Aid Engineer

TO: Gerald Wimer
Local Government Programs, Manager

SUBJECT: Project Application
Oak St. (Auburn Ave.) Birch St. Sec.
M 4860
Balm St. (Washington Ave.) Birch St.
Sec. M 4890
City of Baker

SALEM

I am returning project application for the above project for further consideration. The application was returned to me on June 28, 1978, because of the apparent deficit in Baker's FAU account.

I have reviewed each project and accounted for funds as our records show and differ with your figures by $19,793. I realize there may be some costs which may have been overlooked, but I do feel I'm in the ball park. Please refer to the enclosed work sheet.

With the anticipated 1979 allocation, the City of Baker should be on the plus side of the column and be eligible for draw on future funds under the terms of the working agreement.

The City is requesting the project for construction in the spring of 1979 which will be in connection with another street improvement funded by the City. The estimated cost of $60,773 appears to be realistic. Funding at 78% will require about $47,500, which would require a draw of $25,092.

The City will perform preliminary engineering, lime stablization, construction of curbs and driveways on this project. Only preliminary engineering will be a participating item. Survey Authorization showing State's anticipated costs is enclosed.

The Project Assessment has been reviewed by the Region and forwarded to the Environmental Unit, copy is enclosed.

The Region feels this request should be approved even though there may be a small technical conflict with the wording of the working agreement concerning advancement of funds. Please re-examine the circumstances surrounding this project and advise me of your decision.

Sent 7-21-78 JN

RCL/vmt
Enc.
cc: Jim Adamson
J.A. Schlieski
Harlin Gerlach

8-1-78
Survey Authorization
to TERPIN.

PROJECT MANAGEMENT
PME ☐ CCE ☐ OM ☐
LGE ☑ FAE ☐ OPE ☐
JUL 20 1978
File: PM FA
LG OP
TAA Zehner

cc Roger Lang — Sorry for your inconvenience. We will process this application immediately.
G Wimer

Form 81-734-3049

OREGON STATE HIGHWAY
DIVISION

TABULATION SHEET

SHEET .... OF .... SHEETS

City of Baker FAU Balance

		Local Govt Fed Funds	Field Costs		Fed Funds 78%
M4860	Camp Ave - Auburn Ave.	132,113	PE	5,000	
			Contr	$92,810^{67}$	
			Engr	4036	
			CFO #1	$43,223^{62}$	
			Total	$145,070^{29}$	113,155
M4841	Auburn Ave - Unity Hwy	66,144	*PE	5,000	
			Contr	$79,816^{08}$	
			Eng'r	1712	
			Total	$86,528^{08}$	67,492
	Elm St - Mt. Hope Cem.	60,406	**PE	5,200	
			✱Contr.	$69,444^{25}$	
			Total	$74,644^{25}$	58,223
	Grand total	258,663		$\$306,242^{67}$	238,870

$\overset{\$19,793}{258,663 \longleftrightarrow 238,870}$

Allocations thru '78 — Field Cost

219,728 - 238,870 = -\$19,142

Anticip. 41,550

'77 261,278 - 238,870 = 22,408 ÷ 78 = \$28,728

* Project closed, no billing for PE from City

** Plans submitted one day after PE Approved, Assume no billing coming

✱ Includes Contingencies & Engr'ing.

8906.　　AAW 0001　　13

~~Form~~ 81-731-3039

OREGON STATE HIGHWAY DIVISION

AUTHORITY FOR SURVEY

Section Oak St. (Auburn Ave.) Birch St. M 4860
Balm St. (Washington Ave.) Birch St. M 4890

Date July 18, 1978

Highway City streets -- City of Baker

Authorization No. 1

County Baker

Survey Prefix 301-1955 (Assigned by Salem office)

Description of termini, route, length, etc.:

On Auburn Ave. from Oak Street to Birch Street and on Washington Ave. from Balm Street to Birch Street.

Purpose of survey:

Monitor preliminary engineering performed by City. Base design used on Campbell Ave. (Birch St.) Auburn Ave. Section is applicable to this section.

M-0000(9)
10-17-78

Estimate of cost:

Field	901	750
Plans	905	500
Liaison	913	100
Utility	914	100
Specifications	921	350

INSTRUCTIONS

Submit four copies to Salem. After approval by the Assistant State Highway Engineer, one copy will be sent to the Regional Engineer and one copy to the Resident Engineer.

This form does not constitute authority for making survey until approved and returned.

Submit separate order for each survey.

Total estimated cost of survey	$1,800
Previous authorization	
Additional authorization requested	
Additional authorization approved (Salem)	
Total all authorizations approved (Salem)	

Requests made by:
Field Engineer

Recommended for Approval:
REGIONAL CONSTRUCTION ENGINEER

Recommended for Approval: Frank E. [illegible]
Location Engineer

Approved:
~~Assistant State Highway Engineer~~
Tech. Serv. Mgr. XXXXXXXXXXXXXX

SP*19900-734

8906

"Center of Oregon's Adventureland"

CITY OF BAKER OREGON

P. O. Box 650
BAKER, OREGON 97814

Office: City Hall
Ph. 523-4437

June ~~21~~ 28, 1978

☐ RE ☐ RCE ☐ RME ☐ ROE
☒ RFA JUN 23 1978 ☐

RECEIVED
REGION 5 OFFICE

Mr. Roger Lang
Region 5, Federal Aid Engineer
P.O. Box 850
LaGrande, Oregon 97850

Re: Auburn - Oak/Birch, and Washington - Balm/Washington, FAU 4860 & 4890

Dear Roger:

Please find enclosed the project request forms for the above mentioned streets.

This is the same project which was abandoned because of remonstrances when the project was proposed in November of 1976. Another public hearing was held May 23, 1978, there was not sufficient remonstrance this time and the City Council approved the project for construction.

The city realizes if this project is approved it will be charged against the city's future allocation.

We would like to do the preliminary engineering and design work with city forces. Also we propose to use a lime stabilized sub-base. This type of construction has been successfully used for several years. Therefore, we request it be used on this project. The City has the equipment and manpower to do the project. We also have another street project on both sides of this project planned for construction in 1979. This would be a good time to complete these two streets.

If you have any questions, please contact me.

Sincerely,

James L Adamson
James L. Adamson
Director of Public Works

TO Zehner 6-27-78
Preston reviewing assessment & will forward to Potter when compl-

JLA:clr

Enc. 6

6-28-78
City of Baker presently in deficit situation, under terms of FAU Agreement no funds can be advanced.

		Requested
Field Survey	*(901)	750
Citizen Input	*(902)	
Consultant	(904)	
Final Design	(905)	500
Bridge Design	(906)	
Preliminary Design	(907)	
R/W Descriptions	(909)	
Soils & Geology	*(910)	
Traffic	*(911)	
Landscape	(912)	
Liaison	*(913)	100
Utility	*(914)	100
Photogrammetry	(916)	
Location Studies	(918)	
Engr. Graphics	(919)	
Office Engineer	(920)	
Specifications	*(921)	400
Environmental	*(923)	
Planning	(924)	
Foundation Exploration	*(926)	
Seminars	(950)	
Hearings	*(980)	
Equal Opportunity	*(985)	
TOTALS		$ 1850

Auburn Ave. & Washington Ave.
City of Baker

8906

FEDERAL AID PROJECT REQUEST

Date June 7, 1978

Applicant Agency City of Baker

Request for: Off-System ____, FAS-C ____, FAUS X Project

Federal Aid Route No. FAU 4860/4890 **Route Name** Auburn/Washington

Project Name 1979 FAU and 1979 Serial Levy #2 Primary Street District #3P

Project Length 0.4 Mile **Project Location (Attach sketch map)**

Project Description Project will consist of constructing approximately 0.40 mile of street paved 44 feet wide. The curbs, gutters, and a 10" lime stabilized sub grade to be provided by city at the city's expense.

Average Daily Traffic 400 (Estimated) **Design Speed** 25 MPH

Complete Applicable Sections:

I. ROADWAY DATA

1. Existing Roadway: (Attach sketch)

Width 20 Ft. **Travel Lanes** 2 **Shoulders** Unimproved

Medians None **Parking** Unimproved

Sidewalks None

Remarks Right of Way is 60 feet

2. Desired Roadway Cross Section: (Attach sketch)

Width 44 feet **Travel Lanes** two (2) 12 ft. **Shoulders** N/A

Medians None **Parking** None

Curbed Yes **Length Curb Radii** 10 feet

Sidewalk/Bikeway Any sidewalk needed will be installed by city.

Remarks Concrete driveways to be paid for by applicant.

II. RIGHT-OF-WAY DATA

1. Existing Right-of-Way:

General Width 60 feet **Minimum** 60 feet **Maximum** 60 feet

2. Has right-of-way been acquired for this project subsequent to January 2, 1971?
Yes ____ No No

3. Will additional right-of-way be needed? Yes ____ No No
If answer is "yes," will cost of right-of-way be subject to Federal reimbursement? Yes ____ No ____

Remarks

III. TRAFFIC CONTROL DATA

1. Existing Signalization and Location:

None

2. Proposed Signalization:

Location None

Type N/A
Phases N/A
Type of Suspension N/A
Interconnected N/A
Remarks

3. Permanent Signing:

Include in project or by applicant? No Additional signing will be required, will be adjusted as required by applicant.

4. Permanent Striping:

Include in project or by applicant? None required.

IV. ILLUMINATION DATA

1. Existing Illumination and Location:

250 Watt Mercury Located at intersections

2. Proposed Illumination:

Location Intersections
Type No change

Remarks To be adjusted as required by owner

V. STRUCTURE DATA

1. Existing Structure:

Location None
Type N/A
Approach Roadway Width N/A Shoulder Width N/A
Length N/A Width
To remain in place? N/A

2. Proposed Structure:

Location No

Approximate Size: Length N/A Width N/A

Are sidewalk/bikeways desired: N/A

Are any utilities to be attached to structure? N/A

Are provisions for illumination desired? N/A

Are there any unusual or complicating conditions? N/A

Remarks

VI. RAILROAD DATA

1. Are there any railroad crossings? Yes ____ No X

Name of Railroad N/A
Existing Crossing Protection N/A

2. Will existing railroad crossing be altered? N/A

Remarks

VII. ACTION PLAN REQUIREMENTS

During project development for Category 1, 2, and 3 projects, the city or county shall perform and document responsibilities as found indexed in the Oregon Action Plan, particularly Citizen Involvement and Participation; Environmental Aspects; and Public Hearing Requirements.

The OSHD Region Engineer will provide assistance, liaison and monitoring for these activities.

Responsible local office and party to be contacted for the following activities:

1. Citizen Involvement — City Manager Office
2. Environmental — City Manager Office
3. Public Hearing — City Manager Office

Remarks

VIII. GENFRAL INFORMATION

1. Project preliminary engineering to be performed by:

Applicant X State ____ Consultant ____

2. Project construction engineering to be performed by:

Applicant________ State X Consultant________

3. Will applicant perform any work prior to or after award of contract?

Yes X No________

If "yes," describe briefly:
The city will adjust and/or replace city owned utilities as required, lime stabilized base and construct curbs and driveways as shown on typical section.

4. Applicant's estimate of cost for requested project:

Roadway Work	$ 57,878
Right-of-way costs (if participating)	-0-
Traffic control	-0-
Illumination	-0-
Structures	-0-
Railroad	-0-
Other________	-0-
Preliminary engineering	2,895
PROJECT TOTAL	$ 60,773

Remarks Request funding at 78% - 11% & 11%

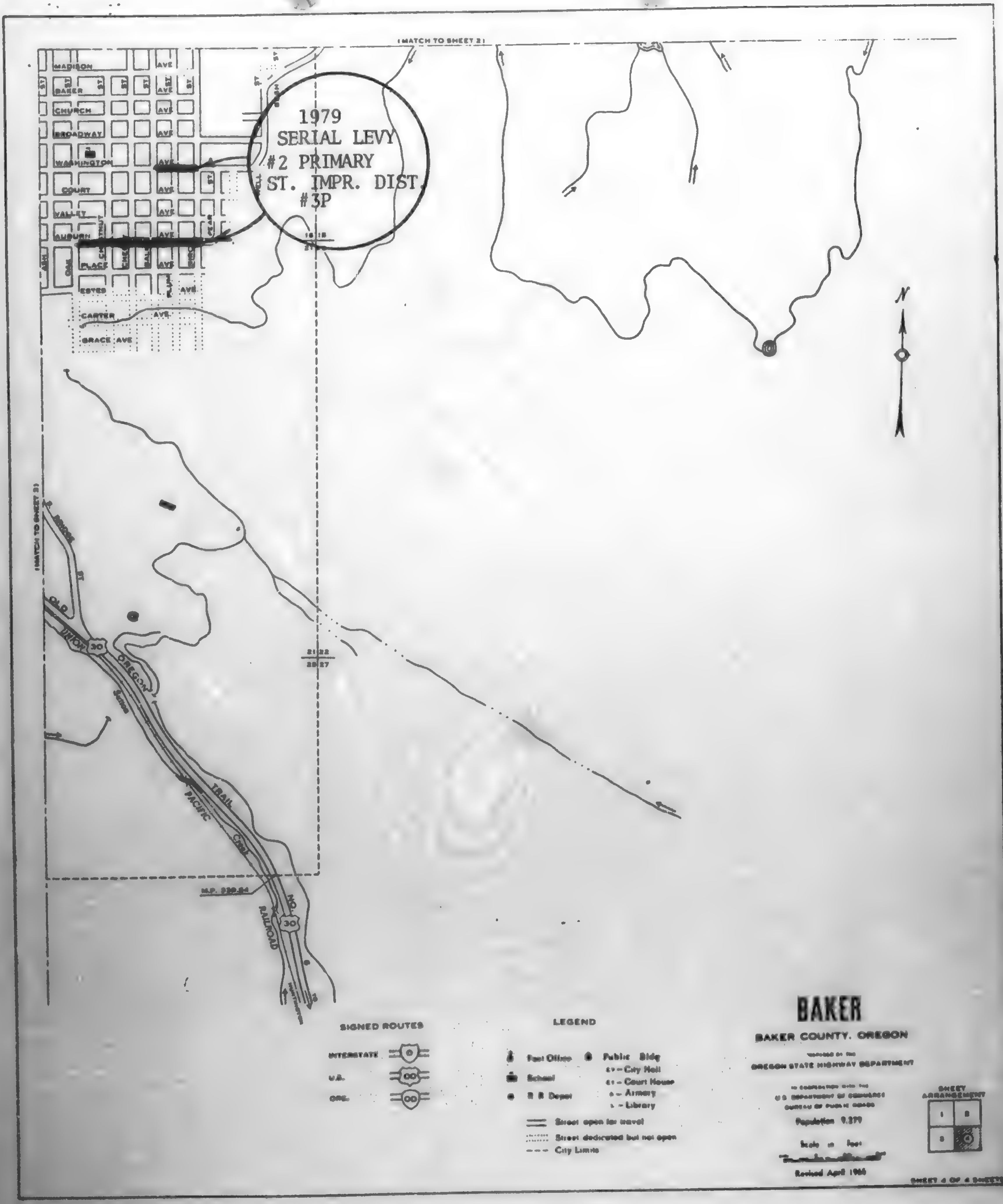
THIS APPLICATION IS AN OFFICIAL REQUEST FROM:

CITY OF Baker and/or Baker COUNTY

By________ By Dennis L. Fuller
MAYOR COUNTY JUDGE

By________ By________

By________


MATCH TO SHEET 2
MATCH TO SHEET 3
MADISON
BAKER
CHURCH
BROADWAY
WASHINGTON
COURT
VALLEY
AUBURN
PLACE
ESTES
CARTER
GRACE AVE
AVE
ST
BRIDGE ST
OLD OREGON TRAIL
UNION PACIFIC RAILROAD
NO. 30
30
N
SIGNED ROUTES
INTERSTATE
U.S.
ORE.
LEGEND
Post Office
Public Bldg
City Hall
Court House
Armory
Library
School
R R Depot
Street open for travel
Street dedicated but not open
City Limits
SHEET ARRANGEMENT
1
2
3
4

1979
SERIAL LEVY
#2 PRIMARY
ST. IMPR. DIST.
#3P

BAKER

BAKER COUNTY, OREGON

OREGON STATE HIGHWAY DEPARTMENT

U.S. DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS

Population 9,279

Scale in feet

Revised April 1966

SHEET 4 OF 4 SHEETS

June 7, 1978

SECTION: Auburn - Oak/Birch
Washington - Balm/Birch
HIGHWAY: FAU 4860 & 4890

COUNTY: Baker
CITY: Baker
Paving Project

LOCATION NARRATIVE REPORT

The proposed project will consist of furinshing and placing a 5" asphaltic concrete surface. The City of Baker will prepare and furnish the base, curb and driveways, at their own cost. The base will be lime stabilized ten inches in depth.

Right-of-Way: The project will be constructed within existing rights-of-way. No serious grade problems are expected in matching the new street grades with the existing property grades.

Auburn Avenue	60' R/W
Washington Avenue	60' R/W

Proposed Typical Section: See attached drawings for typical sections. These typical sections meet the city's standards for primary streets.

Utilities: C.P. National Electric Company: Maintains a powerline 18 feet south of centerline on Auburn and 21 feet south of centerline on Washington. They have been notified and will have them relocated prior to construction.

American Televison Communication Company: Maintains an aerial TV signal line generally on CP National's poles. They have been notified and will coordinate the moving of their lines with C.P. National.

Cascade Natural Gas Company: Maintains an underground distribution system in the area, generally running North and South. They have been notified and will check the grade of their line to see if a conflict exists. If there is a problem the line will be adjusted by the gas company.

Pacific Northwest Bell Telephone Company: Maintains underground service along Auburn and Washington Avenues genrally 23 feet from centerline. There should be no conflict with the construction of streets.

City Utilities: Sanitary Sewer: The city maintains sanitary sewer in the area. The mains run generally north and south with the manhole 6 feet west of centerline. The city will adjust manholes as required. There should be no problems.

Storm Sewer: The city maintains a seperate storm sewer in the area, and will adjust manholes as required. There should be no problems.

Water: The city maintains water distribution mains in the area. The main will be checked and any that is not cast iron will be replaced. All water services not constructed with copper will be replaced. Also water stubs will be installed for vacant lots. The city will make any adjustments required.

Available Contractors: Baker Redi-Mix Inc.: Is located in Baker and have the equipment and personnel to do this job. There should be no trouble getting at least one qualified contractor to bid on this job.

Signing: Signing work will consist of salvaging and reinstalling existing signs. The work will be done by the City of Baker at the city's cost.

Illumination: Illumination will consist of 250 watt mercury vapor lights mounted on California-Pacific poles and furnished and installed by the city under an existing contract between the city and California-Pacific Company.

Minorities: No minorities have been noted within the project limits.

James L. Adamson

James L. Adamson
Director of Public Works

JLA:clr

Resolution
No. 2521

RESOLUTION NO. 2521

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF BAKER, OREGON, SUPPORTING THE CONTINUED OPERATION OF AMTRAK'S PIONEER PROVIDING PASSENGER RAIL SERVICE TO THE BAKER COMMUNITY.

It was also noted the council would like City Manager Hiatt to attend one of the public hearings on the service to comment on its need for Baker and to read the Resolution.

#12
Burning
Ban
June 26th

The Fire Chief recommended to the council that the burning ban be put into effect for this season. The resolution was read by City Manager Hiatt.

Upon the MOTION by Mr. Gwilliam, seconded by Mr. Pierce, and a unanimous vote of those present, Resolution No. 2522 was adopted.

In the discussion before the vote the date the ban becomes effective was changed from June 15th to June 26th in order to allow sufficient publicity.

Resolution
No. 2522

RESOLUTION NO. 2522

RESOLUTION AUTHORIZING AND DIRECTING THE CLOSURE OF ALL OUTDOOR BURNING OF COMBUSTIBLE MATERIALS WITHIN THE CITY LIMITS OF THE CITY OF BAKER, OREGON, DUE TO HAZARDOUS FIRE CONDITIONS UNTIL FURTHER ORDER OF THE CITY COUNCIL AND ESTABLISHING THE EFFECTIVE DATE HEREOF.

#13
FAU
Contract
Authorization

In order to receive FAU funds which are part of 1979 Serial Levy #2 Primary Street Improvement District #3P and 1979 FAU street projects, it is necessary for the council to authorize the Mayor to enter into a contract with the State Highway Commission. The Resolution had been prepared and was read by City Manager Hiatt.

Upon the MOTION by Mr. Gwilliam, seconded by Mr. Landers, and a unanimous vote of those present, Resolution No. 2523 was adopted.

Resolution
No. 2523

RESOLUTION No. 2523

A RESOLUTION AUTHORIZING THE CITY COUNCIL TO ENTER INTO A CONTRACT WITH THE STATE HIGHWAY COMMISSION CONCERNING THE IMPROVING OF 1979 FAU, AND 1979 SERIAL LEVY #2, PRIMARY STREET IMPROVEMENT DISTRICT #3P; ON AUBURN AVENUE BETWEEN OAK STREET AND BIRCH STREET; ON WASHINGTON AVENUE BETWEEN OAK STREET AND BIRCH STREET.

It was noted this project will require an advance on the city's FAU allocation; up to 3-years advance allocation is allowed.

#14
Traffic
Control
Report

1st Street
Main & Camp.
Main & Dewey

Chief of Police Humphress reported on the proposed student projects concerning yield signs on 1st Street and signing at the intersection of Main and Campbell. Also included in his report was the need for better traffic control at Main and Dewey intersection. Chief Humphress favored both projects. The signs at Washington, Court and Valley on First Street, at $65.00 each would run $390.00 and money is not available until after July.

Mr. Gwilliam MOVED, seconded by Mr. Pierce, to install the yield signs on first street. MOTION FAILED for lack of majority with Mr. Gwilliam, Mr. Pierce and Mayor McNeil in favor; and Mr. Neuberger, Mrs. Allen,

#12
Burning
Ban
June 26th

The Fire Chief recommended to the council that the burning ban be put into effect for this season. The resolution was read by City Manager Hiatt.

Upon the MOTION by Mr. Gwilliam, seconded by Mr. Pierce, and a unanimous vote of those present, Resolution No. 2522 was adopted.

In the discussion before the vote the date the ban becomes effective was changed from June 15th to June 26th in order to allow sufficient publicity.

Resolution
No. 2522

RESOLUTION NO. 2522

RESOLUTION AUTHORIZING AND DIRECTING THE CLOSURE OF ALL OUTDOOR BURNING OF COMBUSTIBLE MATERIALS WITHIN THE CITY LIMITS OF THE CITY OF BAKER, OREGON, DUE TO HAZARDOUS FIRE CONDITIONS UNTIL FURTHER ORDER OF THE CITY COUNCIL AND ESTABLISHING THE EFFECTIVE DATE HEREOF.

#13
FAU
Contract
Authorization

In order to receive FAU funds which are part of 1979 Serial Levy #2 Primary Street Improvement District #3P and 1979 FAU street projects, it is necessary for the council to authorize the Mayor to enter into a contract with the State Highway Commission. The Resolution had been prepared and was read by City Manager Hiatt.

Upon the MOTION by Mr. Gwilliam, seconded by Mr. Landers, and a unanimous vote of those present, Resolution No. 2523 was adopted.

Resolution
No. 2523

RESOLUTION No. 2523

A RESOLUTION AUTHORIZING THE CITY COUNCIL TO ENTER INTO A CONTRACT WITH THE STATE HIGHWAY COMMISSION CONCERNING THE IMPROVING OF 1979 FAU, AND 1979 SERIAL LEVY #2, PRIMARY STREET IMPROVEMENT DISTRICT #3P; ON AUBURN AVENUE BETWEEN OAK STREET AND BIRCH STREET; ON WASHINGTON AVENUE BETWEEN OAK STREET AND BIRCH STREET.

It was noted this project will require an advance on the city's FAU allocation; up to 3-years advance allocation is allowed.

#14
Traffic
Control
Report

1st Street
Main & Camp.
Main & Dewey

Chief of Police Humphress reported on the proposed student projects concerning yield signs on 1st Street and signing at the intersection of Main and Campbell. Also included in his report was the need for better traffic control at Main and Dewey intersection. Chief Humphress favored both projects. The signs at Washington, Court and Valley on First Street, at $65.00 each would run $390.00 and money is not available until after July.

Mr. Gwilliam MOVED, seconded by Mr. Pierce, to install the yield signs on first street. MOTION FAILED for lack of majority with Mr. Gwilliam, Mr. Pierce and Mayor McNeil in favor; and Mr. Neuberger, Mrs. Allen, and Mr. Landers opposed.

The need for better signing at Main and Campbell and Main and Dewey will be handled through contacting the Highway Commission. The Council was of the consensus both intersections needed better traffic control.

Certificate of Copy
I hereby certify that this instrument has been compared with the original and is a true and correct copy thereof.
C. Campbell
Cy Recorder

8906

8

DATE: December 9, 1976

TO: Oregon Transportation Commission

FROM:
H. S. Coulter
State Highway Engineer

SUBJECT: Federal-Aid Urban System
Project Cancellation

On the Consent Calendar for the December 21 meeting will be a request from the City of Baker to cancel a previously approved Urban System project.

The request is for cancellation of a street improvement project on two Urban System routes in the City of Baker.

I recommend your approval of this cancellation.

bc R. A. Burco
C. W. Head
F. B. Klaboe
E. S. Hunter
R. L. Schroeder
R. N. Bothman
L. W. Rulien
L. E. George
F. E. Terpin
V. E. Skoog
W. E. Schwartz
D. N. Harwell
George Bell

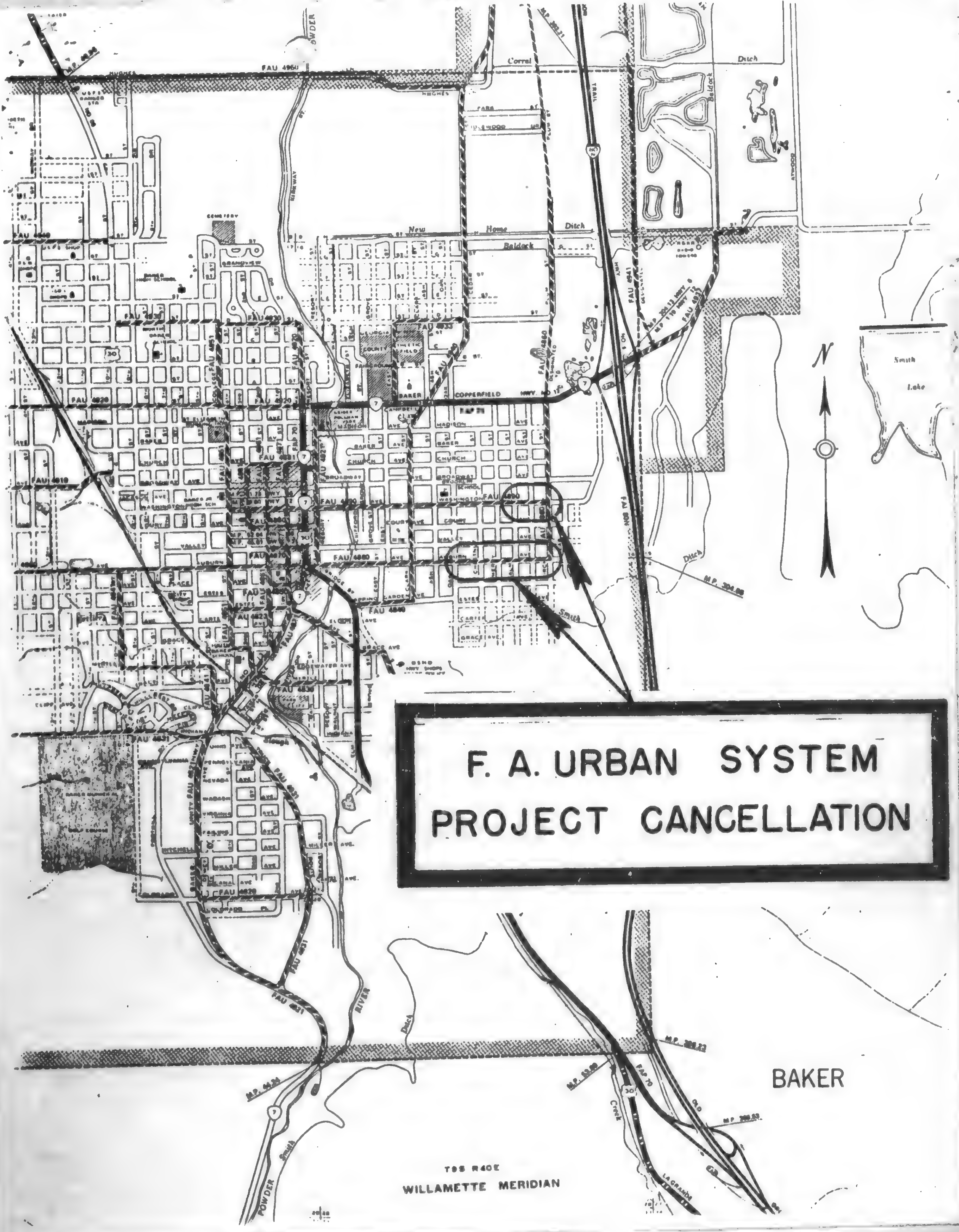
CITY OF BAKER
Urban System Project Cancellation

Oak Street-Birch Street Section
Auburn Avenue, FAU 4860
Balm Street-Birch Street Section
Washington Avenue, FAU 4890
Paving, Curbs and Gutters
0.37 mile
$102,500

This project was approved by the Commission on October 26, 1976.

The City of Baker recently held a public hearing to consider the project on Auburn and Washington Avenue. There were sufficient remonstrances to defeat the project and the City is requesting that the project ben cancelled.

76-1
12/9/76



F. A. URBAN SYSTEM PROJECT CANCELLATION

FAU 4960
Corral
Ditch
New Home Ditch
Baldock
COPPERFIELD
FAU 4920
FAU 4950
FAU 4930
FAU 4910
FAU 4921
POWDER
RIVER
Smith Lake
N
BAKER
T9S R40E
WILLAMETTE MERIDIAN

8706

fans

NOV

CITY OF BAKER

11-29-76

1976-1977 STREET IMPROVEMENT

FAU WASHINGTON & AUBURN AVENUES

On Washington Avenue between Balm Street and Birch Street.
On Auburn Avenue between Oak Street and Birch Street.

FAU Cost (State & Federal) per lineal front foot.	$ 29.7190
Assessment to property owner per lineal front foot.	$ 14.0000
Estimated cost to City of Baker per lineal front foot	$ 2.4892
Estimated total cost per lineal front foot.	$ 46.2082

Item No.	Assessed Evaluation	Description	Front Footage	Owner's Proposed Assessment
9 40 16 DC				
1. yes	$ 20,490.00	WHITE, LOREN A. & L. OPAL Brown Lane, Rt. 1 Box 151 Tax Lot #1400, 990 Washington Avenue	100	$ 1,400.00
2. yes	$ 5,160.00	SCHRADER, W.H. & JESSIE M. 914 Washington Avenue Tax Lot #1900, 914 Washington Avenue	100	$ 1,400.00
3. yes	$ 6,550.00	MEDLIN, BERTIS & CRISTINE 780 Washington Avenue Tax Lot#100, 780 Washington Avenue	100	$ 1,400.00
4. yes	$ 7,820.00	JOHNSON, LUELLA 2023 Birch Street Tax Lot#800, 2005 Birch Street	100	$ 1,400.00
5.	$ 3,360.00	COULTER, F.L. & CAROL V. 1975 Birch Street Tax Lot #7400, 1975 Birch Street	100	$ 1,400.00
6.	$ 3,740.00	BACON, JAMES H. & ROSE E. 1992 Plum, P.O. Box 2 Tax Lot #7300, 1998 Plum Street	100	$ 1,400.00
7. yes	$ 7,690.00	JOHNSON, LUELLA J. 2023 Birch Street Tax Lot #6700, 905 Washington Avenue	100	$ 1,400.00
8.	$ 9,350.00	KUEHN, LAUREN W. & WANDA J. 1912 Balm Street Tax Lot #6600, 1912 Balm Street	100	$ 1,400.00
9 40 16 CD				
9. yes	$ 6,230.00	SULLIVAN, FLORENCE E. 1290 Auburn Avenue Tax Lot #14600, 1290 Auburn Avenue	110	$ 1,540.00
10. yes	$ 4,680.00	HANEY, ADA MAY 1240 Auburn Avenue Tax Lot #14500, 1240 Auburn Avenue	100	$ 1,400.00
11.	$ 8,500.00	KELLEY, JOHN M. & ELLEN A. 1238 Auburn Avenue Tax Lot #14400, 1238 Auburn Avenue	125	$ 1,750.00
9 40 16 DC			100	$ 1,400.00

On Washington Avenue between Balm Street and Birch Street.
On Auburn Avenue between Oak Street and Birch Street.

FAU Cost (State & Federal) per lineal front foot.	$ 29.7190
Assessment to property owner per lineal front foot.	$ 14.0000
Estimated cost to City of Baker per lineal front foot	$ 2.4892
Estimated total cost per lineal front foot.	$ 46.2082

Item No.	Assessed Evaluation	Description	Front Footage	Owner's Proposed Assessment
9 40 16 DC 1. yes	$ 20,490.00	WHITE, LOREN A. & L. OPAL Brown Lane, Rt. 1 Box 151 Tax Lot #1400, 990 Washington Avenue	100	$ 1,400.00
2. yes	$ 5,160.00	SCHRADER, W.H. & JESSIE M. 914 Washington Avenue Tax Lot #1900, 914 Washington Avenue	100	$ 1,400.00
3. yes	$ 6,550.00	MEDLIN, BERTIS & CRISTINE 780 Washington Avenue Tax Lot#100, 780 Washington Avenue	100	$ 1,400.00
4. yes	$ 7,820.00	JOHNSON, LUELLA 2023 Birch Street Tax Lot#800, 2005 Birch Street	100	$ 1,400.00
5.	$ 3,360.00	COULTER, F.L. & CAROL V. 1975 Birch Street Tax Lot #7400, 1975 Birch Street	100	$ 1,400.00
6.	$ 3,740.00	BACON, JAMES H. & ROSE E. 1992 Plum, P.O. Box 2 Tax Lot #7300, 1998 Plum Street	100	$ 1,400.00
7. yes	$ 7,690.00	JOHNSON, LUELLA J. 2023 Birch Street Tax Lot #6700, 905 Washington Avenue	100	$ 1,400.00
8.	$ 9,350.00	KUEHN, LAUREN W. & WANDA J. 1912 Balm Street Tax Lot #6600, 1912 Balm Street	100	$ 1,400.00
9 40 16 CD 9. yes	$ 6,230.00	SULLIVAN, FLORENCE E. 1290 Auburn Avenue Tax Lot #14600, 1290 Auburn Avenue	110	$ 1,540.00
10. yes	$ 4,680.00	HANEY, ADA MAY 1240 Auburn Avenue Tax Lot #14500, 1240 Auburn Avenue	100	$ 1,400.00
11.	$ 8,500.00	KELLEY, JOHN M. & ELLEN A. 1238 Auburn Avenue Tax Lot #14400, 1238 Auburn Avenue	125	$ 1,750.00
9 40 16 DC 12. yes	$ 1,450.00	CRAVEN, LOREN & ELLEN 1710 Chestnut Tax Lot #10900, 1710 Chestnut	100	$ 1,400.00

RECEIVED
COUNTY & CITY SECTION
NOV 29 1976
☐ ENGR. ☐ COOR. ☐ OE ☐ AE ☐ UE
☐ UPE ☐ CE ☐ RE ☐ RPE ☐

em o.	Assessed Evaluation	Description	Front Footage	Owner's Proposed Assessment
9 40 21 AB 29.	$ 5,600.00	STOAKS, ROBERT & LOARSO Trustees %CONNOR, DUIE F. & DOROTHY C. (cp) 1730 Broadway Tax Lot #2500, 1690 Chestnut	100	$ 1,400.00
9 40 21 BA 30.	$ 6,130.00	HUMMELT, BERNARD WILLIAM %LILLY, LOIS W. & BROWN, DARLINE E. (cp) 1207 Auburn Avenue Tax Lot #500, 1207 Auburn Avenue	100	$ 1,400.00
31.	$ 10,520.00	EIDSON, TRACY & FLUVIA 915 "D" Street Tax Lot #400, 1215 Auburn Avenue	50	$ 700.00
32. yes	$ 8,890.00	LETTIG, MELVIN J. & LAVAUGHN M. MARSHALL %LAUGHLIN, VIOLA (L.E.) 1219 Auburn Avenue Tax Lot #200, 1219 Auburn Avenue 2407	50	$ 700.00
33. ✓ yes	$ 9,980.00	PROFFITT, NORMAN & BETTY 705 Church Street Tax Lot #100, 1223 Auburn Avenue	60	$ 840.00
34. yes	$ 24,500.00	FARRAR, BERT L. & MABEL 1680 Oak Street Tax Lot #101, 1680 Oak Street	75	$ 1,050.00
		TOTALS	3070'	$ 42,980.00

Item No.	Assessed Evaluation	Description	Front Footage	Owner's Proposed Assessment
24.	$ 8,890.00	LETTIG, MELVIN J. & LAVAUGHN M. MARSHALL $LAUGHLIN, VIOLA (L.E.) 1219 Auburn Avenue Tax Lot #200, 1219 Auburn Avenue	50	$ 700.00
25.	$ 9,980.00	PROFFITT, NORMAN & BETTY, $GRISSOM, ROY & EULA 1223 Auburn Avenue Tax Lot #100, 1223 Auburn Avenue	60	$ 840.00
26.	$24,500.00	FARRAR, BERT L. & MABEL 1680 Oak Street Tax Lot #101, 1680 Oak Street	75	$ 1,050.00
		TOTALS	2270	$ 31,780.00

RECEIVED
COUNTY & CITY SECTION
NOV 29 1976
☐ ENGR. ☐ COOR. ☐ OE ☐ AE ☐ UE
☐ UPE ☐ CE ☐ RE ☐ RPE ☐

RECEIVED
COUNTY & CITY SECTION
NOV 29 1976
☐ ENGR. ☐ COOR. ☐ [illegible] ☐ AE ☐ UE
☐ UPE ☐ CE ☐ RE ☐ RPE ☐

CITY OF BAKER

1976-1977 STREET IMPROVEMENT

FAU AUBURN AVENUE

On Auburn Avenue between Oak Street and Birch Street

FAU Cost (State & Federal) per lineal front foot..................$28.5995
Assessment to property owner per lineal front foot................$14.0000
Estimated cost to City of Baker per lineal front foot.............$11.5534
Estimated total cost per lineal front foot........................$54.1529

Item No.	Assessed Evaluation	Description	Front Footage	Owner's Proposed Assessment
9 40 16CD 1.	$ 6,230.00	SULLIVAN, FLORENCE E. 1290 Auburn Avenue Tax Lot #14600, 1290 Auburn Avenue	110	$ 1,540.00
2.	$ 4,680.00	HANEY, ADA MAY 1240 Auburn Avenue Tax Lot #14500, 1240 Auburn Avenue	100	$ 1,400.00
3.	$ 8,500.00	KELLEY, JOHN M. & ELLEN A. 1238 Auburn Avenue Tax Lot #14400, 1238 Auburn Avenue	125	$ 1,750.00
9 40 16DC 4.	$ 1,450.00	CRAVEN, LOREN & ELLEN 1710 Chestnut Tax Lot #10900, 1710 Chestnut	100	$ 1,400.00
5.	$ 12,460.00	GEILS, RALPH A. & MARY P. 1100 Auburn Avenue Tax Lot #11401, 1100 Auburn Avenue	100	$ 1,400.00
6.	$ 2,780.00	JOHNSON, GUNNER C. & NETTA F. 1720 Cherry Street Tax Lot #11500, 1720 Cherry Street	100	$ 1,400.00
7.	$ 8,050.00	BOREN, MARVIN A. & ETHEL L. 1709 Balm Street Tax Lot #12000, 1707 Balm Street	100	$ 1,400.00
8.	$ 4,620.00	ROBINSON, HAZEL R. 1706 Balm Street Tax Lot #12200, 1706 Balm Street	100	$ 1,400.00
9.	$ 660.00	STROHL, ROBERT W. & ARVELLE 405 E. Helena, Ellensburg, Wa, 98926 Tax Lot #12700, Vacant	50	$ 700.00
10.	$ 5,140.00	WARD, J.C. & VERA PEGGY 3895 Kirkway Tax Lot #12701, 804 Auburn Avenue	50	$ 700.00

study the said Engineer's Report at the office of the City Recorder.

Written remonstrances must be filed against the proposed improvements with the City Recorder of the City of Baker, Oregon, not later than 8:15 P.M. o'clock on the 23rd day of November, 1976.

NOTICE IF FURTHER GIVEN that remonstrances by the owners of two-thirds of the front footage of the property abutting upon the streets upon which the proposed paving, curbing and other street improvements are to be made shall operate to defeat any further action on the proposed improvements for a period of six months.

The desceription of the boundaries of the area affected by the proposed street improvements and the names of the record owners of the properties adjacent to and abutting upon said area to be improved are as follows, to-wit:

"1977 FAU Auburn Avenue". "All properties directly fronting upon: Auburn Avenue between Oak Street and Birch Street, contained within the assessment boundaries as shown on map drawing attached to the Engineer's Report entitled "1977 FAU Auburn Avenue".

The last deed of record runs to: (see attached assessment roll)

NOTE: All of the above descriptions are in Baker, Baker County, Oregon according to the official plat thereof on file in the office of the County Clerk, Baker, County, Oregon.

AND AS OF: November 9, 1976, at 5:00 P.M. o'clock.

RECEIVED
COUNTY & CITY SECTION
NOV 29 1976
☐ ENGR. ☐ UPE ☐ ☐ CR ☐ ☐ R ☐ DE ☐ ☐ AE ☐ ☐ II ☐

NOTICE IF FURTHER GIVEN that remonstrances by the owners of two-thirds of the front footage of the property abutting upon the streets upon which the proposed paving, curbing and other street improvements are to be made shall operate to defeat any further action on the proposed improvements for a period of six months.

The desceription of the boundaries of the area affected by the proposed street improvements and the names of the record owners of the properties adjacent to and abutting upon said area to be improved are as follows, to-wit:

"1977 FAU Auburn Avenue". "All properties directly fronting upon: Auburn Avenue between Oak Street and Birch Street, contained within the assessment boundaries as shown on map drawing attached to the Engineer's Report entitled "1977 FAU Auburn Avenue".

The last deed of record runs to: (see attached assessment roll)

NOTE: All of the above descriptions are in Baker, Baker County, Oregon according to the official plat thereof on file in the office of the County Clerk, Baker, County, Oregon.

RECEIVED
COUNTY & CITY SECTION
NOV 29 1976
☐ ENGR. ☐ CLEAR. ☐ DE ☐ AE ☐ UE
☐ UPE ☐ CE ☐ BE ☐ RPE ☐

AND AS OF: November 9, 1976, at 5:00 P.M. o'clock.

That the total estimated cost of the improvement to be assessed and charged against the properties to be specially benefited is the sum of **$35,368.75.**

8906

8

MCH:sch

bc R. A. Burco
C. W. Head
F. B. Klaboe
E. S. Hunter
R. L. Schroeder
R. N. Bothman
W. E. Schwartz
E. L. Hardt
L. W. Rulien
L. E. George
V. E. Skoog
D. N. Harwell
George Bell

DATE: October 18, 1976

TO: Oregon Transportation Commission

FROM:

H. S. Coulter
State Highway Engineer

SUBJECT: Federal-Aid Urban System Project Requests

Presented for your consideration at the October 26 meeting will be four requests for approval of Urban System Projects.

The City of Baker has requested a project, estimated to cost $102,500 to improve sections of Auburn and Washington Avenues.

Clackamas County is requesting a project, estimated to cost $288,000 to widen S.E. 82nd Drive to accommodate four lanes of traffic between Lawnfield Road and the Clackamas Highway.

Multnomah County has requested two projects. One is for widening East Burnside Road to four lanes, from Stark Street to Bull Run Road, at an estimated cost of $2,585,000. The second project is to construct an off-ramp from the Sellwood Bridge to Macadam Avenue for the purpose of reducing conflicting turn movements. Cost of this work is estimated at $370,000.

Federal Urban System funds for these four projects is estimated at $2,877,130 with the State providing approximately $234,185 in match funds and an equal amount being contributed by the local entities of government.

These projects have been investigated and are eligible for funding under the Federal-Aid Urban System Program. I recommend your approval of these projects and request authority to sign the project agreements for and on your behalf.

Att.

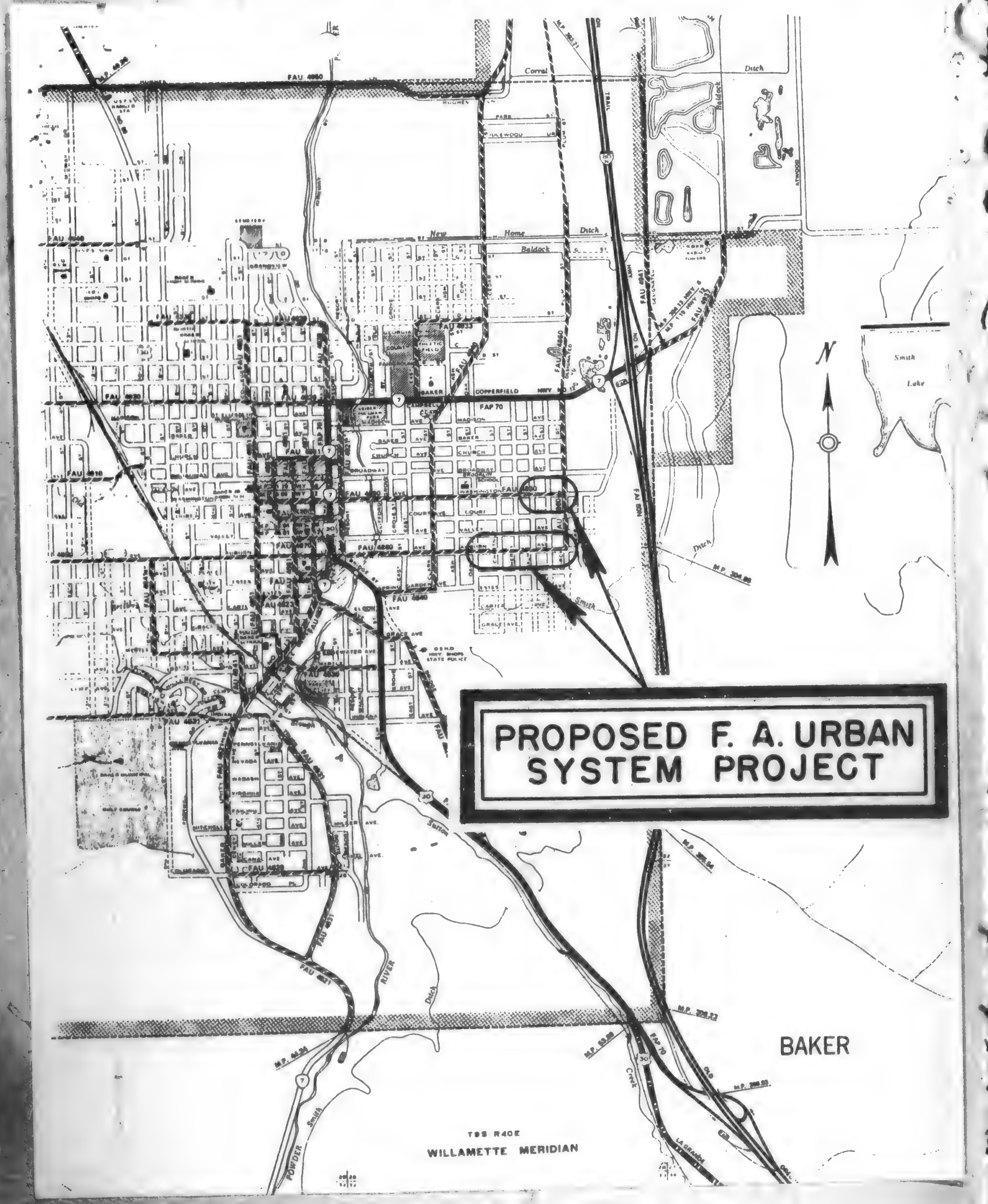
CITY OF BAKER
Proposed Urban System Project

Oak Street-Birch Street Section
Auburn Avenue, FAU 4860
Balm Street-Birch Street Section
Washington Avenue, FAU 4890
Paving, Curbs and Gutters
0.37 mile
$102,500

Project will consist of constructing approximately 1,959 lineal feet of street paved 44 feet wide with curbs and gutters placed on 10-inch lime stabilized subgrade to be provided by city at city's expense.

The City of Baker will perform the preliminary engineering and the State will perform the construction engineering.

76-j
10/15/76



PROPOSED F. A. URBAN SYSTEM PROJECT

FAU 4860
Corral Ditch
Baldock Slough
New Home Ditch
Baldock
COPPERFIELD
FAP 70
MADISON
BAKER
CHURCH
BROADWAY
WASHINGTON
COURT
VALLEY
GRACE AVE
Smith Lake
N
POWDER RIVER
Smith Ditch
Sutton Creek
BAKER
T9S R40E
WILLAMETTE MERIDIAN
LA GRANDE

8906

FAUS

FORM 81-734-3030

OREGON STATE HIGHWAY DIVISION

FILE:

INTER-OFFICE CORRESPONDENCE
La Grande, Oregon
September 17, 1976

R.C. Lang

FROM: R. C. Lang
Regional Federal Aid Engineer

TO: R. H. Prange
Local Projects Engineer

SALEM

SUBJECT: Proposed FAUS Project
Route 4860 (Auburn Ave.),
Oak St.-Birch St. Sec.
Route 4890 (Washington Ave.),
Balm St.-Birch St. Sec.
Baker

Attached is Project Application and Environmental Assessment for the above project.

The City is proposing to perform the required preliminary engineering utilizing city standards and designs which were incorporated into the Birch Street Project, Campbell Street-Auburn Avenue Section.

Also the City is proposing to perform the lime stabilization of subgrade with City forces at its sole cost. Required utility adjustments will be accomplished prior to stabilization.

It is apparent to the Region that the City of Baker has an adequate engineering staff to perform the required preliminary engineering and your approval is recommended. We also recommend the acceptance of the City's proposal of lime stabilization of the sub-grade to the required design at its sole cost.

The Environmental Assessment has been reviewed by the Region and found to be acceptable.

The attached Authority for Survey shows the anticipated charges for P. E.

RCL/dlm
Attachments

cc: Verne Allen
Joe Schlieski
Harlin Gerlach

RECEIVED
COUNTY & CITY SECTION
SEP 21 1976
☐ ENGR. ☐ CGOR. ☑ CE ☒ AE ☐ UE
☐ UPE ☐ CE ☒ RE ☐ RPE ☐

PROJECT MANAGEMENT
SEP 21 '76
REFER TO:
FOR
Info
Investigate

MAINOR - GARY

8906

FEDERAL AID PROJECT REQUEST

Date September 10, 1976

Applicant Agency City of Baker

Request for: Off-System ____, FAS-C ____, FAUS X Project

Federal Aid Route No. 4860-4890 Route Name 4860 (Auburn) - 4890 (Washington)

Project Name FAU Washington and Auburn Avenues

Project Length 1959 L.F. Project Location (Attach sketch map)

Project Description Project will consist of constructing approximately 1959 L.F. of street paved 44 ft. wide with curbs and gutters, placed on 10" lime stabilized sub grade to be provided by City at city's expense.

Average Daily Traffic (Estimated) 450 Design Speed 25 MPH

Complete Applicable Sections:

I. ROADWAY DATA

1. Existing Roadway: (Attach sketch)

Width 22 Ft. Travel Lanes 2 Shoulders Unimproved

Medians None Parking Unimproved

Sidewalks Five foot existing sidewalk

Remarks Washington has 80 ft. right-of-way and Auburn has 60 ft. of right-of-way.

2. Desired Roadway Cross Section: (Attach sketch)

Width 44 Travel Lanes Two (2) 12 ft. Shoulders N/A

Medians None Parking None

Curbed Yes Length Curb Radii 10 ft.

Sidewalk/Bikeway Sidewalk existing

Remarks Concrete driveways to be paid for by applicant

II. RIGHT-OF-WAY DATA

1. Existing Right-of-Way:

General Width 60 ft. Minimum 60 ft. Maximum 80 ft.

2. Has right-of-way been acquired for this project subsequent to January 2, 1971?
Yes ________ No No

3. Will additional right-of-way be needed? Yes ________ No No
If answer is "yes," will cost of right-of-way be subject to Federal reimbursement? Yes ________ No ________
Remarks

III. TRAFFIC CONTROL DATA

1. Existing Signalization and Location:

None

2. **Proposed Signalization:**

Location None

Type N/A
Phases N/A
Type of Suspension N/A
Interconnected N/A
Remarks

3. **Permanent Signing:**

Include in project or by applicant? No additional signing will be required, will be adjusted as required by applicant.

4. **Permanent Striping:**

Include in project or by applicant? None required

IV. ILLUMINATION DATA

1. **Existing Illumination and Location:**

250 watt Mercury Vapor luminares located at intersections

2. **Proposed Illumination:**

Location Intersections
Type No Change
Remarks To be adjusted as required by owner

V. STRUCTURE DATA

1. **Existing Structure:**

Location None
Type N/A
Approach Roadway Width N/A Shoulder Width N/A
Length N/A Width N/A
To remain in place? N/A

2. **Proposed Structure:**

Location No
Approximate Size: Length N/A Width N/A

Are sidewalk/bikeways desired: N/A

Are any utilities to be attached to structure? N/A

Are provisions for illumination desired? N/A

Are there any unusual or complicating conditions? N/A

Remarks

VI. RAILROAD DATA

1. Are there any railroad crossings? Yes ______ No X

   Name of Railroad N/A
   Existing Crossing Protection N/A

2. Will existing railroad crossing be altered? N/A

   Remarks

VII. ACTION PLAN REQUIREMENTS

During project development for Category 1, 2, and 3 projects, the city or county shall perform and document responsibilities as found indexed in the Oregon Action Plan, particularly Citizen Involvement and Participation; Environmental Aspects; and Public Hearing Requirements.

The OSHD Region Engineer will provide assistance, liaison and monitoring for these activities.

Responsible local office and party to be contacted for the following activities:

1.	Citizen Involvement	City Manager Office
2.	Environmental	City Manager Office
3.	Public Hearing	City Manager Office

Remarks

VIII. GENERAL INFORMATION

1. Project preliminary engineering to be performed by:

   Applicant X State ______ Consultant ______

2. Project construction engineering to be performed by:

Applicant_________ State S Consultant_________

3. Will applicant perform any work prior to or after award of contract?
Yes X No_________
If "yes," describe briefly: The City will excavate to design grade and stabilize the sub grade ten inches deep with lime.

4. Applicant's estimate of cost for requested project:

Roadway Work	$ 97,630.75
Right-of-way costs (if participating)	-0-
Traffic control	-0-
Illumination	-0-
Structures	-0-
Railroad	-0-
Other____________________	-0-
Preliminary engineering	4,883.00
PROJECT TOTAL	$ 102,513.75

Remarks______________________________

THIS APPLICATION IS AN OFFICIAL REQUEST FROM:

CITY OF Baker and/or Baker COUNTY

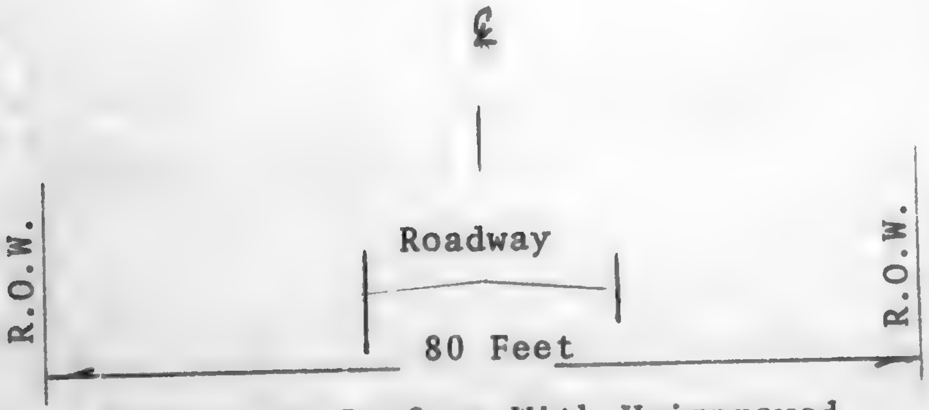
By____________________ By Dennis L Fuller
MAYOR COUNTY JUDGE

By____________________ By____________________

By____________________

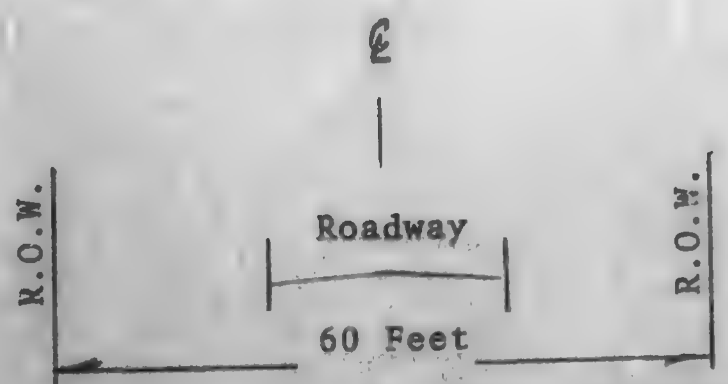
EXISTING TYPICALS

WASHINGTON AVENUE


℄
Roadway
R.O.W.
R.O.W.
80 Feet

22' Gravel Surface With Unimproved Shoulders

AUBURN AVENUE


℄
Roadway
R.O.W.
R.O.W.
60 Feet

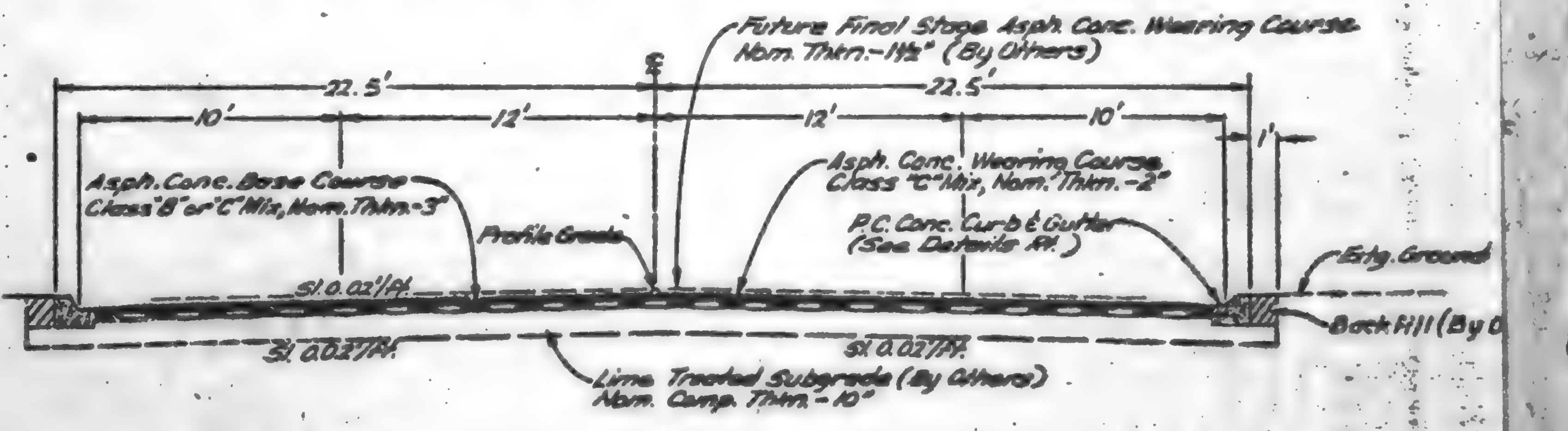
21' Gravel Surface With Unimproved Shoulders

PROPOSED

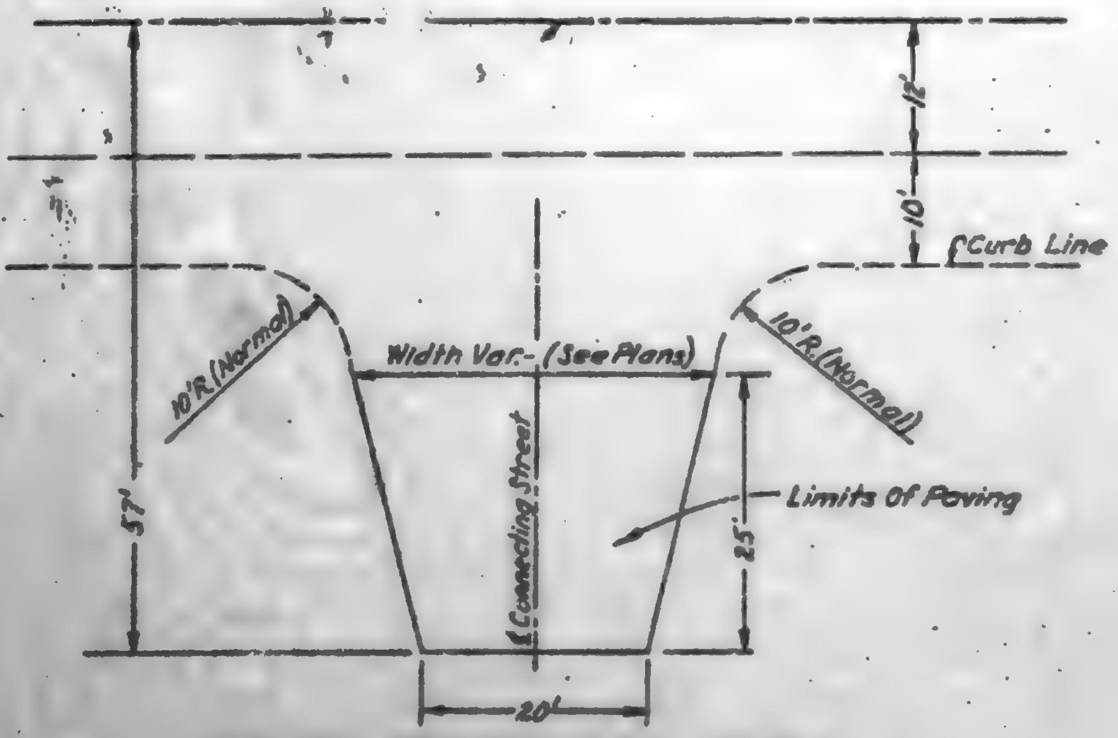
page 1

No R/W Map

TYPICAL SECTION



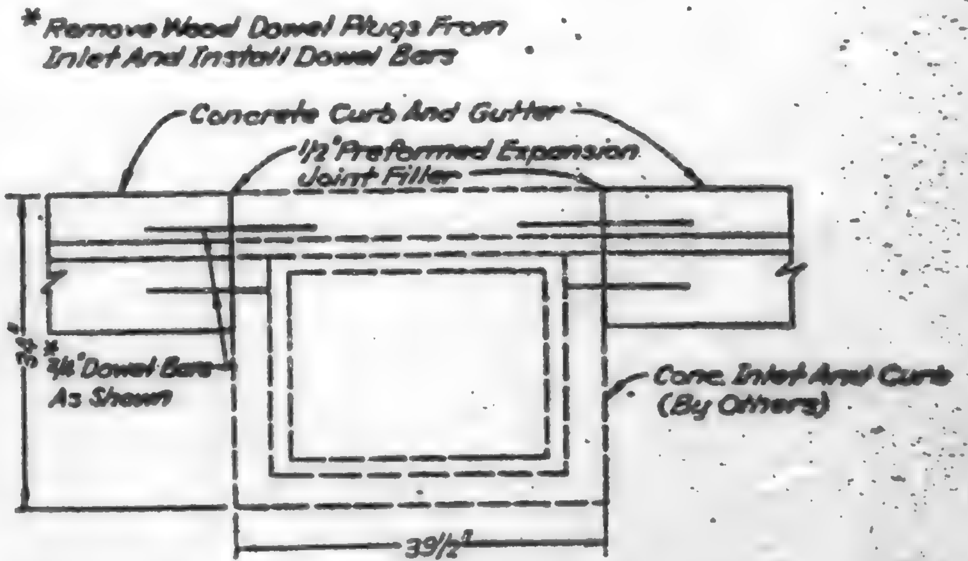
Future Final Stage Asph. Conc. Wearing Course
Nom. Thkn.-1½" (By Others)
℄
22.5'
22.5'
10'
12'
12'
10'
1'
Asph. Conc. Base Course
Class "B" or "C" Mix, Nom. Thkn.-3"
Profile Grade
Asph. Conc. Wearing Course
Class "C" Mix, Nom. Thkn.-2"
P.C. Conc. Curb & Gutter
(See Details Pt.)
Extg. Ground
Sl. 0.02'/Ft.
Back Fill (By O
Sl. 0.02'/Ft.
Sl. 0.02'/Ft.
Lime Treated Subgrade (By Others)
Nom. Comp. Thkn.-10"



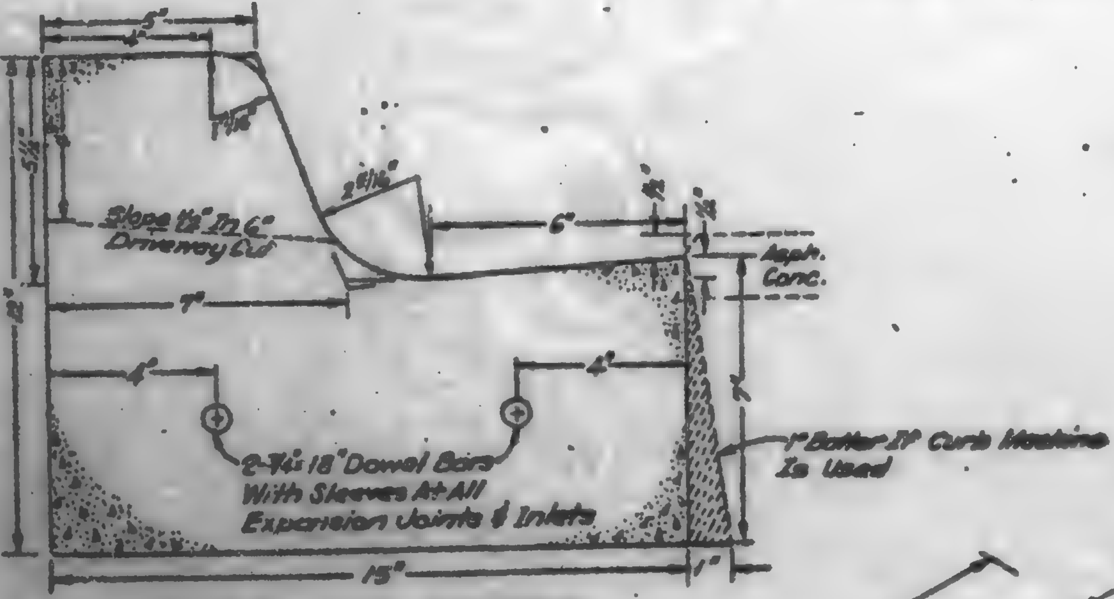
12'
10'
℄ Curb Line
10'R.(Normal)
10'R.(Normal)
Width Var.-(See Plans)
℄ Connecting Street
Limits Of Paving
57'
25'
20'

STREET CONNECTION DETAIL
(For Location, See Plans)

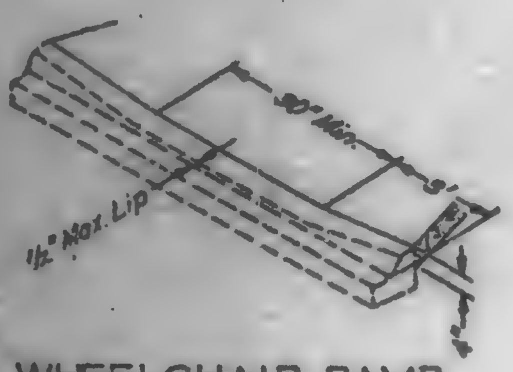
hers)


* Remove Wood Dowel Plugs From
Inlet And Install Dowel Bars
Concrete Curb And Gutter
1/2" Preformed Expansion
Joint Filler
* 3/4" Dowel Bars
As Shown
Conc. Inlet And Curb
(By Others)
39 1/2"

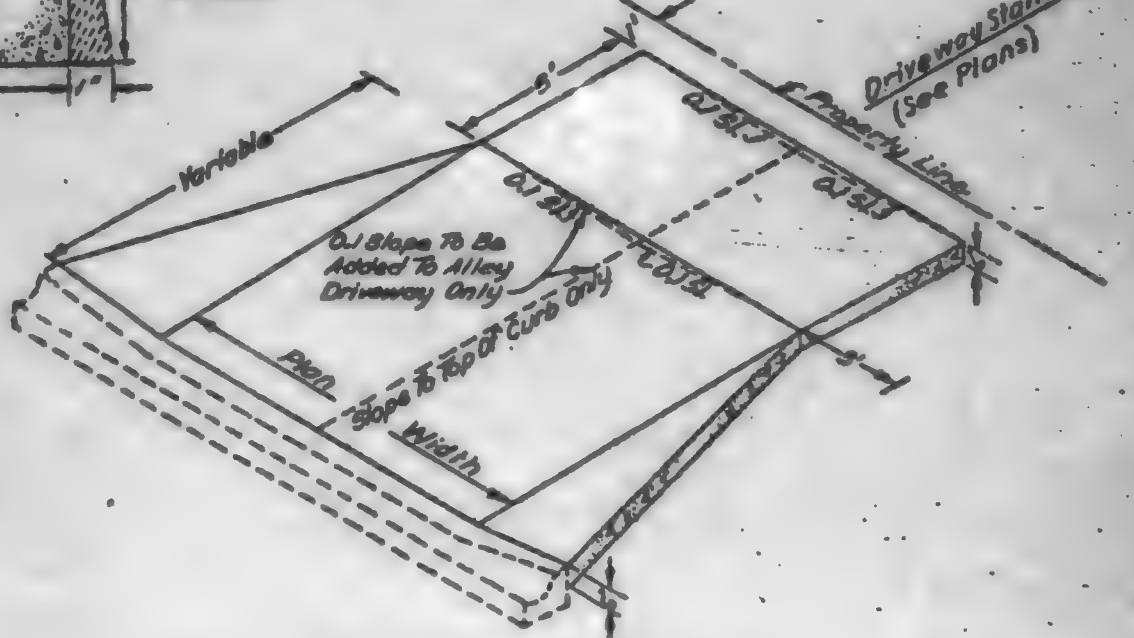
CURB CONSTRUCTION AT INLETS


5"
4"
5 1/2"
1 1/16"
2 5/16"
Slope 1/2" In 6"
Driveway Cut
6"
Asph.
Conc.
7"
12"
4"
4"
2-3/4" x 18" Dowel Bars
With Sleeves At All
Expansion Joints & Inlets
1" Batter If Curb Machine
Is Used
15"
1"

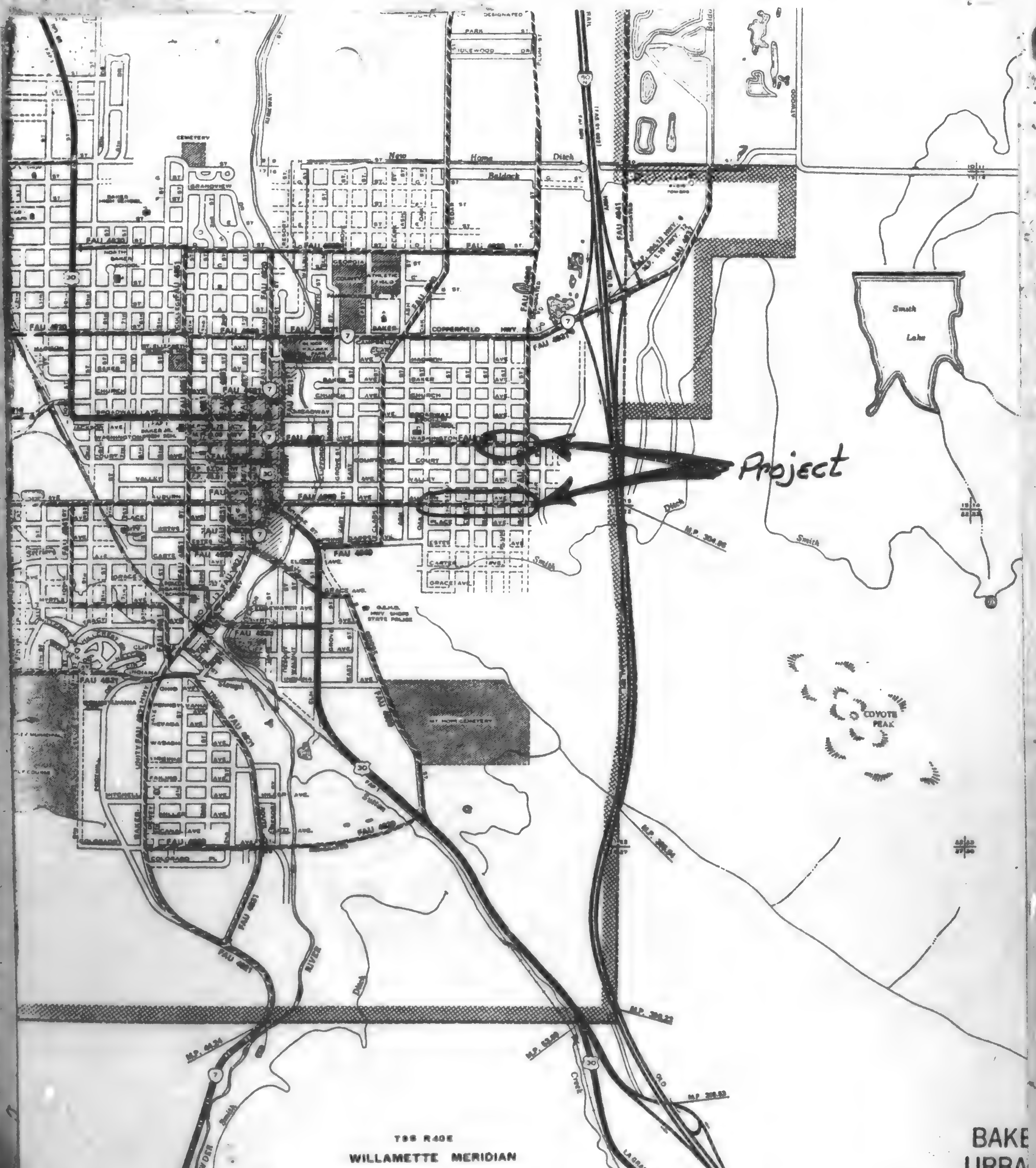
CURB AND GUTTER

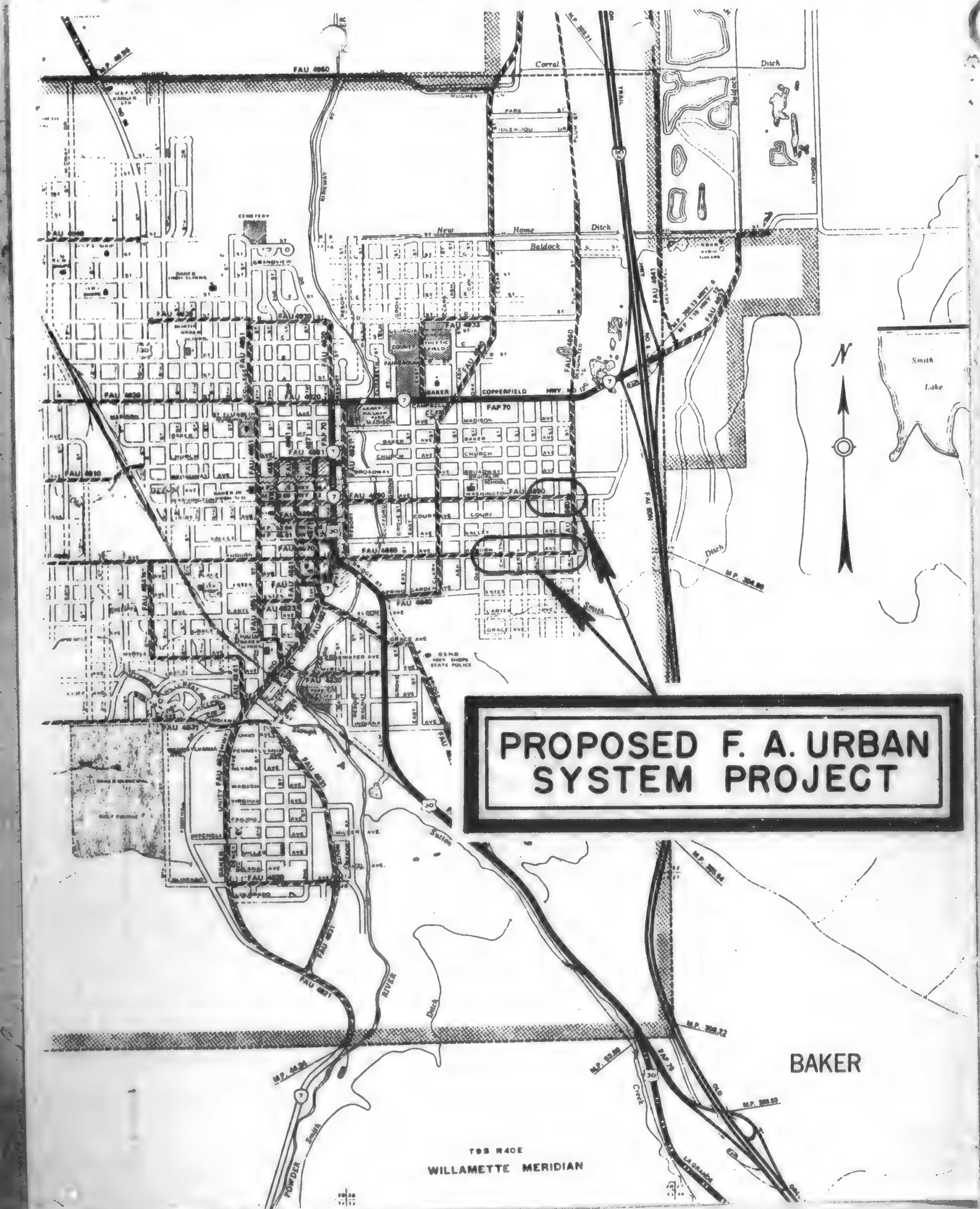

30" Min.
5'
1/2" Max. Lip
4"

WHEELCHAIR RAMP
DETAIL


Driveway Station
(See Plans)
Property Line
Variable
5'
0.1' Sl.
0.1' Slope To Be
Added To Alley
Driveway Only
Slope To Top of Curb Only
Plan
Width
5'

DRIVEWAY DETAIL


Project
Smith Lake
COYOTE PEAK
New Home Ditch
Baldock
CEMETERY
MT HOPE CEMETERY
POWDER RIVER
T9S R40E
WILLAMETTE MERIDIAN
▨ CENTRAL BUSINESS DISTRICT
BAKE
URBA
OREGON S
U S DEPARTME
FEDERAL HIG



PROPOSED F. A. URBAN SYSTEM PROJECT

FAU 4660
Corral Ditch
New Home Ditch
Baldock
FAU 4641
FAU 4633
FAU 4650
FAU 4630
FAU 4631
FAU 4623
FAU 4610
FAP 70
COPPERFIELD HWY
CAMPBELL
MADISON AVE
BAKER
CHURCH AVE
BROADWAY
WASHINGTON
COURT AVE
VALLEY
AUBURN
ESTES
GRACE AVE
CEMETERY
Smith Lake
Smith Ditch
Ditch
N
RIVER
Sutton Creek
Creek
POWDER
LA GRANDE
OLD
M.P. 304.86
M.P. 303.56
M.P. 306.27
M.P. 305.53
BAKER
T9S R40E
WILLAMETTE MERIDIAN
30
7
80N

1979 Boot Hill Cemetery-Dog Cr. 8907
Sec. of FAS B536 (Dog Cr. Rd.)
(Aggregate base & paving)

C#Q 6229 8-18-77

Grading & drainage by County
Rock & paving by State Contract

State to pay PE
1977 approval

Paid by State

PE State Costs

8907

HIGHWAY DIVISION INVOICE

INVOICE NUMBER
133523

BILLING REQ. NUMBER
CC 81-76

DATE
1-29-82

YOUR ORDER NUMBER

SEND REMITTANCE TO:
OREGON STATE HIGHWAY DIVISION
TRANSPORTATION BUILDING
SALEM, OREGON 97310

CODE
GRANTCT

CREDIT DISTRIBUTION

325.00	1,034.57
512-1055-296	1,034.57
512-1055-297	(1,034.57)

GRANT COUNTY COURT
COURTHOUSE
CANYON CITY OR 97820

ATTN THOM LEDGERWOOD, RDMSTR

DESCRIPTION	TOTAL PRICE
FINAL BILLING - BOOT HILL CEMETERY ROAD-DON CREEK SECTION. THIS IS AN FAS-C PROJECT NO. RS-B536(2).	
COUNTY SHARE OF COSTS 26,234.57 COUNTY ADVANCE DEPOSIT (25,200.00)	
AMOUNT DUE STATE	1,034.57
110.00 FINAL	

734-1150 (6-81)

.8907

Form 734-1191 (Rev. 5/77)

OREGON STATE HIGHWAY DIVISION

REQUEST FOR OUTSIDE BILLING

(OR ADVICE OF CASH TRANSACTION)

DATE	BILLING REQ. NO.	YOUR ORDER NO.	CREDIT DISTRIBUTION
12-22-81	CC 81-76		512-1055-297

BILL TO: Code:

Grant County Court
Courthouse
Canyon City, Oregon 97820
Attn: Mr. Thom Ledgerwood, Roadmaster

DESCRIPTION: (Describe the service rendered, location, etc. Refer to agreements, letters and orders by which payer authorized the service.)	QUANTITY	UNIT PRICE	TOTAL PRICE
FINAL BILLING: Boot Hill Cemetery Road-Dog Creek Section. This is an FAS-C Project No. RS-B536(2).			
County Share of Costs			$26,234.57
County Advance Deposit			25,200.00
AMOUNTY DUE STATE			$ 1,034.57
(Attach Itemized Statement with Billing)			

Advance Deposit Amount	$ 25,200.00
Advance Deposit Previously Transferred to Highway Fund	$ 20,200.00
Balance	$ 5,000.00
Transfer to Highway Fund	$ 5,000.00
Refund Due	$ - - - -

Amount Due . . . . . $ 1,034.57

Submitted by:

Harold Reynoldson
Harold Reynoldson

Partial or final request for billing FINAL

Approved:

D E Swan
D. E. Swan

Number of the previous request in connection with this service.

SP*35736-734

OREGON STATE HIGHWAY DIVISION

ITEMIZED STATEMENT OF FINAL COSTS **DATE:** 12-22-81

COUNTY GRANT **Contract No.** 8907 **Date Completed** Oct. 9, 1979

PROJECT # RS-B536(2) **Section** Boot Hill Cemetery Road-Dog Creek

PAYMENTS TO CONTRACTOR

	ITEM	TOTAL COST
Payment to Contractor	(Federal Participation)	$334,761.63
Engineering		32,589.40
Liquidated Damages		- 200.00
E.E.O.		27.84
		$367,178.87
Construction Engineering	(Non Participation)	$ 219.59
		$367,398.46

Federal Funds Collected $314,929.32

County Share of Costs:
1/2 ($367,178.87 - $314,929.32 + $219.59) = $26,234.57

County Share of Costs	$26,234.57
County Advance Deposit	25,200.00
AMOUNT DUE STATE	$ 1,034.57

Reference: Billing Form CC 81-76

FORM 734-1745

STATEMENT OF COSTS INCURRED UNDER PROJECT AGREEMENT

ITEM NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT	NOTATIONS (*Payee must not use this column*)
	Boot Hill Cemetery-Dog Cr. Section					
	Dog Cr. Rd., FAS B 536					
	Grant County					
	Construction					
	Type Code 6201					
	Roadway (Sta. 100+00 To Sta. 202+56)					
	Final Contract Payment Summary	Lump	Sum		$333,261.63	
	Construction Engineering					
	State	All	Required		32,589.40	
	Liquidated Damages	All	Required		(200.00)	
	Final Contract Payment Summary	Lump	Sum		1,500.00	
	Total Participating Construction Engineering				$ 33,889.40	
	Misc. Project Cost					
	EEO Monitoring Expense	All	Required		$ 27.84	
	Total Participating Cost				$367,178.87	
	Nonparticipating Cost					
	Construction Engineering	All	Required		206.09	
	Total Project Cost				$367,384.96	
	Prepared based on Participating Costs as shown on Federal Billing as of 9/27/81.					
						398.46 384.96 13.50
						206.09 13.50 219.59
	AMOUNT CARRIED FORWARD					

MEMORANDUM

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

FINAL VOUCHER FOR PAYMENT UNDER 23 U.S.C. 117

D.O. VOUCHER NO.	
STATE VOUCHER NO.	
DATE	
FHWA SCHEDULE NO.	
PAID BY	

Appropriation:

The United States, Dr., TO Treasurer of the State of Oregon

Address Capitol Bldg. - Salem, OR 97310

STATE	FEDERAL AID PROJECT NO.
PROGRAM APPROVED Oregon	VOUCHER NO. [illegible] (2) From: To:

FINANCIAL DATA 9/21/78 12/1/80

TOTAL ACTUAL COST	TOTAL PARTICIPATING COST	PRO-RATA OF PARTICIPATING COST CLAIMED FROM U.S.	TOTAL AMOUNT CLAIMED FROM U.S.	LESS PREVIOUS PAYMENTS	NET AMOUNT CLAIMED
$367,384.98	$367,176.87	[illegible]	$314,929.22	$314,929.22	$ 0.00

RECEIVED IN FHWA DIVISION OFFICE		
FHWA REVIEW PERFORMED		
PASSED FOR PAYMENT		Oregon
FORWARDED BY FHWA DIVISION OFFICE		10/14/81

V.E. Skoog, Controller

0.00

Form FHWA-1447A (4-78) PREVIOUS EDITIONS ARE OBSOLETE

```
TOTAL TO DATE JOB COST SUMMARY                                  OCTOBER 1981        PAGE 233

                                                                   FISCAL          GRAND TOTAL     ACTIVE YRS
DESCRIPTION OF JOB OR DEPARTMENT    PREFIX     FUNCTION  GR  CURRENT MONTH   YEAR TO DATE        TO DATE      BEG   END
                                   511  1081     950     00 P 1                                      348.28    78    78
                                   511  1081     985     00 P 1                                      105.19    78    78
                                                 TOT        P1      307.63         307.63        474,078.56
                                                 TOT        N1                                        45.98CR
                                              ** JOB TOTALS **      307.63  **     307.63  **    474,032.58  **

                                                                                                            STATE
 BOOT HILL CENTRY-DOG CREEK   CONT NO 8907 * FA PROJ NOS RS  536002 100
                                   512  1055     201     00 P 1                                  334,761.63    79    80
                                   512  1055     203     00 P 1                                      200.00CR  79    79
                                   512  1055     208     00 N 1                                       15.52CR  80    80
                                   512  1055     296     00 N 9   8,849.01                       335,129.32CR  79    81
                                   512  1055     297     00 N 9                                   20,200.00    79    79
                                   512  1055     298     00 N 9   8,849.01CR                     314,929.32    79    81
                                   512  1055     900     00 P 1                   33.11           32,313.50    79    81
                                   512  1055     900     00 N 1                                      206.09    79    80
                                   512  1055     900     01 P 1                   33.11CR                      79    81
                                   512  1055     920     00 P 1                                       93.81    79    80
                                   512  1055     921     00 P 1                                      170.39    79    79
                                   512  1055     928     00 N 1                                       15.52    80    80
                                   512  1055     945     00 P 1                                       11.70    81    81
                                   512  1055     948     00 N 1                   13.50               13.50    81    81
                                   512  1055     985     00 P 1                                       27.84    79    80
                                                 TOT        P1                                   367,178.87
                                                 TOT        N1                    13.50              219.59
                                              ** JOB TOTALS **              **    13.50  **      367,398.46  **

                                                                                                            STATE
 NEAL CRK BRDG DETHMAN        CONT NO 8842 * FA PROJ NOS RS  428001 100
                                   514  1086     201     00 P 1                                  517,338.38    79    80
                                   514  1086     201     00 N 1                                      200.00    79    80
                                   514  1086     203     00 P 1                                      739.50CR  79    81
                                   514  1086     203     00 N 1                                       10.50CR  81    81
                                   514  1086     270     01 P 1                                      322.49    80    80
                                   514  1086     285     02 P 1                                    1,102.04    80    80
                                   514  1086     296     00 N 9   7,893.60CR    7,962.93CR       538,731.87CR  79    81
                                   514  1086     297     00 N 9   7,893.60      7,893.60          41,193.60    79    81
                                   514  1086     298     00 N 9                    69.33         497,538.27    79    81
                                   514  1086     900     00 P 1                                   60,155.30    79    81
                                   514  1086     900     00 N 1                                      777.68    78    80
                                   514  1086     915     00 P 1                                      200.42    80    80
                                   514  1086     920     00 P 1                                       97.32    79    79
                                   514  1086     945     00 P 1                                       11.70    81    81
                                   514  1086     948     00 P 1                                       70.30    81    81
                                   514  1086     948     00 N 1                   38.79               65.16    81    81
                                   514  1086     950     00 P 1                                    1,099.43    79    80
                                   514  1086     950     00 N 1                                       68.60    80    80
                                   514  1086     985     00 P 1                                      223.55    79    79
                                                 TOT        P1                                   579,881.43
                                                 TOT        N1                    38.79            1,110.94
                                              ** JOB TOTALS **              **    38.79  **      580,992.37  **
```

```
TRL TO DATE JOB COST SUMMARY                                                        JUNE 1981       PAGE  893
                                                                                      FISCAL         GRAND TOTAL
SCRIPTION OF JOB OR DEPARTMENT        PREFIX       FUNCTION   GR  CURRENT MONTH    YEAR TO DATE       TO DATE
                                   510   1993       920      00 P 1           43          30.06          30.06
                                   510   1993       923      00 P 1       735.62       2,011.50       2,011.50
                                   510   1993       980      00 P 1                       74.80          74.80
                                                    TOT         P1        737.[illegible]       2,381.49       2,381.49
                                               ** JOB TOTALS **           737.[illegible]  **   2,381.49  **   2,381.49  **

     001649000006308I CONT NO           FA PROJ [illegible] RS  53[illegible] 100                                              STATE
                                   512   1909       296      00 N 9                                  27,622.80CR
                                   512   1909       298      00 N 9                                  27,622.80
                                   512   1909       901      00 P 1                                  20,439.83
                                   512   1909       901      00 N 1                                      60.37
                                   512   1909       904      00 P 1                                     563.22
                                   512   1909       905      00 P 1                                   2,792.18
                                   512   1909       909      00 P 1                                   1,279.96
                                   512   1909       910      00 P 1                                   2,487.78
                                   512   1909       911      00 P 1                                      94.26
                                   512   1909       913      00 P 1                                      91.37
                                   512   1909       914      00 P 1                                     299.53
                                   512   1909       918      00 P 1                                     114.47
                                   512   1909       920      00 P 1                                      24.58
                                   512   1909       921      00 P 1                                     943.71
                                   512   1909       922      00 P 1                                      56.16
                                   512   1909       923      00 P 1                                     916.72
                                   512   1909       950      00 P 1                                      90.69
                                                    TOT         P1                                   32,194.41
                                                    TOT         N1                                       60.37
                                               ** JOB TOTALS **                 **             **    32,264.78  **

S PINE CR(PINE CR RD) BR    CONT NO           FA PROJ NOS BRS 479[illegible]01 100                                           STATE
                                   513   1904       296      00 N 9   1,184.37CR      1,319.58CR     1,319.58CR
                                   513   1904       298      00 N 9   1,184.37        1,319.58       1,319.58
                                   513   1904       901      00 P 1   1,689.78        1,689.78       1,689.78
                                   513   1904       901      00 N 1       6.45            6.45           6.45
                                   513   1904       918      00 P 1                     138.03         138.03
                                   513   1904       920      00 P 1                      15.30          15.30
                                                    TOT         P1    1,689.78        1,843.11       1,843.11
                                                    TOT         N1        6.45            6.45           6.45
                                               ** JOB TOTALS **       1,696.23  **    1,849.56  **   1,849.56  **

NEAL CK BR (ENGLISH CORNER)  CONT NO       * FA PROJ NOS RS  [illegible] 100                                             STATE
                                   514   1990       296      00 N 9                                  24,154.77CR
                                   514   1990       298      00 N 9                                  24,154.77
                                   514   1990       901      00 P 1                                   9,134.23
                                   514   1990       901      00 N 1                                      89.77
                                   514   1990       902      00 P 1                                      75.60
                                   514   1990       906      00 P 1                                   2,566.[illegible]
```

Boot Hill
Grant Co

PE
state
Costs

```
TRL TO DATE JOB COST SUMMARY                                                              JU[illegible]E 1981          PAGE 893

                                                                                                               GRAND TOTAL
SCRIPTION OF JOB OR DEPARTMENT      PREFIX        FUNCTION   GR  CURRENT MONTH       YE[illegible] DATE             TO DATE
                                  510   1993       920     00 P 1             .43           [illegible]30.06               30.06
                                  510   1993       923     00 P 1          735.52         [illegible]011.50            2,011.60
                                  510   1993       980     00 P 1                               74.80               74.80
                                                   TOT        P1           737.66            2,381.49            2,381.49
                                             ** JOB TOTALS **              737.66   **       2,381.49   **       2,381.49   **

          0016490000063081 CONT NO        FA PROJ NOS RS  536001 100                                                        STATE
                                  512   1909       296     00 N 9                                               27,622.80CR
                                  512   1909       298     00 N 9                                               27,622.80
                                  512   1909       901     00 P 1                                               20,439.83
                                  512   1909       901     00 N 1                                                   60.37
                                  512   1909       904     00 P 1                                                  563.22
                                  512   1909       905     00 P 1                                                2,792.18
                                  512   1909       909     00 P 1                                                3,279.96
                                  512   1909       910     00 P 1                                                2,487.78
                                  512   1909       911     00 P 1                                                   94.26
                                  512   1909       913     00 P 1                                                   91.37
                                  512   1909       914     00 P 1                                                  299.53
                                  512   1909       918     00 P 1                                                  114.47
                                  512   1909       920     00 P 1                                                   24.58
                                  512   1909       921     00 P 1                                                  943.71
                                  512   1909       922     00 P 1                                                   56.16
                                  512   1909       923     00 P 1                                                  916.72
                                  512   1909       950     00 P 1                                                   90.64
                                                   TOT        P1                                                32,194.41
                                                   TOT        N1                                                    60.37
                                             ** JOB TOTALS **                       **                  **      32,254.78   **

S PI[illegible] CR(PINE CR RD) BR     CONT NO     FA PROJ NOS BRS 475001 100                                                 STATE
                                  513   1904       296     00 N 9         1,184.37CR         1,319.58CR          1,319.58CR
                                  513   1904       298     00 N 9         1,184.37           1,319.58            1,319.58
                                  513   1904       901     00 P 1         1,689.78           1,689.78            1,689.78
                                  513   1904       901     00 N 1             6.45               6.45                6.45
                                  513   1904       918     00 P 1                              138.03              138.03
                                  513   1904       920     00 P 1                               15.30               15.30
                                                   TOT        P1          1,689.78           1,843.11            1,843.11
                                                   TOT        N1              6.45               6.45                6.45
                                             ** JOB TOTALS **             1,696.23   **      1,849.56   **       1,849.56   **

NEAL CK BR (ENGLISH CORNER)   CONT NO      * FA PROJ NOS RS  428001 100                                                      STATE
                                  514   1990       296     00 N 9                                           [illegible],154.77CR
                                  514   1990       298     00 N 9                                           [illegible],154.77
                                  514   1990       901     00 P 1                                           [illegible],13[illegible]
                                  514   1990       901     00 N 1                                                   89.77
                                  514   1990       902     00 P 1                                                   75.40
                                  514   1990       905     00 P 1                                            2,[illegible]
```

Boot Hill

Grant Co.

PE State costs

#8907

STATE COPY

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

FINAL INSPECTION AND ACCEPTANCE OF FEDERAL-AID PROJECT CONSTRUCTED UNDER SECONDARY ROAD PLAN

(PPM 20-5) 8907

INSTRUCTIONS: *State is to complete items 1 - 7 and submit original and three (3) copies to the Federal Highway Administration Division Office.*

1. PROJECT NO. RS-B536(2)	2. COUNTY Grant	3. STATE Oregon

4. DESCRIPTION OF IMPROVEMENT AS PROGRAMED

Work performed on this project, besides additional and incidental, consisted of construction of aggregate base and asphalt concrete pavement, and installation of guardrail.

All work was completed October 9, 1979 on the Boot Hill Cemetery-Dog Creek Section approximately 1.2 miles east of the Junction of the John Day-Burns Highway near Canyon City.

5. CONTRACTOR'S NAME Baker Redi-Mix, Inc.	6. CONTRACT AMOUNT $ 367,535.00

7. *CERTIFICATION: I certify that the above listed project was completed as programed and in accordance with the procedures and standards contained in the State's approved Secondary Road Plan Agreement. Final acceptance by the Federal Highway Administration is requested.*

SIGNATURE (SHD Official) Kessey

TITLE Assistant State Highway Engineer

8. REMARKS

The project has been completed as programed and in apparent conformity with the procedures and standards contained in the State's Secondary Road Plan Agreement.

RECEIVED
STATE HWY ENGR.
DEC 5 - '80
REFER TO Kessey
FOR
Info
Inves
R/D
D/R
Sign
Act
File

12-5 cy

9. IMPROVEMENT AS CONSTRUCTED

ROADBED (Width 32 feet)			STRUCTURES OVER 20-FOOT SPAN	
TYPE CODE NUMBER	NET LENGTH (Miles)	BASE SURFACING WIDTH (Feet)	TYPE CODE NUMBER	NET LENGTH (Miles)
6201	1.942	28.67		

10. FEDERAL HIGHWAY ADMINISTRATION INSPECTION MADE BY David B. Carter, Area Engineer	11. DATE OF INSPECTION 10-23-79

12. IN COMPANY WITH
Unaccompanied. Discussed with Barry Hatcher, Resident Engineer, OSHD

ACCEPTANCE OF PROJECT IS RECOMMENDED		ACCEPTED BY FEDERAL HIGHWAY ADMINISTRATION	
13. SIGNATURE David B Carter David B. Carter		16. SIGNATURE Original signed by G. K. HOSSNER Field Operations Engineer G. K. Hossner	
14. TITLE Area Engineer	15. DATE 12-3-80	17. TITLE Field Operations Engineer	18. DATE 12/4/80

FORM PR-33C
(Rev. 7-72)

Previous editions of this form are obsolete

5907

STATE COPY

TO BE COMPLETED BY FHWA	.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION	tate Oregon
MONTHLY TRANSACTION NUMBER 9-161		County Grant
PROJECT REPORT NUMBER	**MODIFICATION OF FEDERAL-AID PROJECT AGREEMENT**	
MODIFICATION NUMBER 1	9-12-80	Project Number RS-B536(2)

The Project Agreement for the above-referenced project entered into between the undersigned parties and executed by the Division Administrator on May 14, 19 79, is hereby modified as follows:

	Former amount	Revised amount
Estimated total cost of project	$ 419,422.00	$ 380,110.00
Federal funds	$ 365,510.00	$ 334,876.34
Other revisions		

This modification is made for the following reasons: To reflect decrease in construction bid items and engineering costs.

All other terms and conditions of the Project Agreement will remain in full force and effect. This modification is effective as of the 12th day of September, 1980.

OREGON STATE HIGHWAY DIVISION
(Official name of Highway Agency)

By

Asst. State Highway Engineer
(Title)

XXX For: H.S. Coulter

State Highway Engineer
(Title)

By

(Title)

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

By
(Division Administrator)

For: G.L. Green

Form PR-2A
(Rev. 10-75)

Previous editions are obsolete

Gen File

Oregon State Highway Division
Salem, Oregon September 12, 1980

Federal Aid Project
No. RS-B 536(2)

Boot Hill Cemetary-Dog Cr. Section
Dog Cr. Rd., FAS B 536
Grant County

REVISED PROJECT AGREEMENT ESTIMATE

Type Code 6201
Roadway (Sta. 100+00 to Sta. 202+56)

Subtotal of previous estimate of May 7, 1979	$369,535.00

Previous Estimate

Flagman	300 Hour	20.00	6,000.00
3/4"-0 Aggregate Base	5,500 Ton	7.50	41,250.00
Asphalt Cement in Mixture	290 Ton	110.00	31,900.00
			$ 79,150.00

Revised Estimate

Flagman	108 Hour	20.00	$ 2,160.00
3/4"-0 Aggregate Base	3,074 Ton	7.50	23,055.00
Asphalt Cement in Mixture	2,592 Ton	110.00	28,512.00
			$ 53,727.00
		Decrease	$ 25,423.00
		SUBTOTAL	344,112.00
		Engineering	35,998.00
		TOTAL	$380,110.00

Roadway Length ------------- 1.942 miles
Cost of Roadway per mile ---$195,731.20

Federal Funds --------------$334,876.34
State Funds ---------------- 22,616.83
County Funds --------------- 22,616.83

TOTAL $380,110.00

Group 1	100%
Contract No.	8907
Prefix	512-1055

8907

STATE COPY

4

OMB No. 04-R2089

TO BE COMPLETED BY FHWA MONTHLY TRANSACTION NO. 5-79	U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION FEDERAL-AID PROJECT AGREEMENT 5-14-79	State Oregon County Grant Project No. RS - B536(2)

The State, through its Highway Agency, having complied, or hereby agreeing to comply, with the applicable terms and conditions set forth in (1) Title 23, U.S. Code, Highways, (2) the Regulations issued pursuant thereto and, (3) the policies and procedures promulgated by the Federal Highway Administrator relative to the above designated project, and the Federal Highway Administration having authorized certain work to proceed as evidenced by the date entered opposite the specific item of work, Federal funds are obligated for the project not to exceed the amount shown herein, the balance of the estimated total cost being an obligation of the State. Such obligation of Federal funds extends only to project costs incurred by the State after the Federal Highway Administration authorization to proceed with the project involving such costs.

PROJECT TERMINI

Co. Rd., Approx. 1 mile E. of Canyon City

PROJECT CLASSIFICATION OR PHASE OF WORK	EFFECTIVE DATE OF AUTHORIZATION	APPROXIMATE LENGTH *(Miles)*
HIGHWAY PLANNING AND RESEARCH (HP & R)		
PRELIMINARY ENGINEERING		
RIGHTS-OF-WAY		
CONSTRUCTION	3-21-79	1.942
OTHER *(Specify)*		

FUNDS

ESTIMATED TOTAL COST OF PROJECT	FEDERAL FUNDS Pro Rata 88.1%
$ 419,422.00	$ 369,510.00

The State further stipulates that as a condition to payment of the Federal funds obligated, it accepts and will comply with the applicable provisions set forth on the reverse hereof.

OREGON STATE HIGHWAY DIVISION
(Official name of Highway Agency)

By

Asst. Highway Engineer
(Title)

For: H. S. Coulter

State Highway Engineer
(Title)

By ______________________

____
(Title)

U. S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

By ______________________
(Division Administrator)

For: G. L. [illegible]

MAY 14 1979

Date executed by Division Administrator ______________________

Form PR-2 (Rev. 10-75) PREVIOUS EDITIONS ARE OBSOLETE

AGREEMENT PROVISIONS

1. RESPONSIBILITY FOR WORK

a. Except for projects constructed under Certification Acceptance procedures, the State highway agency will perform the work, or cause it to be performed, in compliance with the approved plans and specifications or project proposal which, by reference, are made a part hereof.

b. With regard to projects performed under Certification Acceptance procedures, the State highway agency will perform the work, or cause it to be performed, in accordance with the terms of its approved Certification, or exceptions thereto as may have been approved by the Federal Highway Administration.

2. HIGHWAY PLANNING AND RESEARCH (HP&R) PROJECT. The State highway agency will (a) conduct or cause to be conducted, under its direct control, engineering and economic investigations of projects for future construction, together with highway research necessary in connection therewith, pursuant to the work program approved by the Federal Highway Administration and (b) prepare reports suitable for publication of the result of such investigations and research, but no report will be published without the prior approval of the Federal Highway Administration.

3. PROJECT FOR ADVANCE ACQUISITION OF RIGHTS-OF-WAY. In the event that actual construction of a road on this right-of-way is not undertaken by the close of the tenth fiscal year following the fiscal year in which this agreement is executed, the State highway agency will repay to the Federal Highway Administration the sum or sums of Federal funds paid to the highway agency under the terms of this agreement.

4. PRELIMINARY ENGINEERING PROJECT FOR PREPARATION OF RIGHT-OF-WAY PLANS OR FOR PREPARATION OF CONSTRUCTION PLANS, SPECIFICATIONS AND ESTIMATES. In the event that right-of-way acquisition for, or actual construction of the road for which this preliminary engineering is undertaken is not started by the close of the fifth fiscal year following the fiscal year in which this agreement is executed, the State highway agency will repay to the Federal Highway Administration the sum or sums of Federal funds paid to the highway agency under the terms of this agreement.

5. INTERSTATE SYSTEM PROJECT. (a) The State highway agency will not add or permit to be added, without the prior approval of the Federal Highway Administration any points of access to, or exit from, the project in addition to those approved in the plans and specifications for the project. (b) The State highway agency will not permit automotive service stations, or other commercial establishments for serving motor vehicle users, to be constructed or located on the right-of-way of the interstate system. (c) The State highway agency will not after June 30, 1968, permit the construction of any portion of the Interstate Route on which this project is located, including spurs and loops, as a toll road without the written concurrence of the Secretary of Transportation or his officially designated representative. The term 'toll road' does not include toll bridges or toll tunnels.

6. PROJECT FOR CONSTRUCTION IN ADVANCE OF APPORTIONMENT. (a) This project authorized pursuant to 23 U.S.C. 115 as amended, will be subject to all procedures and requirements, and conform to the standards applicable to projects on the system on which located, financed with the aid of Federal funds. (b) No obligation of previously apportioned Federal funds is created by this agreement, its purpose and intent being to provide that, upon application by the State highway agency, and approval thereof by the Federal Highway Administration, any Federal-aid funds of the class designated by the project number prefix, apportioned to the State under 23 U.S.C. 104 subsequent to the date of this agreement, may be used to reimburse the State for the Federal share of the cost of work done on the project.

7. STAGE CONSTRUCTION. The State highway agency agrees that all stages of construction necessary to provide the initially planned complete facility, within the limits of this project, will conform to at least the minimum values set by approved AASHTO design standards applicable to this class of highways, even though such additional work is financed without Federal-aid participation..

8. BOND ISSUE PROJECT. Construction, inspection and maintenance of the project will be accomplished in the same manner as for regular Federal-aid projects. No present or immediate obligation is created by this Agreement against Federal funds, its purpose and intent being to provide aid to the State, as authorized by 23 U.S.C. 122, for retiring maturities of the principal indebtednesss of the bonds referred to below. When the State requests Federal reimbursement to aid in the retirement of such bonds, the request will be supported by the appropriate certification required by 23 CFR Part 140, Subpart F, and Volume 1, Chapter 4, Section 8 of the Federal-Aid Highway Program Manual or the alternative State procedure set forth in the State's Certificate, and payment of the authorized Federal share will be made from appropriate funds available. If in any year there is no unobligated balance of any apportioned Federal funds available from which payments hereunder may be made, there will be no obligation on the part of the Federal Government on account of bond maturities for that year. Funds available to the highway agency for this project are the proceeds of bonds issued by the governmental unit indicated on the attached tabulation, pursuant to the authority and in the amounts by date of issue and beginning date of maturities set forth therein.

9. SPECIAL HIGHWAY PLANNING AND RESEARCH PROJECT. The State Highway agency hereby authorizes the Federal Highway Administration to charge the State's pro rata share of costs incurred against funds apportioned to the State under 23 U.S.C. 307 (c), as amended. In the event a project is financed with both Federal-aid funds and State matching funds, the State agrees to advance to The Federal Highway Administration the State matching funds for its share of the estimated cost. For a National Pooled Fund study, the State hereby assigns its responsibility for the work to the Federal Highway Administration. For an Intra-Regional Cooperative Study, the State hereby assigns its responsibility for the work to the lead State for the study.

10. PARKING REGULATION AND TRAFFIC CONTROL. The State highway agency will not permit any changes to be made in the provisions for parking regulations and traffic control as contained in the agreement between the State and the local unit of Government referred to in the paragraph on "Additional Provisions," without the prior approval of the Federal Highway Administration, unless the State determines, and the Division Administrator concurs, that the local unit of Government has a functioning traffic engineering unit with the demonstrated ability to apply and maintain sound traffic operations and control.

Oregon State Highway Division
Salem, Oregon, May 7, 1979

Federal Aid Project
No. RS-B536(2)

BOOT HILL CEMETERY-DOG CR. SECTION
DOG CR. RD., FAS B 536
GRANT COUNTY

Project Agreement Estimate.

Type Code 6201
Roadway (Sta. 100+00 to Sta. 202+56)

Furnishing Field Laboratory	1	Each	1,500.00	$ 1,500.00
Mobilization		All Required		18,200.00
Temporary Protection and Direction of Traffic		All Required		500.00
Temporary Signs	167	Sq.Ft.	5.00	835.00
Temporary Barricades	2	Each	100.00	200.00
Flagmen	300	Hour	20.00	6,000.00
Watering	360	M.Gal.	10.00	3,600.00
Coarse Aggregate Base	18,800	Ton	7.00	131,600.00
3/4"-0 Aggregate Base	5,500	Ton	7.50	41,250.00
Class "B" Asphalt Concrete Mixture	4,400	Ton	24.00	105,600.00
Asphalt Cement in Mixture	290	Ton	110.00	31,900.00
3/4"-0 Aggregate in Prime Coat	380	Ton	10.00	3,800.00
MC-250 Asphalt in Prime Coat	35	Ton	200.00	7,000.00
Guard Rail, Type 2A with 8-foot Posts	650	Lin.Ft.	15.00	9,750.00
Guard Rail Anchors, Type I	7	Each	300.00	2,100.00
Rail End Pieces, Type B	1	Each	100.00	100.00
Rail End Pieces, Type C	7	Each	150.00	1,050.00
Extra for Asphalt Approaches	17	Each	150.00	2,550.00
				$ 367,535.00
Anticipated Items				
Temporary Erosion Control		All Required		$ 2,000.00
		Subtotal		$ 369,535.00
		Engineering		49,887.00
		Total		$ 419,422.00

Roadway Length - - - - - - - - - - - - - - - 1.942 mi.
Cost of Roadway Per Mile - - - - - - - - - - $ 215,974.25

Federal Funds (88.1%)	$ 369,510
State Funds	24,956
County Funds	24,956
Total	$ 419,422

Group 1 100%
Contract No. 8907
Prefix 512-1055

BOOT HILL CEMETERY-DOG CR. SECTION
Nonparticipating - State Work

State Responsibility for Damages	All Required	$ 500.00

8907

1

REPORT OF ACTION UNDER DELEGATED AUTHORITY BY

ASSISTANT STATE HIGHWAY ENGINEER

5-8-80

On behalf of the Commission and under authority delegated to me to accept contracts completed according to specifications, I accepted the following:

Contractor and Contract No.	Section and County	Acceptance Date
Hamilton Electric, Inc. No. 8814	Crater Lake Hwy. @ Spring St. & McAndrews Road (Medford)	April 10, 1980
Riverbend Const. Co. No. 8696	SW 29th St.-Pendleton/John Day Hwy. (Pendleton)	April 15, 1980
Morse Bros., Inc. No. 9007	Eddyville-Cline Mt.	April 18, 1980
Tice Electric Co. No. 8861	Farmington Hwy. @ SW 170th Ave.	April 18, 1980
Sims Electric of Medford, Inc. No. 8956	N. 6th St. @ "A" St. (Grants Pass)	April 22, 1980
D Mc D Corporation No. 8760	Oxbow Section	April 22, 1980
R. L. Coats No. 8958	Fox-Beech Cr. Summit	April 30, 1980
Baker Redi-Mix, Inc. No. 8907	Boot Hill Cemetery-Dog Creek	April 30, 1980
Tawn Mar Const. Co. No. 9066	Antone Junction	April 30, 1980
Jarl Const., Inc. No. 8639	Rhea Road Reloc. Unit, John Day Hwy.-Heppner Hwy.	May 7, 1980

May 8, 1980

CT Keasey

C. T. Keasey
Asst. State Highway Engineer

8907

May 2, 1980

Seaboard Surety Company
Seattle-First National Bank Bldg.
1001 4th Avenue
Seattle, WA 98154

CON 5
#8907

Gentlemen:

Contract No. 8907 awarded to Baker Redi-Mix, Inc. for work on the Boot Hill Cemetery-Dog Creek Section of FAS S536 in Grant County was completed on October 9, 1979 and accepted by the State Highway Division on April 30, 1980.

Final payment in the amount of $13,981.28 will be released to the contractor after May 7, 1980. The total contract amount is $334,561.63 and no work was performed under force account.

No claims for labor or material have been filed with us against the performance bond on this contract.

Sincerely,

Robert W. Cormsen
COMMISSION SERVICES

FKN/gnk

cc: Baker Redi-Mix, Inc.
East "F" Street
Baker, OR 97814

bc: C. T. Keasey
Walt Hart
V. E. Skoog Attn: Dick Hacek
W. E. Schwartz

. 8907　　3-15-80　　Grant

Boot Hill Cemetery - Dog Creek
FAS B536 (Dog Creek Road)
Grant County

Contract No. 8907
F.A.P. No. RS-B536(2)
Contractor: Baker Redi-Mix, Inc.

NOTED
E. S. HUNTER

Statement of Overruns & Underruns

	Original Contract	Final Amount	+/- %
Contract Amount	$ 367,535.00	$ 338,220.51	-8
Anticipated Items	2,500.00	0.00	-100
Contingencies	16,651.58	0.00	-100
Engineering	33,303.15	30,052.10	-10
Subtotal	$ 419,989.73	$ 368,272.61	
[redacted]			
Liquidated Damages		200.00	
Grand Total	$ 419,989.73	$ 358,487.18	-15

Item #	Description	Unit	Contract Amount	Amount Used	% Overrun	% Underrun
4.-	Temporary Signs Contractor did not furnish specified signs.	S.F.	167	64	0	62
5.-	Temporary Barricades Traffic controlled without barricades.	Each	2	0	0	100
6.-	Flagmen Due to light traffic, flagmen were used only during paving operation.	Hour	300	108	0	64
9.-	3/4"-0 Aggregate Base The correct grade was attained with the quantity used.	Ton	5,500	3,074.33	0	44
11.-	Asphalt Cement in Mix Less required than originally computed.	Ton	290	234.26	0	19
18.-	Extra for Asph. Approach Approaches were added after the location of the project.	Each	17	19	12	0

1 Versteeg
Anderson
dl Christensen copy
Olson
dl Sullivan copy
Terpin
Trout
Wakerlig

RECEIVED
FEB 15 1980
ROAD DESIGN SECTION

Do Not File ☐
Return To
Bring Up / /
Action

B. N. Hatcher
B. N. Hatcher
Resident Engineer

8907

B

FORM 734-3001

OREGON STATE HIGHWAY DIVISION

FIELD ENGINEER'S WEEKLY REPORT

FOR CONSTRUCTION PROJECTS ONLY
CONSTRUCTION AND BRIDGE SECTION

SECTION: Boot Hill Cemetery- Dog Creek

WEEK ENDING: 2-9-80

SECTION PREFIX: 512-1055

HIGHWAY: FAS B536 (Dog Creek Rd.)

COUNTY: Grant

NAME OF JOB: Boot Hill Cemetery- Dog Creek

KIND OF WORK: Aggregate Base and Paving

CONTRACTOR: Baker Redi- Mix, Inc.

CONTRACT NUMBER: 8907

FEDERAL AID PROJECT NUMBER: RS-B536 (2)

DATE OF CONTRACT: April 30, 1979

DATE WORK STARTED: July 25, 1979

ESTIMATED COMPLETION DATE:

AVERAGE FORCE ON PROJECT FOR THE WEEK:

MEN: **SUPERVISION:**

SPECIFIED WORK DAYS:

SPECIFIED CALENDAR DAYS: 150

WORK DAYS USED:

CALENDAR DAYS USED: 152

SPECIFIED COMPLETION DATE:

PERCENT OF TIME ELAPSED: 101

PROJECT AUTHORIZATION: $419,989.73

PERCENT OF CONTRACT COMPLETED BASED ON ESTIMATED COST: 100

EXCLUSIVE OF ENGINEERING: $386,686.58

ENGINEERING AUTHORIZATION: $33,303.15

PERCENT OF CONTRACT COMPLETED BASED ON TOTAL AUTHORIZATION:

ESTIMATED COST OF COMPLETED PROJECT, EXCLUSIVE OF ENGINEERING: $336,940.51

ENGINEERING COST TO DATE: $30,089.98

DATE PROJECT WAS COMPLETED: October 9, 1979

ESTIMATED PERCENT: ~~OVERRUN~~ UNDERRUN: 13 %

PERCENT OF AUTHORIZATION: 90 %

ESTIMATED PERCENT COMPLETE (ROADWORK)

CLEARING	DRAINAGE	GRADING	BASE	OIL AND/OR PAVE.	MAT'L. PROD.		
			100	100			

	GRADING	SURFACING	MAINTENANCE MATERIALS	OIL & BITUMINOUS MACADAM	PAVING
MILES IN PROJECT					
MILES PARTIALLY COMPLETED					
MILES COMPLETED					
TOTAL ESTIMATED QUANTITIES (CONTRACT)		24,300 T			4,400 T
TOTAL QUANTITIES CORRECTED TO DATE		22,230 T			4,370 T
ESTIMATED QUANTITIES MOVED OR PLACED TO DATE		22,230 T			4,370 T
AVERAGE DAILY QUANTITIES					
AVERAGE DAILY QUANTITIES NECESSARY TO COMPLETE PROJECT ON TIME					
NUMBER OF SHIFTS PER DAY					
HOURS PER SHIFT					

EQUIPMENT USED DURING THE WEEK:

ESTIMATED PERCENT COMPLETE (STRUCTURES)

BRIDGE NO.								
PERCENT								

	WEATHER	WORK DAYS CHARGED	HOURS DELAY	CAUSE OF DELAY
SUNDAY				
MONDAY				
TUESDAY				
WEDNESDAY				
THURSDAY				
FRIDAY				
SATURDAY				

RECEIVED
FEB 11 1980
CONSTRUCTION BRANCH

Kessery
Jackmond
Hopkins
Williams
Johnson
Glenn
Richards
Berg
Inloes
Widmer
Gebauer
Church

GENERAL DESCRIPTION OF ACTIVITIES FOR THE WEEK

SUNDAY	CONTRACT WORK COMPLETED
MONDAY	
TUESDAY	
WEDNESDAY	
THURSDAY	
FRIDAY	
SATURDAY	

REMARKS

Semifinal submitted. Final Report.

SIGNED B.N. Hatcher LOCATION Burns

B.N. Hatcher, Resident Engineer

by: H. Christensen

PRIME RESIDENT SUBMIT 2 COPIES. WHEN BRIDGES AND GRADING BOTH ARE INVOLVED, SUBMIT 3 COPIES

SP-F216

8907

Format for Projects
Exceeding the 7%
guidelines

Anti-inflation Program

Project Report

4-79

Project Identification

(a) No.: RS-B536(2) State: Oregon

Description of Work (grade, pave, drain, bridge): Paving

(b) Engineers Estimate (Total cost only): $ 319,282.00

(c) Bid Tabulation (Total cost only): $ 367,535.00 (First low)
$ 375,422.00 (Second low)
$ (Third Low)

(d) State's Recommended Action: Award ☒ Reject ☐
State's Justification: Cirtification Acceptance-- Secondary Road Plan
See Attachment

(e) FHWA Division Action: Concur ☐ Reject ☐
Comments: Cirtification Acceptance-- Secondary Road Plan

* (f) Estimate of Potential Savings ($savings — cost to redesign, etc. and readvertise = estimate of potential savings):

Required Modification to be Made Prior to Readvertisement:

* For those projects that are being reported on after readvertisement, report actual savings or losses compared to the first letting.

Local Govt
H. Reynoldson

Boot Hill Cemetary-Dog Creek Section
Oregon Project No. RS-B536 (2)

There were two bidders on this project. The second bidder was only 2.2% over the low bid.

The bid items that are significantly above the engineers estimate are:

Item	Description	EE	Bid	Amount Diff.
8	Coarse Aggregate Base	5.75	7.00	23,500.00
9	3/4"-0	6.50	7.50	5,500.00
10	Class "B" AC	18.00	24.00	26,400.00
		Amount over Eng. Est.		$55,400.00

The estimate was based on a local supplier, Valley Sand and Gravel furnishing the aggregates. This firm reportedly has gone out of business. Therefore, one alternative is for the contractor to purchase aggregates from an alternate local supplier at a higher FOB price (in this case $1.50 to $2.00 per ton more) and long haul the AC from a commercial source in Baker at an estimated haul cost of $7/ton.

To adjust for the unusual circumstance the engineers estimate would be increased $24,300 for the increase cost of base aggregates and $20,400 for added haul on the AC from a commercial source.

The low bid would then be within 1% of the revised engineers estimate.

8907

April 13, 1979

Grant County Court
Courthouse
Canyon City, Oregon 97820

Attn: Honorable John R. Moreau
County Judge

Gentlemen:

On April 12, 1979, the lowest of 2 bidders on the Boot Hill Cemetery-Dog Creek Section, FAS B536 was Baker Redi-Mix Inc., P.O. Box 828, Baker, Oregon 97814. Which bid is approximately 15% greater than our estimate. Since this is above the 10% limit, it will be your responsibility to either accept or reject the project. If the County does decide to proceed with the project the following advance deposit is required.

Bid Items	$367,375.00
Temp. Erosion Control	$ 2,000.00
State responsibility for damages	500.00
4½% Contingencies	16,651.58
9% Engineering	33,303.15
Est. Construction Costs	$419,989.73

County's Advance Deposit will be:
6% of $419,989.73 = $25,199.38 by rounding the Advance
Deposit will be $25,200.00

Please make your check in the amount of $25,200.00, payable to the Oregon State Highway Division and send it to Highway Accounting, Room 434, Transportation Building, Salem, Oregon 97310.

This project will be awarded upon receipt of your advance deposit, which should be in this office no later than May 4, 1979.

Very truly yours,

Gerald Wimer

Gerald Wimer
Local Government Engineer

GMW:pf

bcc w/AD # 619: Vern Skoog - Please return completed AD # 619
when check is received.
Region 5 Federal Aid Engineer Roger Lang

8907

U.S. DEPARTMENT OF TRANSPORTATION - FEDERAL HIGHWAY ADMINISTRATION

3-21-79

LETTER OF APPROVAL A[illegible]/OR AUTHORIZATION

FEDERAL AID PROJECT NO. RS-B-536(2)

STATE [illegible]OJECT NO. See below

COUNTY NAME Grant

PROGRAM STAGE (Check) ☐ 1.

RECEIVED
STATE HWY ENGR
MAR 22 '79
REFER TO
FOR

Info	Inves	R/D	D/R	Sign	Act	File

FROM:
G. L. Green, Division Administrator
Salem, Oregon

PROGRAM NO.

ITEM NO. 80407

TO:

Mr. H. S. Coulter
State Highway Engineer, ODOT
Salem, Oregon

DATE PS & E APPROVED 9-21-78

DATE AUTHORIZATION EFFECTIVE 3-21-79

FEDERAL ROUTE NUMBER Secondary B-536

STATE ROUTE NUMBER County Road

GENERAL LOCATION:
Boot Hill Cemetery - Dog Creek Section

GENERAL DESCRIPTION OF WORK:
Advertise for Bids

YOU ARE AUTHORIZED TO PROCEED WITH THE WORK CHECKED BELOW

PRELIMINARY ENGINEERING TO DETERMINE
☐ LOCATION ONLY
PRELIMINARY ENGINEERING FOR SURVEY AND PLAN
☐ PREPARATION
☐ OTHER (Specify)

☐ ACQUISITION OF RIGHT-OF-WAY
CONSTRUCTION - ADVERTISE FOR RECEIPT
☒ OF BIDS
☐ CONSTRUCTION - PROCEED ON AN AGREED PRICE AND/OR FORCE ACCOUNT BASIS

REMARKS

I accept the certification of Mr. Rod Henry, dated March 16, 1979 that provisions of FHPM 7-5-1 have been complied with and you are now authorized to advertise for bids.

DATE 3-21-79

SIGNATURE OF APPROVING OFFICIAL

TITLE for Division Administrator

FORM PR-1240 (REV. 6-70)

EXISTING STOCKS OF FORM PR-1240 (REV. 6-68) WILL BE USED

☆ U.S. GOVERNMENT PRINTING OFFICE: 1976—628-787

8907

FAS

FORM 81-734-3030-X

OREGON STATE HIGHWAY DIVISION

INTER-OFFICE CORRESPONDENCE

FILE:

La Grande, Oregon
January 12, 1979

FROM: Roger C Lang

Roger C. Lang
Region Federal Aid Specialist

SUBJECT: Boot Hill Cemetery - Dog Cr. Section
FAS
Grant County

TO:

Gerald Wimer, Manager
Local Government Section

SALEM

Thom Ledgerwood, County Roadmaster, has advised the County Court that all work has been halted on the Boot Hill Cemetery - Dog Creek Section and it is doubtful if the County will be completed with their portion of the work in time for the scheduled letting date of March 29, 1979.

Mr. Ledgerwood and the Court attempted to establish a realistic date of completion but, because of the unpredictable weather patterns, this was impossible.

Due to this uncertainty, the Court requests rescheduling the project for letting on April 26, 1979 so there will be no problem to prospective bidders.

It is recommended that the project be rescheduled in accordance with the County's request. We will continue to closely monitor the County's progress on the project and will notify you of any possible problems.

1 Versteeg 1
copy Christensen
George
Olsen
Terpin
#2 copy Sullivan
Scott
Andersen

RECEIVED
JAN 15 1979
ENGINEERING SECTION

2 Traut VP
Do Not File ☐
Return To
Bring Up ___/___/___
Action

RCL/vt

cc: John Moreau
Thom Ledgerwood
Hal Versteeg
Frank Terpin
Barry Hatcher

8907

C.C. E. Swan
C.T. Koasy
Roger Tryggstade

12-27-78

512

OREGON STATE HIGHWAY DIVISION
117 DOT Building
Salem, Oregon 97310

Attention: Right-of-Way Section

Subject: Federal Aid Project No. RS- B536 (1)
Project Name Boot Hill Cemetery - Dog Creek Section
Canyon City - Dog Creek Rd.

Regarding the above referred to federal aid project, we hereby certify that to the best of our knowledge and belief:

A. Existing Right-of-Way

☐ 1. All construction can be accomplished completely within the existing right-of-way. This existing right-of-way was acquired prior to January 2, 1971.

B. New Right-of-Way

☒ 1. This project required additional right-of-way purchased after January 2, 1971. Right-of-way, easements, or rights-of-entry required for this project have been secured in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, and all incidental charges related to the transfer of property will be paid by the county in accordance with said Act.

☒ a. There has been no displacement of persons from residences, farms or businesses.

OR

☐ b. There has been displacement of persons from either residences, farms or businesses and in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, displaced persons, businesses, or farm operations have been provided relocation payments, if eligible, and relocation assistance. Displaced individuals or families have been relocated to decent, safe and sanitary housing or have been offered decent, safe, sanitary and fair housing immediately available on the open market.

C. Utilities

☒ 1. The occupancy and/or adjustment of existing utilities within the right-of-way of the above referred to federal aid project have been authorized by permit, franchise, or other approved procedure.

Signed at CANYON CITY, Oregon, this 27th day of Dec., 1978

County of GRANT

County Judge/~~Chairman~~

Commissioner

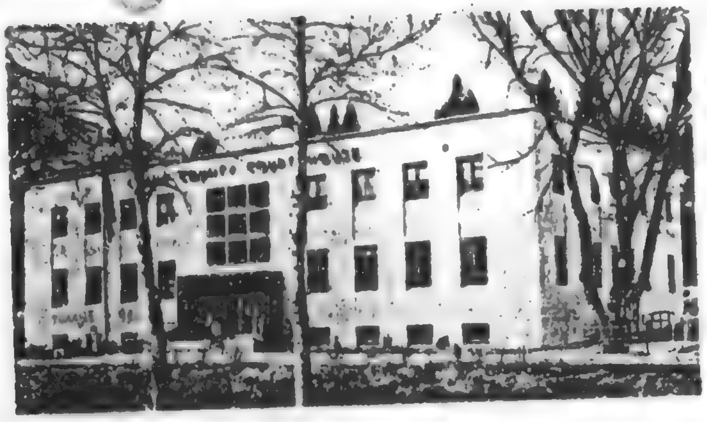
Commissioner

Certified By:

Regional Right-of-Way Supervisor
Date Jan. 2, 1979

Instructions: Complete A or B and C.
R/W File No. ________
Rev. 1/76

8907



GRANT COUNTY
CANYON CITY, OREGON

RE ☐ RCE ☐ RME ☐ ROE ☐
RFA ☒ DEC 13 197 ☐
RECEIVED
REGION 5 OFFICE

December 12, 1978

Roger C. Lang
PO Box 850
La Grande, Oregon 97850

Re: Boothill Cem-Dog Creek Sec.
Canyon City-Dog Creek Rd.
FAS B-536 Grant County

Concerning the matter of a public hearing for the subject project, GRANT COUNTY stipulates the following:

1. The project assessment has been reviewed by the County.
2. The County agrees with the Class III, Non-Major classification.
3. Since the project assessment adequately describes the project and its impact on the area there is no need for a study report.
4. The County has explained the project to the affected property owners; no one has objected to the project or the required right of way; and no one has requested a public hearing.
5. The County has considered the social, economic, environmental effects and engineering aspects of the project and does request location and design approval from the State.

Francis F.R. Cole
FRANCIS F.R. COLE, COUNTY JUDGE

cy F.E. Terpin
Gerald Wimer ✓
Harold Brainard
Barry Hatcher
Region V R/W
DE Swan Gary Potter

PROJECT MANAGEMEN
PME ☐ CCE ☐ OM ☐
LCE ☒ FAE ☐ OFE ☐
DEC 1 1978
File: PM FA
TAN Brynollson CG GP

8907

ROBERT W STRAUB
GOVERNOR

Department of Transportation
STATE HIGHWAY DIVISION
REGION 5 OFFICE

W. E. Schwartz
Region Engineer

P. O. Box 850 La Grande, Oregon 97850 Telephone 963-3177

December 11, 1978

The Hon. Francis Cole
Grant County Court
Courthouse
Canyon City, Oregon 97820

Dear Judge Cole:

Re: Oregon Action Plan, Public Hearing Requirement, Boothill Cemetery - Dog Creek Section, FAS B 536

Enclosed is a copy of my letter of July 7, 1978 outlining the requirements of the Oregon Action Plan and the exception available.

My records now show that all property owners affected by the project have signed a "Permit of Entry and Waiver of Hearing" form.

So that we may fully comply with the Action Plan, please type on your stationery Attachment No. 2 and forward to me for proper distribution.

Sincerely,

Roger C Lang
Roger C. Lang
Region Federal Aid Specialist

RCL/vt
Enc.
cc: F. E. Terpin
Gerald Wimer
Harold Brainerd

Form 81-734 3123

8907

ROBERT W. STRAUB
GOVERNOR

Department of Transportation
STATE HIGHWAY DIVISION
REGION 5 OFFICE

W. B. Schwartz
Region Engineer

P. O. Box 850 La Grande, Oregon 97850 Telephone 963-3177

December 5, 1978

Mr. Thom Ledgerwood
Roadmaster
Grant County Court
Canyon City, Oregon 97820

Dear Thom:

Re: Permit of Entry and Hearing Waiver
Boot Hill Cemetery - Dog Creek Section
FAS B 536

According to our records, we are lacking Permit of Entry and Hearing Waiver forms for two files on the Boot Hill Cemetery - Dog Creek Section of FAS Route B 536.

50272 - B	R. and E. A. Sheedy
50272 - C	G. and V. Vassios

If you are successful in obtaining these remaining permits of entry, we will be able to document the Hearing requirement and no hearing will be necessary.

If our records are incorrect, please forward a copy of these forms.

Sincerely,

Roger C Lang
Roger C. Lang
Region Federal Aid Specialist

RCL/vt
cc: Judge Cole
F. E. Turpin
Gerald Winer ✓
Harold Brainerd
Barry Hatcher

PROJECT MANAGEMENT
PME
LCE
CCE
FAE
DEC 1978
TAA
M Rp

Form 81-734 3123

8907

FORM 81-734-3030

OREGON STATE HIGHWAY DIVISION

FILE:

INTER-OFFICE CORRESPONDENCE
Salem, Oregon
November 21, 1978

FROM: Adele L. Egan
R/W Office Unit Supervisor

TO: H. G. Brainerd
Reg R/W Supervisor

REGION IV

SUBJECT: Files 50272-M, N & O

Boot Hill Cemetery-Dog Cr. Road Sec.
County Road
Grant County

Attached you will find six copies each of three revised option forms covering right of way to be acquired in connection with Boot Hill Cemetery-Dog Cr. Road Section of the County Road in Grant County.

These descriptions have been revised because of a line change.

Enclosed for your information is a copy of the Revision Request.

We are attaching three prints of a section of Map 9B-16-10 covering this area and bearing our date of November 20, 1978.

FILE NO.	NAME	AREA
50272-M	Frank R. and Mildred J. Beaver	0.08 ac
50272-N	Terrence C. and Carol A. Weitgenant	0.13 ac
50272-O	Alva D. and Helen E. Conlee	0.06 ac

AC:nn
Enc. 3 Options, etc.
cc: W. E. Schwartz/2 prints
Milner Mead/1 print
F. Lowe
Title/1 print
A. Riveness/Exhibit
✓County-City

PROJECT MANAGEMENT
PME ☐ CCE ☒
LCE ☒ FAE ☑ ON
OPE
NOV 22 1978
TAA ______ File: PM FA
LG OP

8907

FORM 81-734-3030-X

OREGON STATE HIGHWAY DIVISION

INTER-OFFICE CORRESPONDENCE

FILE:

La Grande, Oregon
November 6, 1978

FROM: W. E. Schwartz
Region Engineer

TO: Gary Potter, Manager
Environmental Section

S A L E M

SUBJECT: Communication with Local Government

S

I have a copy of your recent memo to Region 5 Federal Aid Engineer Roger Lang. I agree that the problem with Grant County resulted from a lack of communication. I do not agree, however, that your procedure for dealing with local government projects is proper.

Region has the responsibility for dealing directly with local government, primarily through the Region Federal Aid Specialist. The Local Government Section of Project Management does not deal directly, for the most part, with local government. They work through Region and our Federal Aid Specialist. We believe it is proper, and would appreciate it, for all Sections who are working with local government projects to work through the Region office.

PROJECT MANAGEMENT
PME ☐ CC ☒ OTT ☐
LCL ☒ IAE ☐ CPF
NOV 7 1978
Prange et al
File: PM FA
LG CP
WH Bk ______

No argument !

WES:sh

cc G. W. Wimer

8907

FAS B536

FORM 81-734-3030

☐ RE ☐ RCE ☐ RME ☐ ROE

☐ PFA FILE: NOV 6 1978 ☐

RECEIVED
REGION 5 OFFICE

OREGON STATE HIGHWAY DIVISION
INTER-OFFICE CORRESPONDENCE

Burns, Oregon
November 3, 1978

B.N. Hatcher

FROM: B. N. Hatcher
Resident Engineer

TO: D. O. Christensen
Final Design Engineer

Salem

SUBJECT: Boothill Cemetery-
Dog Creek Section
FAS B536 (Dog Creek Rd)
Grant County

At the request of Grant County ,we have made several changes in alignment and grade of subject section. The alignment change is from Station 187-198 and moves construction centerline left to more nearly split existing R/W as projected. This reduces area of taking on one owner- T.A. & C.A. Weitgenant, 50272-N.

Right of Way section wishes to use line as shown on existing plans as a R/W line, Changed line to be Constructed Line. I am enclosing original traverse sheets and traverse sheet for constructed line. Also listed is construction widths needed from constructed line. These widths should be computed and shown from R/W line. Corrected R/W descriptions will be needed for files 50272- M, N and possibly O.

Grant County also wishes R/W description be written for Robert and Bonnie Hilliard- 50272-A so this R/W can be recorded in county records.

Grade line has been changed Sta 131-140+70. I am enclosing copy,of revised grades for your use in making this change on plans. GrantCounty was able to negotiate lowering of existing pipe @ Station 138+80 two feet which allowed this change to be made.

cc: W. E. Schwartz
R. C. Lang
H. Brainerd
Grant County

___Versteeg___
___Christensen___
___George___
___Olson___
___Torpin___
___Sullivan___
_✓_Scott_✓_
___Anderson___

RECEIVED
NOV 13 1978
ENGINEERING
SECTION

___Trout___
Do Not File ☐
Return To___
Bring Up___/___/___
Action___

→ Revised Desc. to R/W 11-16-78

Memo —
Floyd Scott discussed this item with me this morning - Suggests that we not have 2 ℄ in this area because of possible confusion
R/W will be described from the revised line and the necessary changes will be made in the deed descriptions.

RC Lang

cp to all involved
11-9-78

8707

9

U.S. DEPARTMENT OF TRANSPORTAT - FEDERAL HIGHWAY ADMINISTRATION

LETTER OF APPROVAL AND/OR AUTHORIZATION

FEDERAL AID PROJECT NO. RS-B536(1)

STAT ROJECT NO. See below

COUNTY NAME Grant

PROGRAM STAGE (Check) ☐ 1. ☐ 2.

FROM:

G. L. Green, Division Administrator
Salem, Oregon

PROGRAM NO.

ITEM NO. 80027

TO:

Mr. F. B. Klaboe
Asst. Director for Operations
State of Oregon
Salem, Oregon

DATE PS & E APPROVED

DATE AUTHORIZATION EFFECTIVE 9-5-78

FEDERAL ROUTE NUMBER Secondary B536

STATE ROUTE NUMBER County Road

GENERAL LOCATION:

Boot Hill Cemetery - Dog Creek Section

GENERAL DESCRIPTION OF WORK:

Program Change

YOU ARE AUTHORIZED TO PROCEED WITH THE WORK CHECKED BELOW

PRELIMINARY ENGINEERING TO DETERMINE
☐ LOCATION ONLY
PRELIMINARY ENGINEERING FOR SURVEY AND PLAN
☐ PREPARATION
☒ OTHER (Specify) Program change
Add archeological salvage to character of work TEC NTE $500 - FF $497

☐ ACQUISITION OF RIGHT-OF-WAY
CONTRUCTION - ADVERTISE FOR RECEIPT
☐ OF BIDS
☐ CONSTRUCTION - PROCEED ON AN AGREED PRICE AND/OR FORCE ACCOUNT BASIS

REMARKS

As requested in Mr. Swan's letter of 10-19-78, this will confirm the advance approval of Mr. G. K. Hossner to add archeological salvage to the subject project and proceed with the necessary work.

A signed copy of the agreement is returned herewith.

NOTED
F. B. KLABOE

Swan
11-3

DATE 11-1-78

SIGNATURE OF APPROVING OFFICIAL G. K. Hossner

TITLE for Division Administrator

FORM PR-1240 (REV. 8-70) EXISTING STOCKS OF FORM PR-1240 (REV. 6-68) WILL BE USED

☆ U.S. GOVERNMENT PRINTING OFFICE: 1976—626-787

8907

FORM 81-734-3030

ORE ON STATE HIGHWAY DIVIS N

INTER-OFFICE CORRESPONDENCE

FILE:

October 31, 1978
Salem, OR 97310

FROM: Gary A. Potter, Manager
Environmental Section

ORIGINAL SIGNED BY
GARY A. POTTER

SUBJECT: Your letter to Judge Cole, October 16, 1978

TO: Roger C. Lang
Region 5 Federal Aid Specialist

This is to apprise you of procedures employed by this office regarding archeological surveys of current highway projects on non-Federal systems.

We have instigated procedures whereby the proper officials in the Local Government Section of O.D.O.T. are notified as soon as archeological surveys are scheduled, and advised when surveys and any salvage or mitigation measures are necessary. We will also copy Region on those notifications.

Since coordination with the counties is the responsibility of the Local Government Section and Region, we feel that contact with local officials is not the responsibility of the Environmental Section or our contractor.

We recognize the importance of communication with local officials and suggest that proper steps be taken by Region and the Local Government Section to ensure that errors in communication such as Boot Hill Cemetery-Dog Creek Section do not occur in the future.

GAP:MB:ss

cc: Gerry Wimer

cc Region FA Engrs — For your guidance where archeological surveys become necessary on your Local Government projects. above modified to extent Potter will send copy notice direct to your office. You should immediately notify the affected Local Government. If they feel the need to participate in the survey you can then arrange with Potters Section to coordinate.

Jerry Wimer

cc Gary Potter

Done 11/6

PROJECT MANAGEMENT
PME ☐ CCE ☐ OM ☐
LCE ☑ FAE ☐ OPE ☐
NOV 1 1978
File: PM FA
TM ______ LG OP

8907

ROBERT W. STRAUB
GOVERNOR

Oregon State Highway Division

REGION 5 OFFICE

W. E. Schwartz
Region Engineer

P. O. Box 850 La Grande, Oregon 97850 Telephone 963-3177

October 16, 1978

The Hon. Francis Cole
Courthouse
Canyon City, Oregon 97820

Dear Judge Cole:

Re: Archeological Survey, Boot Hill Cemetery - Dog Cr. Sec., FAS B536

This letter is to advise you I have received telephone confirmation that the archeological survey has been completed on the Boot Hill Cemetery - Dog Cr. Section and you may now begin work on the project.

I am sorry you were not contacted by the survey team during their visit to the project site. Apparently they failed to recognize the importance of communication with local officials.

As discussed with Mr. Brainerd, Right of Way Supervisor, on October 11, 1978, the work must be confined to the areas for which you have a signed permit of entry or on the existing right of way the County now has.

Please keep me informed on the status of the remaining permits of entry needed for the project.

Sincerely,

R C Lang
R. C. Lang
Region Federal Aid Specialist

RCL/vt
cc: Thom Ledgerwood
Gary Potter
Gerald Wimer ✓
Harold Brainerd
Barry Hatcher

PROJECT MANAGEMENT
PME ☐ CCE ☐ OM ☐
LGE ☒ FAE ☐ OPE ☐
OCT 17 1978
File: PM LG FA OP
TAA

8907

nig

U.S. DEPARTMENT OF TRANSPORTATION - FEDERAL HIGHWAY ADMINISTRATION

LETTER OF APPROVAL AND/OR AUTHORIZATION

FEDERAL AID PROJECT NO.	F [illegible] B536(2)
STATE PROJECT NO.	See below
COUNTY NAME	Grant
PROGRAM STAGE (Check)	☐ 1. ☐ 2.
PROGRAM NO.	
ITEM NO.	80407

FROM:

G. L. Green
Division Administrator
Salem, Oregon

TO:

Mr. F. B. Klaboe
Asst Director for Operations
State of Oregon, DOT
Salem, Oregon

DATE PS & E APPROVED	DATE AUTHORIZATION EFFECTIVE	FEDERAL ROUTE NUMBER / STATE ROUTE NUMBER
9-21-78	9-21-78	Secondary B536 County Road

GENERAL LOCATION:

BOOT HILL CEMETERY - DOG CREEK SECTION

GENERAL DESCRIPTION OF WORK:

Base and high type pavement

YOU ARE AUTHORIZED TO PROCEED WITH THE WORK CHECKED BELOW

- ☐ PRELIMINARY ENGINEERING TO DETERMINE LOCATION ONLY
- ☐ PRELIMINARY ENGINEERING FOR SURVEY AND PLAN PREPARATION
- ☒ OTHER (Specify) See below
- ☐ ACQUISITION OF RIGHT-OF-WAY
- ☐ CONSTRUCTION - ADVERTISE FOR RECEIPT OF BIDS
- ☐ CONSTRUCTION - PROCEED ON AN AGREED PRICE AND/OR FORCE ACCOUNT BASIS

REMARKS

As requested in Mr. Swan's 9-13-78 letter, you are authorized to proceed with actions necessary to advance the physical construction provided for by the above project at a total estimated cost of $365,300,Federal funds $313,300, in accordance with the provisions of your approved Secondary Road Plan and design exceptions approved by my letter of 9-21-78. If you subsequently find that exceptions to the procedure will be needed or that your proposed design standards for this project are lower than the minimum design standards as approved May 13, 1970, this office should be notified of such proposed exceptions and reasons thereof.

NOTED
F. B. KLABOE

Swan
9-26

DATE	SIGNATURE OF APPROVING OFFICIAL	TITLE
9-21-78	G.K. H	for Division Administrator

FORM PR-1240 (REV. 8-76) EXISTING STOCKS OF FORM PR-1240 (REV. 6-68) WILL BE USED

☆ U.S. GOVERNMENT PRINTING OFFICE: 1976--626-787

Form FHWA 121 (Rev. 5-73)

8907

FAS-B536

UNITED STATES GOVERNMENT

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
The Equitable Center, Suite 100
530 Center NE. - Salem OR 97301

Memorandum

DATE: September 21, 1978

In reply refer to: HFO.4/5-OR

SUBJECT: Oregon Project RS-B356(-)
[redacted]
Canyon City-Dog Creek Road
Grant County

FROM : G. L. Green, Division Administrator

TO : Mr. E. S. Hunter, Manager
Office of Technical Services
Oregon Department of Transportation

We have reviewed and concur with the exceptions to minimum design criteria for this project as submitted with Mr. Christensen's letter of August 29, 1978. The minimum design criteria is as contained in the "Geometric Design Standards for Highways other than Freeways, AASHTO, 1969."

Our concurrence is based on the anticipated low traffic volumes, the expected local character of the road usage, the expected running speeds, and the mountainous terrain. We feel the project as proposed will provide a safe highway facility comparable with other low volume local rural collector routes.

We understand that suitable signing will be included with the project to advise motorists of conditions in these areas.

G. K. Hosmer
for G. L. Green

REFERRED TO
2 Beard ____ Stoudenmeyer ____
____ Cole ____ Sample ____
1 Eriksen F.E. ____ Watson ____
____ Hager ____ Dorn ____ Leu ____
[✓ Return] Discuss Do File Copy Due ____
BY FINAL DESIGN ENGINEER

NOTED
E. S. HUNTER

1 Versteeg ✓
2 Christensen DDL
____ George ____
____ Olson ____
3 Terpin E
____ Sullivan ____
____ Scott ____
____ Savage ____

RECEIVED
SEP 26 1978
ENGINEERING SECTION

____ Trout ____
Do Not File ☐
Return To ____
Bring Up ____/____/____
Action ____

RECEIVED
TECHNICAL SERVICES
SEP 25 '78
REFER TO
Versteeg
FOR

Info	Inves	R/D	U/R	Sign	Act	File
X						

NOTED
F. E. TERPIN

8907

OREGON STATE HIGHWAY DIVISION

INTER-OFFICE CORRESPONDENCE

FILE:

September 18, 1978
Salem, OR 97310

FROM: Tony
Anthony George, Env. Eng. Coordinator
Environmental Section

SUBJECT: Noise Study Reports--
October Contract Letting

TO: Gary A. Potter
Manager

J. H. Versteeg
Head of Engineering

E. S. Hunter ✓
Technical Services Engineer

RECEIVED TECHNICAL SERVICES
SEP 1 '78
REFER TO
FOR
K/D
C/R
Info

Attached are the pertinent noise study reports for the October letting schedule. Also attached are the noise study reports needed for early advertisement. These are:

Tualatin Valley Hwy. at SW 170th Ave. Washington County
Snake River (Ontario Spur) Bridge, Malheur County
Brogan Hill-Brogan, Malheur County
Florence/Eugene Hwy.-M.P. 5.7, Lane County
Boothill Cemetery-Dog Creek, Grant County
Florida Ave.-Vermont Ave., Coos County

No traffic noise abatement is proposed. All of the projects except Florida Ave.-Vermont Ave. are recommended for construction time constraints as follows:

> No construction operation shall be performed within 1000 feet of any occupied dwelling unit on Sundays, legal holidays and between the hours of 10:00 p.m. and 6:00 a.m. on other days, without the approval of the resident engineer.

Notwithstanding the above, a pile driving constraint is recommended for the Snake River Br. project, and a blasting constraint is recommended for the Brogan Hill-Brogan project. These are as follows:

> No pile driving (blasting) operations shall be performed within 3000 feet of any occupied dwelling unit on Sundays, legal holidays, and between the hours of 8:00 p.m. to 8:00 a.m. on other days, without the approval of the resident engineer.

I concur with my staff that the noise reduction benefits to be derived from implementing these recommendations more than outweigh any inconvenience to construction. The piledriving and blasting constraints are consistent with our Statewide Noise Study Report.

✓ Your approval is requested.

APPROVED
ESH
E. S. Hunter
Date 9-25-78

Attachments

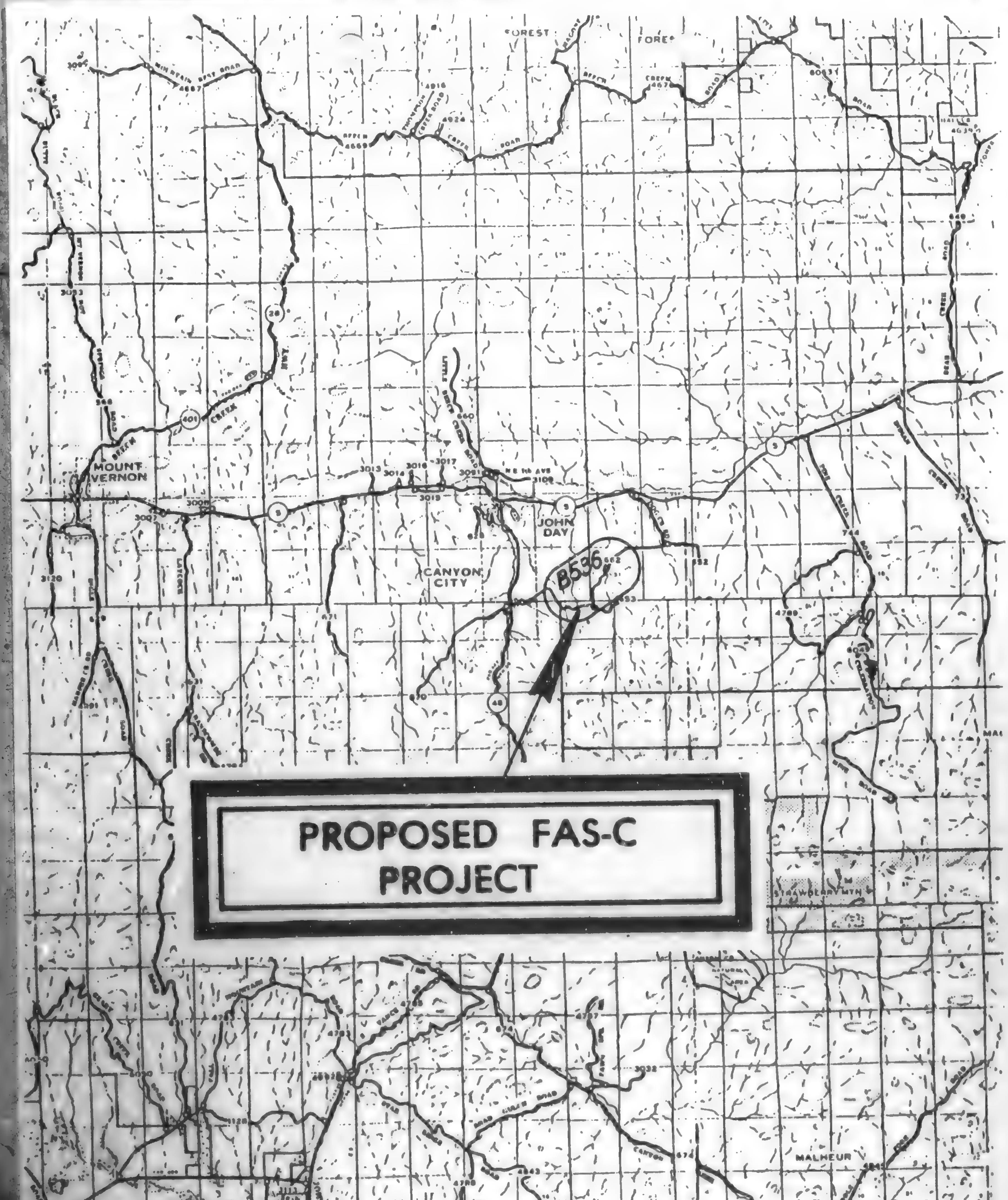
8907

8-78

Noise Study Report

Boot Hill Cemetery-Dog Creek Section
Canyon City-Dog Creek Road
Grant County

Prepared by
Oregon Department of Transportation
Technical Services Branch
Steve Lindland, Assistant Environmental Engineer
August 1978


FOREST
FOREST
MOUNT VERNON
CREEK
401
26
5
5
5
JOHN DAY
CANYON CITY
B536
48
STRAWBERRY MTN
MALHEUR

PROPOSED FAS-C
PROJECT

Boot Hill Cemetery-Dog Creek Section
FAS-B536, Canyon City-Dog Creek Road
Grant County

I. Description of Project

The project begins approximately 1.2 miles east of Canyon City which is 2 miles south of John Day, and extends 2.1 miles easterly and northeasterly to within ½ mile of Dog Creek Road which rejoins the John Day Highway. Horizontal and vertical alignment of the gravel road is to be improved by this project. Paving will be done by county forces. The purpose of this project is safer winter travel for school buses and other traffic.

II. Land Use

The project area is a rural one. Ten residences are scattered along the project. These residences vary between 100 feet to 325 feet from the centerline of the existing road. In addition, there is some agricultural land along the project. The remainder is undeveloped, semi-forested, grassy, hilly terrain.

III. Traffic Noise Analysis

A. Predicted Traffic Noise Levels

Traffic projections were made with the FHWA model. The "soft site" nomograph was used due to the ground cover (grass). This model computes traffic noise levels using vehicular volume, truck volume, vehicular speed, and distance from the roadway. The traffic data used in the analysis is given in table 1. The traffic noise analysis proved the peak truck hour to create the worst noise condition, table 2.

B. Traffic Noise Impacts

As shown by table 2, the projected traffic noise levels along the right-of-way should not exceed the design noise level (L_{eq} 67 dBA) for Activity

Category "B" (which includes residential areas). In addition, no substantial noise level increases are anticipated at any of the receptors. Therefore, no traffic noise impacts are expected.

TABLE 1

Traffic Data

	No Build and Build	
Peak Vehicular Hour	1978	1988
Total Vehicles	25	40
Trucks	2	3
Speed	30 mph	30 mph
Peak Truck Hour		
Total Vehicles	20	40
Trucks	3	3
Speed	30 mph	30 mph

TABLE 2

L_{eq} Level at 30 Feet from Road Centerline*

	No Build and Build	
	1978	1988
Peak Vehicular Hour	55 dBA	57 dBA
Peak Truck Hour	56 dBA	58 dBA

*Typically the location of the right-of-way line.

IV. Construction Noise Analysis

Areas adjacent to the project will also be exposed to additional noise during construction. This noise will be emitted by various pieces of construction equipment. Figure #2 shows the typical ranges of noise levels for construction equipment (at 50 feet) which might be used during project construction.

As shown in Figure 2 areas adjacent to the right-of-way line should be exposed to high noise levels during construction. Although of a temporary nature, the additional noise can be quite annoying. This is especially true during the quieter nighttime hours. Therefore, a construction time constraint will be included in the construction specifications as follows: "construction will not be allowed on Sundays, legal holidays, and on other days between 10:00 p.m. to 6:00 a.m. Exceptions to the provision can be provided by the resident engineer."

V. Local Coordination and Notification

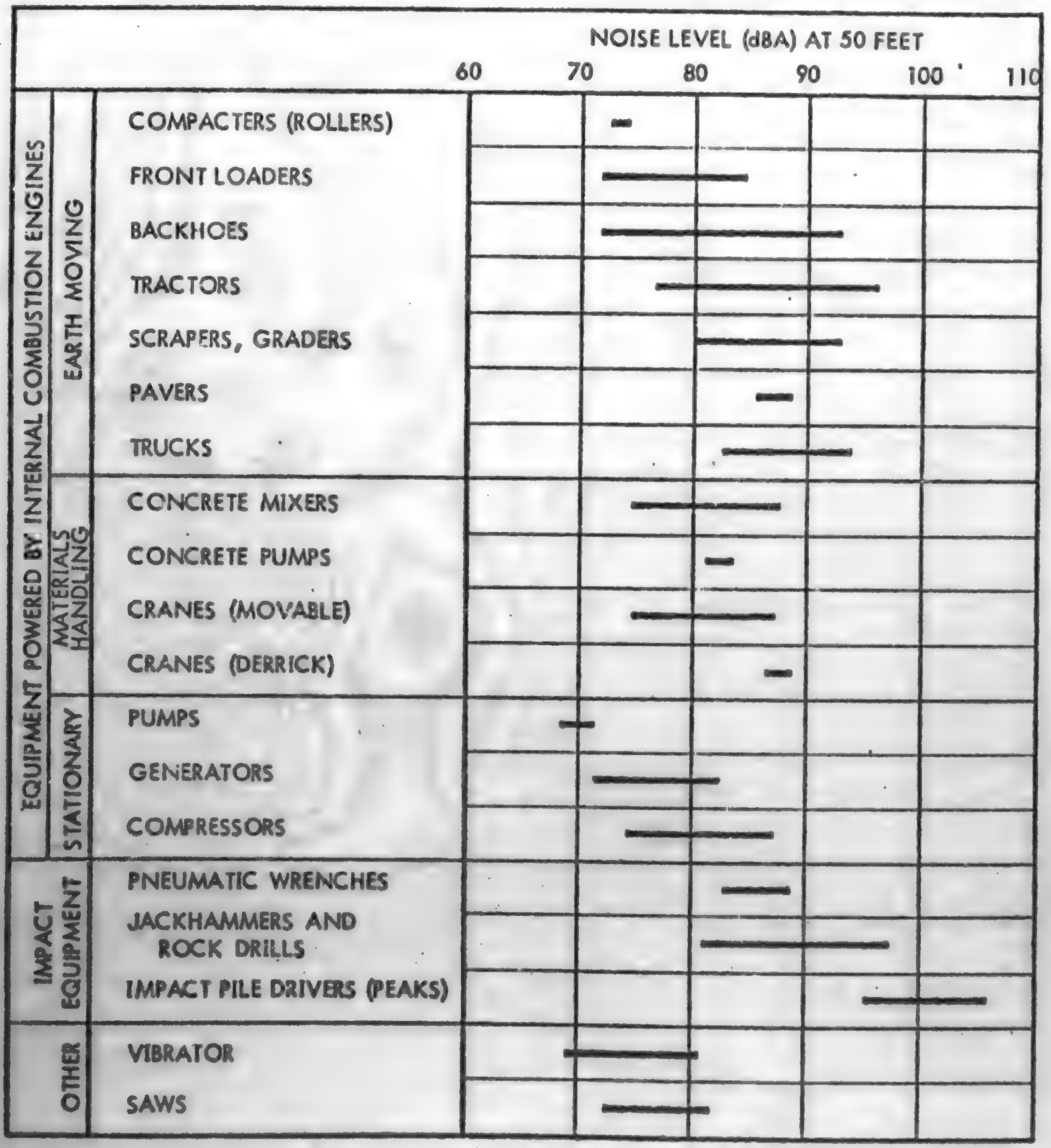
To date, no coordination with local officials has occurred.

Predicted traffic noise levels are not in conflict with the FHWA design noise levels for land use activity Category B (see Figure 3) outside of the road right-of-way in either 1978 or 1988.

A copy of this report along with a copy of the FHWA policy on land use will be sent to Grant County.

Table 1

Construction Equipment Noise Ranges



DESIGN NOISE LEVEL/ACTIVITY RELATIONSHIPS 1/

Activity Category	Design Noise Levels - dBA 2/ $L_{eq}(h)$	 $L_{10}(h)$	Description of Activity Category
A 3/	57 (Exterior)	60 (Exterior)	Tracts of land which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose. Such areas could include amphitheaters, particular parks or portions of parks, open spaces, or historic districts which are dedicated or recognized by appropriate local officials for activities requiring special qualities of serenity and quiet.
B 3/	67 (Exterior)	70 (Exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, and parks which are not included in Category A and residences, motels, hotels, public meeting rooms, schools, churches, libraries, and hospitals.
C	72 (Exterior)	75 (Exterior)	Developed lands, properties or activities not included in Categories A or B above.
D	--	--	For requirements on undeveloped lands see paragraphs 11a and c.
E 4/	52 (Interior)	55 (Interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

1/ See Paragraph 8 for method of application.

2/ Either L_{10} or L_{eq} (but not both) design noise levels may be used on a project.

3/ Parks in Categories A and B include all such lands (public or private which are actually used as parks as well as those public lands officially set aside or designated by a governmental agency as parks on the date of public knowledge of the proposed highway project.

4/ See Paragraphs 8c, d, and e for method of application.

8907

ROBERT W. STRAUB
GOVERNOR

Oregon State Highway Division
REGION 5 OFFICE

W. E. Schwartz
Region Engineer

P. O. Box 850 La Grande, Oregon 97850 Telephone 963-3177

September 18, 1978

The Hon. Francis Cole
Courthouse
Canyon City, Oregon 97820

Dear Judge Cole:

Re: Estimate of Cost, Boot Hill Cemetery - Dog Cr. Sec., FAS B536

Enclosed is a copy of estimate of cost based on the latest available information. The total estimated cost of $365,222 is 22.8% above the recon estimate of $297,500 which was prepared in May of 1977. Recent increases of bids received from contractors has made estimating of costs most difficult.

Shown on the lower left hand corner of the facing page is the participating amounts by FHWA, State and County. With the anticipated FAS allotment for 1979 you will have ample funds to cover this project and have $39,560 remaining.

I know this is most frustrating to the Court when budgets are so important but the longer the project waits before contracting the more the price goes up.

Please call if you have any questions.

Sincerely,

Roger C. Lang

Roger C. Lang
Region Federal Aid Specialist

PROJECT MANAGEMENT
PME ☐ CCE ☐ OM ☐
LGE ☑ FAE ☐ OPE ☐
SEP 21 1978
File: PM FA
LG OP

RCL/vmt
Enc.
cc: Thom Ledgerwood
Gerald Wimer ✓
Barry Hatcher

Form 81-734-3122

8907

FAS B536

FORM 81-734-3030

OREGON STATE HIGHWAY DIVISION

FILE:

INTER-OFFICE CORRESPONDENCE

La Grande, Oregon

September 15, 1978

R C Lang

FROM: R. C. Lang
Region Federal Aid Specialist

TO: Gerald Wimer
Manager, Local Government Section

S A L E M

SUBJECT: Approved Plans
Boot Hill Cemetery - Dog Cr. Sec.
FAS B536 (Dog Cr. Rd.)
Grant County

Enclosed is one set of plans dated August 28, 1978 which have been approved by the Grant County Court.

As you know, the Court has not yet been able to gain permit of entry from all of the affected property owners and are unable to identify when the County's portion of the work will be completed. Due to the uncertain schedule of completion by the County, it is suggested we show tentative bid letting dates until the Court can accurately forecast a completion of County work. The tentative date of Jan. 25, 1979 is acceptable for the present time.

1 Versteeg
2 Christensen
George
Olson
Terpin
3 Sullivan
Scott
Savage

RECEIVED
SEP 18 1978
ENGINEERING SECTION

4 Trout
Do Not File
Return To
Bring Up / /
Action

Britt
Bill-file copy
o.b.

REFERRED TO
Beard
Cole
Eriksen 7.5
Heger
Dorn
Stoudenmeyer
Sample
Watson
Lau
[✓ Return] Discuss Do File Copy Due
BY FINAL DESIGN ENGINEER

RCL/vmt
Enc.
cc: Judge Cole
Thom Ledgerwood
D. O. Christensen
Harold Brainerd
Region V R/W
Barry Hatcher

SHEET NO.	DESCRIPTION
1	Title Sheet
2	Typical Section & Summary
3-6 Incl.	Plan & Profile

Temporary Protection & Direction Of Traffic
Will Be Written In Specifications.

D.C. Christensen

STATE OF OREGON

STATE HIGHWAY DIVISION

PLANS FOR PROPOSED PROJECT

BOOT HILL CEMETERY – DOG CR.

FAS B536 (DOG CR. RD.)

GRANT COUNTY

APPROVED BY

COUNTY OF Grant

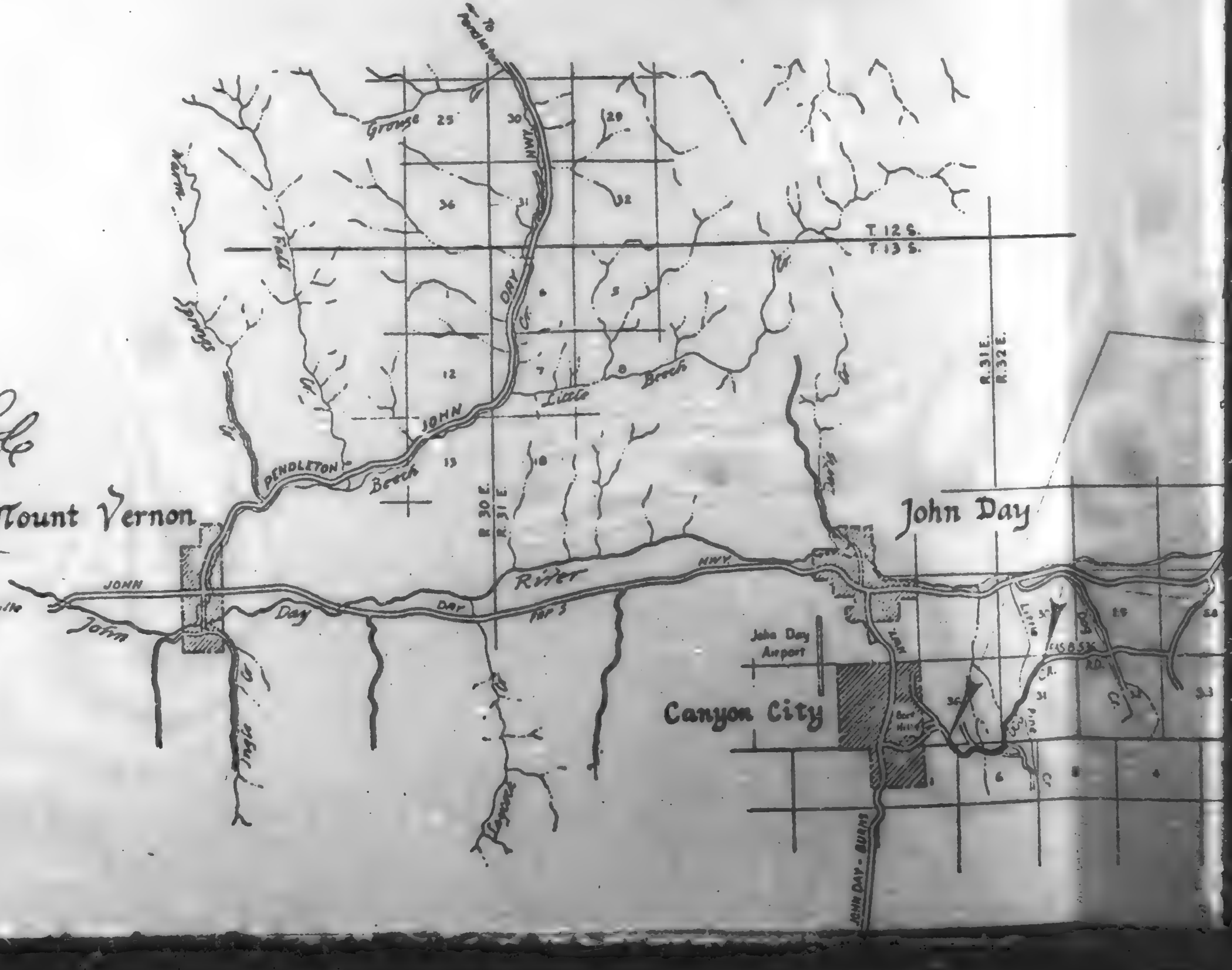
Francis D. Cole
JUDGE OR CHAIRMAN

COMMISSIONER

Geo. Hannan
COMMISSIONER

DATE SEP 13 1978

PRELIMINARY COPY
SUBJECT TO CHANGE


To Pendleton
Grouse
25
30
29
36
31
32
T. 12 S.
T. 13 S.
Fall
Beech
DAY
CR.
12
7
8
Little
Beech
JOHN
PENDLETON
13
18
R. 30 E.
R. 31 E.
R. 31 E.
R. 32 E.
Mount Vernon
John Day
NWY.
JOHN
Day
River
DAY
To Dayville
John
Ingle
Laycock
John Day Airport
Canyon City
Boot Hill
JOHN DAY - BURNS
DOG CR.
FAS B536
RD.
36
31
6
5
4
28
33

& Summary

on & Direction Of Traffic
In Specifications.

STATE OF OREGON

STATE HIGHWAY DIVISION

PLANS FOR PROPOSED PROJECT

PRELIMINARY COPY
AUG 2 8 1978
SUBJECT TO CHANGE
FINAL DESIGN UNIT

BOOT HILL CEMETERY – DOG CR. SEC.

FAS B536 (DOG CR. RD.)

GRANT COUNTY

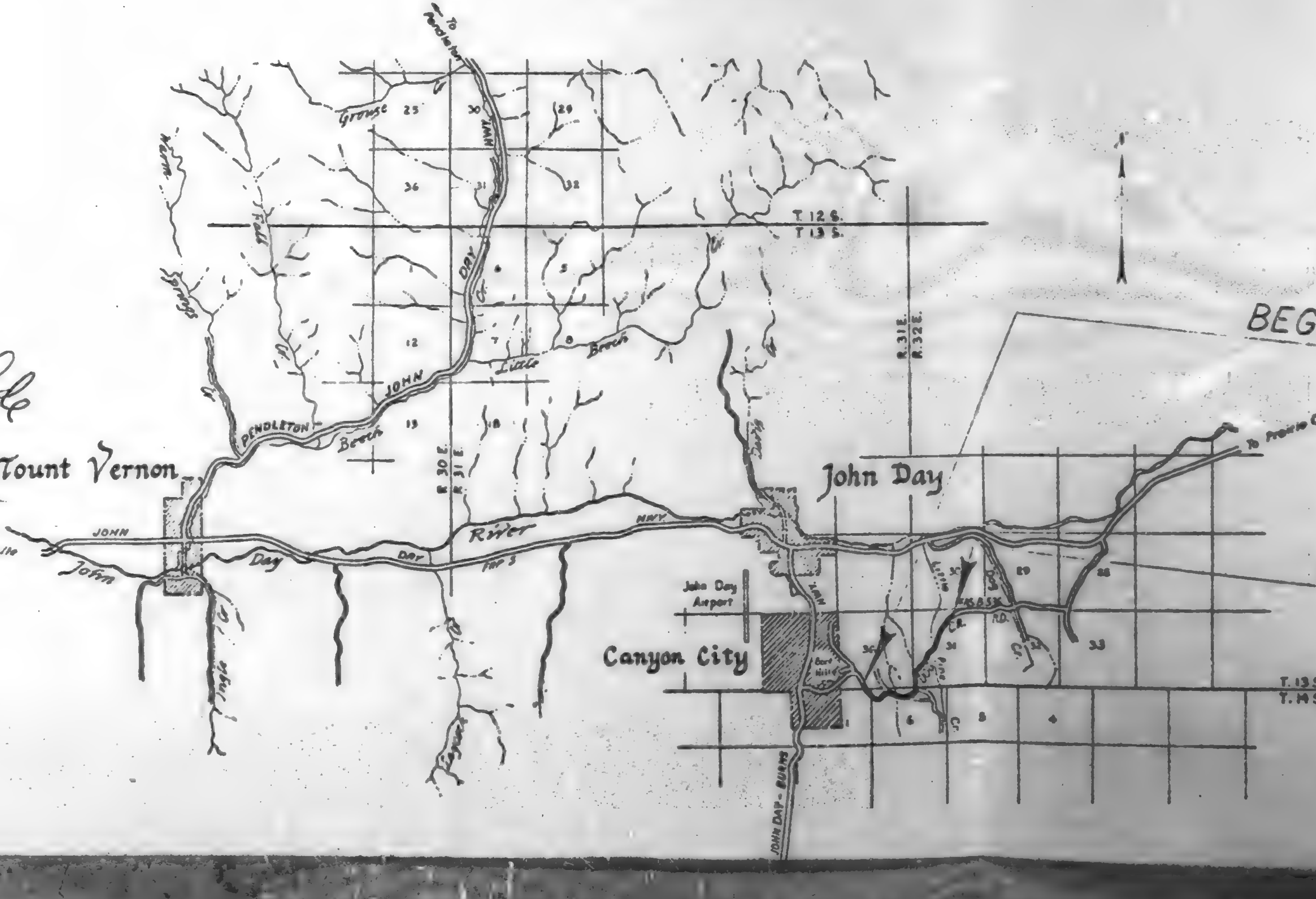
ED BY
ant

ancis D. Cole
OR CHAIRMAN

MISSIONER

MISSIONER

NARY COPY
TO CHANGE


To Pendleton
Grouse
25
30
29
36
31
32
JOHN DAY HWY
T.12 S.
T.13 S.
Fox
Birch
12
7
8
Little Beech
JOHN
PENDLETON
Beech
13
18
R.30 E.
R.31 E.
R.31 E.
R.32 E.
Davis
Mount Vernon
John Day
To Prairie City
To Dayville
JOHN
John
Day
DAY
River
HWY
NO. 5
Ingle Cr.
Laycock
John Day Airport
Canyon City
JOHN DAY – BURNS
Boot Hill
30
29
28
31
33
32
T.13 S.
T.14 S.
1
6
5
4
FAS B536
RD.
Dog Cr.

BEGINNING

END

☐ RE
☐ RCE
☐ RFA
AUG
REC
REGION

8907

HAROLD

1859
ROBERT W. STRAUB
GOVERNOR

Department of Transportation

TRANSPORTATION BUILDING, SALEM, OREGON 97310

September 13, 1978

TO: G. L. Green, Division Administrator
Federal Highway Administration

FROM: D. E. Swan
Federal Aid Manager

SUBJECT: Project Data Submission
Item No. 80407
Project No. RS-B536(2)
Boot Hill Cemetary-Dog Creek Section
Grant County

Attached data consists of PR-1 form with project map for the subject project.

This project has been originated by local officials and concurred in by the Oregon Transportation Commission and the Oregon State Highway Division.

It is the Oregon State Highway Division's present intention to receive bids for this project on November 16, 1978.

We request authorization for construction at an estimated total cost of $365,300 with an obligation of $313,300 in Federal funds.

State Clearinghouse and District 12 Clearinghouse A-95 review approval letters were previously submitted.

JLG:tmw

Attachments

cc: W. E. Schwartz (Region 5)

Budget Bureau No. 41-R206

FORM PR-1
(REV. 4-61)

FEDERAL - AID PROGRAM DATA

(PPM 21-1)

MONTHLY TRANSACTION NO.

DATE SUBMITTED TO W.O. September 13, 1978

CARD	REPORT NUMBER	PROJECT LOCATION (45 typewriter spaces)	ADT	PRESENT	FUTURE	YEAR	REGION	STATE NAME
2	(19) (20)	21 Co. Rd., Approx. 1 mi. E. of Canyon City, E. 65		DHV 20 175	250 (69) (70)	(71) 98 (72)	10	Oregon

CARD	CHARACTER OF PROPOSED WORK (35 typewriter spaces)	NATL. FOREST	FH ROUTE NO.	SUPV. AGCY	DA CLASSIF.	DA AREA	EMERG. YR.	PL. AUTH YR	PROJECT NUMBER PREFIX LETTER(S)	PROJECT NUMBER NUMBER
3	28 Base & H.T. Pave 62	(63) (65)	(66) (68)	(69)	(70)	(71)	(72) (73)	(74) (75)	14 RS- 23	7 B536

CARD	CLASS OF FEDERAL FUNDS	COUNTY NAME
	Rural Secondary	Grant

NAME OF URBAN AREA	ROUTE NO.	FEDERAL-AID	STATE	U.S.
17-31 -- ---	S	B536 (32)	Co. Rd. (36)	(37) --

ESTIMATED PROJECT COST BY PHASES

CARD	LINE NO.	CHANGE CODE	PROJECT CODE	CLASS	WORK TYPE	WORK STEP	TERMINI (Full description)	MILES	TOTAL ESTIMATED COST	FEDERAL FUNDS	STATE FUNDS	OTHER FUNDS
1	(14-15)	(16	41	42	43 46	53		(54) (58)	(59) (66)	(67) (76)		
5					PE		"Boot Hill Cemetery- Dog Creek Section"					
5					ROW							
5					CONST (CODE) 6201			1.94	365,300	313,300	26,000	26,000 (co.)

CARD	CODE	PREPARED BY	PROJECT TOTALS	MILES	TOTAL ESTIMATED COST	FEDERAL FUNDS
1	1	JLG		1.94	365,300	313,300
					(16) (23)	(24) (33)

STATE FUNDS 26,000

OTHER FUNDS 26,000 (Co)

CARD	CODE	PROGRAM APPROVAL DATES
1	14	3-8-78

REMARKS

Budget Bureau No. 41-R2067; Approval Expires February 28, 1966

FORM PR-1
(REV. 4-61)

U.S. DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS

FEDERAL-AID PROGRAM DATA

(PPM 21-1)

September 13, 1978

OJECT LOCATION (45 typewriter spaces)	ADT	PRESENT	FUTURE	YEAR	REGION	STATE NAME	STATE CODE	APPN CODE	ITEM NO.
Co. Rd., Approx. 1 mi. E. of Canyon City, E.		DHV 20 175	250	98	10	Oregon	41	075	80407

D WORK (35 typewriter	NATL. FOREST	FH ROUTE NO.	SUPV AGCY	DA CLASSIF.	DA AREA	EMERG. YR.	PL. AUTH YR	PROJECT NUMBER PREFIX LETTER(S)	NUMBER	SEQ. NO.	I. Projects Only POST MI.	DESIG.
Pave								RS-	B536	(2)		

DS	COUNTY NAME	CODE	PROGRAM STAGE
Rural Secondary	Grant	023	☐ 1 OR ☐ 2

	ROUTE NO.	FEDERAL-AID	STATE	U.S.
---	S	B536	Co. Rd.	--

ESTIMATED PROJECT COST BY PHASES

WORK TYPE	STEP	TERMINI (Full description)	MILES	TOTAL ESTIMATED COST	FEDERAL FUNDS	STATE FUNDS	OTHER FUNDS	CHARACTER OF PROPOSED WORK (Full description)
E		"Boot Hill Cemetery- Dog Creek Section"						Util. adj. as req.
OW								
ONST (CODE) 6201			1.94	365,300	313,300	26,000	26,000 (co.)	ROW-60' normal; Access Control-None; Parking Restrictions-None.
JLG		PROJECT TOTALS	1.94	365,300	313,300	26,000	26,000 (Co)	

PROVAL DATES

3-8-78

REMARKS

-over-

USCOMM DUSCOMM-DC 48905-P61

BOOT HILL CEMETERY-DOG CREEK SECTION
PROJECT NO. RS-B536(2)

Existing Facility: Variable 20 to 24 foot gravel surface with no shoulders.

Adjacent Sections: W. End -- 22 foot oil surface.
E. End -- 26 foot A.C. surface.

Project Data: Work under this project consists of place base rock, leveling course and high-type pavement to provide two 10-foot travel lanes with 4-foot shoulders, adjust utilities as required and incidental work common to this type of project.

Exceptions to Minimum Standards: Deviations from standards for this section are considered in the public interest as this project is in mountainous terrain and similar substandard conditions exist on adjacent sections. The deviations are as follows:
a) a 12% grade.
b) Curves up to 22 degrees (these will be properly signed).

System Action, Railroads, Water Developments, Historical and Recreational Areas: None involved.

Airports: John Day Airport is located approximately 2 miles west of the project and no conflict with operation of the airport is anticipated.

FHPM 7-7-2 Requirements: Nonmajor action project concurred in by FHWA on August 2, 1977.

FHPM 4-1-4 Requirements: State Clearinghouse and District 12 Clearinghouse A-95 review letters of approval dated October 11, 1977 and September 23, 1977 respectively.

FHPM 7-7-5 Requirements:
a) Public Hearings -- Not required under Oregon Action plan.
b) Location/Design -- Not a factor in the development of this project.

Accommodatio
in complian

Maintenance:
Section 116,

NOTE: This

Accommodation of Utilities: State-County agreement executed August 18, 1977 in compliance with Secondary Road Plan.

Maintenance: State-County agreement executed August 18, 1977 complies with Section 116, Title 23, U.S.C.

NOTE: This project is in Congressional District No. 2.

---

no shoulders.

rock, level-
l lanes with
work common

this sec-
in moun-
jacent sec-

ecreational

est of the
ipated.

by FHWA on

Clearinghouse
tember 23, 1977

project.

~~Section~~ Boot Hill Cemetery - Dog Cr. Sec. Programming Estimate $ 365,000

Highway 8902 Dog Cr. Rd FAS B536 Project Length 1.94 miles

County Grant Completion Time 160 Cal. Workdays

Kind of Work Aggregate Base and Paving

Prefix 512-1909-921 FA Project No. RS-B536(2)

STRUCTION AUTHORIZATION

ROUTING SLIP Date: 9/4/78

DEPARTMENT OF TRANSPORTATION

Director
Chief of Operations
Asst. Dir.-Administration
Asst. Dir.-Transportation Policy & Program Develop.
Accounting (Highway)
Administrative Services
Chief Counsel
Commission Services
Computer Center (Lane Ave.)
Construction
Data Processing (Transp. Bldg.)
Employee Development
Engineering (Design)
Environmental
Equipment Shops & Storeroom
Finance (DOT)
FHWA

General Files
General Services (DOT)
Information Systems (Lane Ave.)
Labor relations
Landscape
Library
Location
Mail Room
Maintenance
Materials & Research
Motor Vehicles
Organization & Manpower Services
Parks & Recreation
Permits & Weighmaster
Personnel Operations
Photocopy
Proj. Mgmt. & Operations Planning

Public Affairs
Public Transit
Radio
Right of Way
Safety & Health Services
Sign Shop
State Highway Engineer
Structures
Technical Services Engineer
Traffic Support Services
Transportation Policy & Program Development
Travel Information
Utilities
Metropolitan
[✓ Region Number 5]
District Number

ATTENTION: Roger Lang

FROM: Project Mngt.

COMMENTS: Please inform the County.

Form 731-0022 (1/78) SP*70804-734

ract Amount		$ 319,282.00
	2000.00	
	500.00	$ 2500.00
		$ 321,782.00
Contingencies (4-1/2%)		14,480.19
Engineering (9 %)		28,960.38
SUBTOTAL		$
Credit for		
Estimated Net Authorization, Construction PE		$ 365,222.57

APPROVED

County Share - 7% $25,565
rounded $25,600

Road Design Engineer

[illegible]

Section Boot Hill Cemetery - Dog Cr. Sec. Programming Estimate $ 365,000

Highway Dog Cr. Rd FAS B536 Project Length 1.94 miles

County Grant Completion Time 160 Cal. Workdays

Kind of Work Aggregate Base and Paving

Prefix 512 - 1909 - 921 FA Project No. RS - B536(2)

ESTIMATED CONSTRUCTION AUTHORIZATION

Estimated Contract Amount		$ 319,282.00
Anticipated Additional Items:		
Royalty Payment		
Building Permit Fees		
Slide Correction		
Railroad Protective Costs		
Other Railroad Costs		
Permanent Signing		
Permanent Pavement Striping		
Temporary Pavement Striping		
Remove Pavement Striping (Exist. & Temp.)		
Temporary Erosion Control	2000.00	
State Furnished		
Install Water Meter		$ 2500.00
Furnish Water		
Laboratory Fees		
On the Job Trainees		
State Responsibility for Damages	500.00	
Signal Controller Testing		
Bikeway Signs		
Furnish Mail Box Posts		
Adjust Utilities		
Misc. Permit Fees		
		$ 321,782.00
Contingencies (4-1/2%)		14,480.19
Engineering (9 %)		28,960.38
SUBTOTAL		$
Credit for		
Estimated Net Authorization, Construction		$ 365,222.57

PE

APPROVED

County Share - 7% $25,565

rounded $25,600

Road Design Engineer

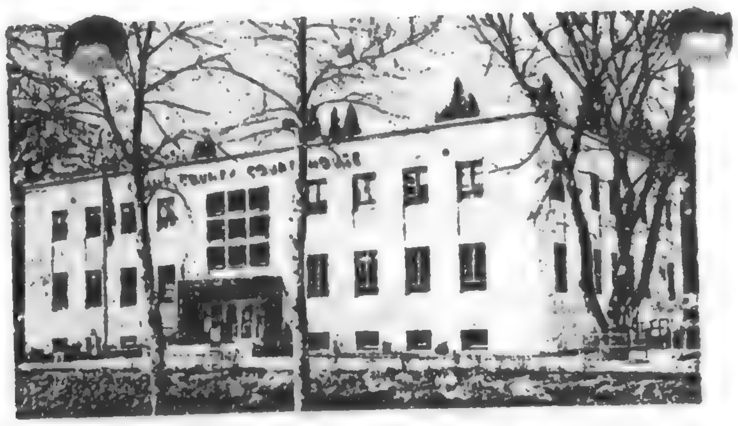
OREGON STATE HIGHWAY DIVISION
SUMMARY--BID SCHEDULE--COST ESTIMATE

Sheet 1 of 1
Date Aug 29, 1978

ction Boot Hill Cemetery - Dog Cr. Sec.
County Grant
Kind Of Work Aggregate and Paving
Length 1.94 Mle
Name Bergstedt

No	Item	Code	Unit	Quant.	Unit Cost	Total
	Furnishing Field Laboratory		Each	1	2000^{00}	2000^{00}
	Mobilization		Lump Sum	All	—	24,000^{00}
	Temporary Protection and Direction					
	of Traffic		Lump Sum	All	—	1,095^{00}
	Temporary Signs		Sq. Ft.	167	6^{00}	1,002^{00}
	Temporary Barricades		Each	2	125^{00}	250^{00}
	Flagmen		Hour	300	20^{00}	6,000^{00}
	Roadwork					
	Watering		M. Gal	360	10^{00}	3,600^{00}
	Coarse Aggregate Base		Ton	18,800	5^{75}	108,100^{00}
	3/4"-0 Aggregate Base		Ton	5,500	6^{50}	35,750^{00}
	Class "B" Asphalt Concrete Mixture		Ton	4,400	18^{00}	79,200^{00}
	Asphalt Cement in Mixture		Ton	290	112^{00}	32,480^{00}
	3/4"-0 Aggregate in Prime Coat		Ton	380	13^{00}	4,940^{00}
	MC-250 Asphalt in Prime Coat		Ton	35	165^{00}	5,775^{00}
	Guard Rail, Type 2A with 8 foot Posts		Lin. Ft.	650	13^{00}	8,450^{00}
	Guard Rail Anchors, Type I		Each	7	300^{00}	2,100^{00}
	Rail End Pieces, Type B		Each	1.	90^{00}	90^{00}
	Rail End Pieces, Type C		Each	7	150^{00}	1050^{00}
	Extra for Asphalt Approaches		Each	17	200^{00}	3,400^{00}
	Mob. .08X 295,282^{00} = 23,622^{00}					319,282^{00}

8907.



GRANT COUNTY
CANYON CITY, OREGON

September 8, 1978

PROJECT MANAGEMENT
PME ☐
LCE ☐
CCE ☐
FAE ☐
OM ☐
CPE
SEP 1? 1978
TAA
File:
PM
LG
FA
OP

☐ RE ☐ RCE ☐ RME ☐ ROE
RFA SEP 11 1978 ☐
RECEIVED
REGION 5 OFFICE

Oregon State Highway Division
W.E. Schwartz, Reg. Engineer
PO Box 850
La Grande, Oregon 97850

Attn: R.C. Lang

Dear Roger:

We, at this time feel insecure in being able to give assurance of substantial completion of the grading on Boothill-Dog project by November 16, 1978. This insecurity is based on the fact we have so many permit of entry problems that are not yet resolved, including the B.L.M.

Because of this we did not sign the preliminary plans. We did however, ask Thom to pursue vigorously on the entry permits and do ~~derive~~ DESIRE to get in there as soon as possible.

Please advise if we should sign the preliminary plans in view of these problems.

cc D. O. Christensen
B. E. Swan
Roger Lang

Project on Jan 25, 1979 Schedule. Leave there until Lang requests otherwise.
G Wimer

Sincerely,

Francis F R Cole
FRANCIS F. R. COLE, COUNTY JUDGE

FFRC:lh
cc to: Thom Ledgerwood

Judge Cole -
YES, if it your intent to go forward with this project. WE can delay project until you are ready.

Roger

cy Gerald Wimer
D.O. Christensen
Harold Brainard
Region V R/W
Barry Fletcher

8907

FORM 81-734-3030

OREGON STATE HIGHWAY DIVISION FILE:

INTER-OFFICE CORRESPONDENCE

September 8, 1978

Salem, OR 97310

FROM: Maxine Banks, Env. Specialist MB
Environmental Section

SUBJECT: Archeological Surveys

TO: Robert Prange
Project Management

January 1979

An archeological reconnaissance survey has been scheduled for the Boot Hill Cemetery-Dog Creek project, FAS-C funding, in Grant County. We will notify you if additional archeological work will be required following the survey procedures.

The Florence/Eugene Highway-M.P. 5.7 project has been cleared for contract letting, since no further work is required.

☐ RE ☐ RCE ☐ RME ☐ CE
☒ RE SEP 14 1978 ☐
RECEIVED
REGION 5 OFFICE

MB:ss

cc: Pieter Dykman

C.c. Roger Lang -

Bob —
I strongly suggest contact is made with County Court when this survey is done —
Roger

C.C. - Gary Potter

PROJECT MANAGEMENT
PME ☐ CCE ☐ OM ☐
LGE ☒ FAE ☐ OPE ☐
SEP 19 1978
File: PM FA
LG OP
TAA Reynoldson
Give Gary Potter Copy
w/ Rogers note hi-lighted N

8907

ROBERT W. STRAUB
GOVERNOR

Oregon State Highway Division

REGION 5 OFFICE

W. E. Schwartz
Region Engineer

P. O. Box 850 ... ... La Grande, Oregon 97850 ... ... Telephone 963-3177

bc Gerald Wimer
D. O. Christensen
Harold Brainerd
Region 5 R/W
Barry Hatcher

MAINTENANCE ENGINEER
RECEIVED
SEP 1 1978
☐ AME ☐ AME E CE ☐ AG
☐ BME ☐ SME ☐ AA ☐ FILE ☐

August 31, 1978

Hon. Francis Cole
Grant County Judge
Courthouse
Canyon City, Oregon 97820

Dear Judge Cole:

Enclosed for your review and approval are two copies of preliminary plans dated August 28, 1978 for the Boothill Cemetery-Dog Creek Section, FAS B636 (Dog Creek Road).

It is noted several private road approaches will require work beyond the right-of-way line. In order to accomplish this work, you should have a permit of entry or construction easement for each one. Permits for public roads are not required. Also, I understand minor revisions to the alignment and right-of-way may be necessary from Station 187 ± to 197+50 ± in order to satisfy the adjacent property owner.

It is felt the Court can show a basic intent in approving these plans even though some revisions may occur. If plans appear okay, please return one approved copy to me.

Our present plans call for bids on November 16, 1978. Before we actually advertise the project, we must have a commitment from the County that the grading work will be substantially complete at the time of bid opening.

I know you have been delayed in beginning your construction work because of unforeseen problems in acquiring permits of entry from the BLM and individual property owners. If you are unable to have the majority of the grading work done by November 16, I suggest we delay letting the project until you can accurately forecast the completion of your work.

Do not hesitate to contact me if you have any questions.

Sincerely,

RC Lang

R. C. Lang
Region 5 Federal Aid Engineer

RCL:sh
Enclosures

8907

9

OREGON STATE
HIGHWAY DIVISION

ROBERT W. STRAUB
GOVERNOR

F. B. KLABOE
Administrator and
State Highway Engineer

August 29, 1978

RECEIVED
TECHNICAL SERVICES
AUG 30 '78
REFER TO
FOR

Info	Inves	R/D	D/R	Sign	Apt	File

NOTED
E. S. HUNTER

Glen L. Green
Division Administrator
Federal Highway Administration
The Equitable Center, Suite 100
530 Center Street N.E.
Salem, OR 97301

Dear Mr. Green

Re: Boot Hill Cemetary-Dog Creek Section
FAS B536 Canyon City-Dog Creek Road
Grant County

This FAS-C project is for the improvement of a county road serving a rural residential area. The grading and drainage work will be done by Grant County Forces. The aggregate surfacing and paving work will be done by contract. Engineering work will be performed by the State.

The present ADT is 180. The design speed proposed was 40 MPH, but it should be 30 MPH.

The typical section proposed is 10 foot travel lanes with 4 foot shoulders. The paved width will be 11 feet on each side, with the remaining 3 feet of shoulder being gravel.

In this mountainous area the horizontal and vertical alignment required for speeds above 30 MPH would be very difficult to achieve. The County has indicated a desire to keep speeds on the road to about 30 MPH so the superelevation on curves can be held to a minimum to enhance winter driving conditions. The County also wants to preserve the aesthetics of a winding mountain road.

The maximum curvature is 22 degrees. There is a short section of 22° reversing curves on a 12.27 percent grade which will be properly signed.

The vertical alignment has a maximum grade of 12.27 percent with vertical curve lengths that provide minimum stopping sight distance for 30 MPH.

Form 81-734-3122

There is one sag vertical curve in the 22° reversing curve section that has a stopping sight distance of approximately 25 MPH.

A minimal amount of Type 2A guardrail will be included in the project. It will be installed at two locations where horizontal curves are on vertical curves in embankment areas.

This letter is submitted as documentation on the exception to minimum design criteria as set forth in the "Geometric Design Standards For Highways Other Than Freeways, AASHTO, 1969".

This has been discussed with and tentatively approved by Mr. Dave Carter of the F.H.W.A.

The project is presently scheduled for the November 16, 1978, contract letting.

Very truly yours,

J. H. Versteeg
Engineering
By:

Duane O. Christensen

Duane O. Christensen
Final Design Engineer

FE:ab
cc: E. S. Hunter
W. E. Schwartz
F. E. Terpin
Fred Eriksen

2907

~~Section~~ Boot Hill Cemetery - Dog Cr. Sec. Programming Estimate $ 365,000 Bun.

Highway Dog Cr. Rd FAS B536 Project Length 1.94 miles

8-29-78

County Grant Completion Time ~~160 Cal. Wk~~ 150 Cal. Day

Kind of Work Aggregate Base and Paving

Prefix 512-1909-921 FA Project No. RS-B536(2)

ESTIMATED CONSTRUCTION AUTHORIZATION

Estimated Contract Amount $ 319,282.00

Anticipated Additional Items:

Royalty Payment	
Building Permit Fees	
Slide Correction	
Railroad Protective Costs	
Other Railroad Costs	
Permanent Signing	
Permanent Pavement Striping	
Temporary Pavement Striping	
Remove Pavement Striping (Exist. & Temp.)	
Temporary Erosion Control	2000.00
State Furnished	
Install Water Meter	
Furnish Water	
Laboratory Fees	
On the Job Trainees	
State Responsibility for Damages	500.00
Signal Controller Testing	
Bikeway Signs	
Furnish Mail Box Posts	
Adjust Utilities	
Misc. Permit Fees	

$ 2500.00

Rec'd 3/6/79

Sent to County 9/11/78

$ 321,782.00

Contingencies (4-1/2%) 14,480.19

Engineering (9 %) 28,960.38

SUBTOTAL $

Credit for

Estimated Net Authorization, Construction $ 365,222.57

APPROVED

Road Design Engineer

County - $25600

NOTED
D. O. Christensen

Sept 26, 79

OREGON STATE HIGHWAY DIVISION
SUMMARY--BID SCHEDULE--COST ESTIMATE

Sheet 1 of 1
Date Aug 29, 1978

ction Boot Hill Cemetery - Dog Cr. Sec.
County Grant
nd Of Work Aggregate and Paving
Length 1.94 Mile
Name Bergstedt

Item	Code	Unit	Quant.	Unit Cost	Total
Furnishing Field Laboratory		Each	1	2000.00	2000.00
Mobilization		Lump Sum	All	—	24,000.00
Temporary Protection and Direction of Traffic		Lump Sum	All	—	✓ 1,095.00
Temporary Signs		Sq. Ft.	167	6.00	✓ 1,002.00
Temporary Barricades		Each	2	125.00	✓ 250.00
Flagman		Hour	300	20.00	✓ 6,000.00
Roadwork					
Watering		M. Gal	360	10.00	3,600.00
Coarse Aggregate Base		Ton	18,800	5.75	108,100.00
3/4"-0 Aggregate Base		Ton	5,500	6.50	✓ 35,750.00
Class "B" Asphalt Concrete Mixture		Ton	4,400	18.00	✓ 79,200.00
Asphalt Cement in Mixture		Ton	290	112.00	✓ 32,480.00
3/4"-0 Aggregate in Prime Coat		Ton	380	13.00	✓ 4,940.00
MC-250 Asphalt in Prime Coat		Ton	35	165.00	✓ 5,775.00
Guard Rail, Type 2A with 8-foot Posts		Lin. Ft.	650	13.00	✓ 8,450.00
Guard Rail Anchors, Type I		Each	7	300.00	✓ 2,100.00
Rail End Pieces, Type B		Each	1	90.00	✓ 90.00
Rail End Pieces, Type C		Each	7	150.00	✓ 1050.00
Extra for Asphalt Approaches		Each	17	200.00	✓ 3,400.00
.08X 295,282.00 = 23,622					[illegible].00

```
TOTAL TO DATE JOB COST SUMMARY                                        SEPTEMBER 1978        PAGE 644
                                                                          FISCAL           GRAND TOTAL
DESCRIPTION OF JOB OR DEPARTMENT    PREFIX      FUNCTION   GR  CURRENT MONTH   YEAR TO DATE      TO DATE
                                                                                                 217.5[illegible]
                                   511  1997    902     00 P 1                              [illegible]
                                   511  1997    904     00 P 1                                 2,000.93
                                   511  1997    905     00 P 1                              [illegible]
                                   511  1997    910     00 P 1                                   252.94
                                   511  1997    911     00 P 1                                   367.69
                                   511  1997    914     00 P 1                              [illegible]
                                   511  1997    [illegible] 00 P 1                          [illegible]16
                                   511  1997    [illegible] 00 P 1                             1,500.27
                                   511  1997    921     00 P 1                              [illegible]
                                   511  1997    923     00 P 1                              [illegible]
                                   511  1997    924     00 P 1                                   490.88
                                   511  1997    950     00 P 1                                 1,393.30
                                   511  1997    [illegible] 00 P 1                            45,931.52
                                                TOT        P1                                    96.11
                                                TOT        M1
                                             ** JOB TOTALS **                **           **  46,027.63  **

                                                                                                 00        STATE
BOOT HILL CEMETERY-DOG CK      CONT NO       FR PROJ NOS RS  536001 100
                                   512  1909    296     00 M 9                  2,085.19CR    16,300.00CR
                                   512  1909    298     00 M 9                  2,085.19      16,300.00
                                   512  1909    901     00 P 1    100.76          125.59      16,17[illegible]
                                   512  1909    901     00 M 1                                   [illegible]
                                   512  1909    905     00 P 1    327.97        1,812.88       2,959.56
                                   512  1909    [illegible] 00 P 1              1,633.36       [illegible]
                                   512  1909    910     00 P 1                                 2,[illegible]
                                   512  1909    911     00 P 1                     62.04          99.26
                                   512  1909    913     00 P 1                     73.75       [illegible]
                                   512  1909    914     00 P 1     12.00           67.13          67.13
                                   512  1909    918     00 P 1     99.35           99.35          96.60
                                   512  1909    921     00 P 1    [illegible]    [illegible]    [illegible]
                                   512  1909    922     00 P 1     22.51           22.51          22.51
                                   512  1909    923     00 P 1    462.98          681.20         681.20
                                   512  1909    950     00 P 1                                    90.66
                                                TOT        P1   1,414.32        4,966.05      29,453.16
                                                TOT        M1                                     43.41
                                             ** JOB TOTALS **   1,419.32  **    4,966.05  **  29,496.57  **

                                                                                                 00        STATE
FRENCHGLEN NY-DIAMOND MNT STA CONT NO     FR PROJ NOS RS  472001 100
                                   513  1990    296     00 M 9                                   341.00
                                   513  1990    298     00 M 9                                   341.00CR
                                   513  1990    901     00 P 1                                 2,718.73
                                   513  1990    901     00 M 1                                     2.25
                                   513  1990    905     00 P 1                                   763.79
                                   513  1990    910     00 P 1                                   871.51
                                   513  1990    920     00 P 1                                    47.79
                                   513  1990    921     00 P 1                                   446.04
                                                TOT        P1                                  4,846.76
                                                TOT        M1                                      2.25
                                             ** JOB TOTALS **                **           **   4,849.01  **
```

State will pay all

```
                                                                                 SEPTEMBER 1978            PAGE  644
TOTAL TO DATE JOB COST SUMMARY                                                      FISCAL               GRAND TOTAL
                                                                                                           TO DATE
DESCRIPTION OF JOB OR DEPARTMENT      PREFIX      FUNCTION   GR  CURRENT MONTH    YEAR TO DATE              212.50
                                   511   1997    902        00 P 1                                       34,7[illegible].00
                                   511   1997    904        00 P 1                                        2,0[illegible].93
                                   511   1997    905        00 P 1                                         [illegible].18
                                   511   1997    910        00 P 1                                         [illegible]
                                   511   1997    911        00 P 1                                          252.94
                                   511   1997    914        00 P 1                                          367.69
                                   511   1997    918        00 P 1                                          152.[illegible]
                                   511   1997    920        00 P 1                                          241.16
                                   511   1997    921        00 P 1                                        1,900.27
                                   511   1997    923        00 P 1                                          5[illegible]1.0[illegible]
                                   511   1997    924        00 P 1                                           50.41
                                   511   1997    950        00 P 1                                          990.88
                                   511   1997    980        00 P 1                                        1,391.30
                                                 TOT           P1                                        45,931.52
                                                 TOT           W1                                            96.11
                                              ** JOB TOTALS **                **                 **      96,027.63  **

                                                                                                             00      STATE
BOOT HILL CEMETRY-DOG CK            CONT NO      FR PROJ NOS RS  536001 100
                                   512   1909    296        00 W 9                       2,085.19CR      16,300.00CR
                                   512   1909    298        00 W 9                       2,085.19        16,300.00
                                   512   1909    901        00 P 1     100.76              129.59        16,179.98
                                   512   1909    901        00 W 1                                           93.41
                                   512   1909    905        00 P 1     327.97            1,812.88         2,454.56
                                   512   1909    909        00 P 1                       1,613.36         2,[illegible]
                                   512   1909    910        00 P 1                                        2,4[illegible]7.78
                                   512   1909    911        00 P 1                          62.04            94.26
                                   512   1909    913        00 P 1                          73.75            81.91
                                   512   1909    914        00 P 1                          67.13            67.13
                                   512   1909    918        00 P 1      12.00               94.35            96.60
                                   512   1909    921        00 P 1      94.35              1[illegible].25   1[illegible].25
                                   512   1909    922        00 P 1     1[illegible].25      28.51            28.51
                                   512   1909    923        00 P 1      28.51              681.20           681.20
                                   512   1909    950        00 P 1     462.48                                90.64
                                                 TOT           P1    1,414.32            4,966.05        29,453.16
                                                 TOT           W1                                            93.41
                                              ** JOB TOTALS **       1,414.32  **        4,966.05  **    29,496.57  **

                                                                                                             00      STATE
FRENCHGLEN MY-DIAMOND ANT STA CONT NO            FR PROJ NOS RS  672001 100                                 341.00
                                   513   1990    296        00 W 9                                          341.00CR
                                   513   1990    298        00 W 9                                        2,718.73
                                   513   1990    901        00 P 1                                            [illegible].25
                                   513   1990    901        00 W 1                                          763.74
                                   513   1990    905        00 P 1                                          871.61
                                   513   1990    910        00 P 1                                           97.74
                                   513   1990    920        00 P 1                                          446.09
                                   513   1990    921        00 P 1                                        4,846.7[illegible]
                                                 TOT           P1                                             2.25
                                                 TOT           W1
                                              ** JOB TOTALS **                **                 **       4,849.01  **
```

State-
will
Pay
all

8907

FPS B536

August 7, 1978

Mr. Thom Ledgerwood
County Roadmaster
Courthouse
Canyon City, OR 97820

Re: Boot Hill Cemetery-Dog Cr. Sect.
Existing R/W through the Vassios property.

Sir:

An examination of the patent document granted to George E. Oliver (present owner Gus and Vella Vassios) for the Bridge placer mining claim, recorded in General Land Office Volume 435, Page 313 and in Grant County Deed Records Book W, Page 422, reveals no reservation for a road or roadway width across the claim. The only reservation in the document was for right of way for ditches or canals. The plat of the claim (Mineral Survey No. 626) shows a county road crossing the area but it does designate a width.

Since we did not have any evidence of an established R/W, we used the distance of 40 feet for the existing width, which was approximately the distance between the present fences.

If you have any additional information or wish to discuss this further, please advise.

Very truly yours,

Floyd O. Scott
R/W Desc. Engineer

FOS:mg
cc: Harold Brainerd

8907

.3030

OREGON STATE HIGHWAY DIVISION

INTER-OFFICE CORRESPONDENCE

La Grande, Oregon

July ~~18~~, 1978
24

FILE:

FROM: R.C. Lang
Region Federal Aid Engineer

R C Lang

SUBJECT: Boot Hill Cemetery - Dog Cr. Sec.
FAS B536
Grant County

TO: F.E. Terpin
Location Engineer

SALEM

Enclosed is Authority for Survey requesting additional funds for the purpose of slope staking the above section.

This project was programmed with FHWA to perform all phases of preliminary engineering necessary to design the project for the County to construct the subgrade. I have checked with Local Government Section and found in past projects of this type slope staking has been included as a part of preliminary engineering.

Your approval is recommended.

RCL/vmt
Enc.
cc: Thom Ledgerwood
Barry Hatcher
info copy to Jerry Wimer ✓

7/24/78

Glen Hossner (FHWA) spoke to Vern Cusack about this and I was informed they would not go along. I informed region ~~th~~.

c.c. Frank Terpin
Cliff Laux

8907

FORM 81-734-3030

OREGON STATE HIGHWAY DIVISION

FILE:

INTER-OFFICE CORRESPONDENCE
Salem, Oregon
July 11, 1978

FROM: Adele L. Egan
R/W Office Unit Supervisor

SUBJECT: File 50272-A etc.

TO: H. G. Brainerd
Reg. R/W Supervisor

Boot Hill Cemetery-Dog Creek Sec.
Dog Creek County Road
Grant County

REGION IV

Attached you will find 15 original option forms in sextuplet covering right of way to be acquired in connection with the Boot Hill Cemetery-Dog Creek Section of Dog Creek County Road in Grant County. This contract is scheduled for letting on September 21, 1978.

We understand that the County is to acquire the right of way.

Enclosed for your information are copies of the Authorization List and Mr. Scott's letter of June 30, 1978.

We are forwarding under separate cover three prints covering this area and bearing our date of July 7, 1978.

You will find the file number, name and area for each of the above mentioned files on the attached sheet.

AC:nn
Enc. 15 Options, etc.
cc: W. E. Schwartz
Milner Mead/Auth. List
Frank Lowe
Title
Armand Riveness
✓ Local Government Section

PROJECT MANAGEMENT
PME LGE
CCE ☐
FAE ☐
OM ☐
OPE ☐
JUL 11 1978
File: PM LG FA OP
TAA HAL

Form E-363 (Rev. 12-66)

Oregon State Highway Department
DESIGN DIVISION

Sheet No. .... of ....

AUTHORIZATION TO NEGOTIATE FOR RIGHT OF WAY

Highway: Dog Creek County Road
County: Grant
Unit:
Survey Approved:
Section: Boot Hill Cemetery - Dog Creek
Sta. 103+00 Sta. 203+00
R/W Map No. 9B-16-10
Cost Distribution:

File No.	NAME	CONTROL ACCESS				ACTION					PURPOSE					
		Complete	Limit Use	Limit Loc.	None	Purchase	Lease	Easement	Encroach	Sale	R/W	Stock Pile	Maintenance	Gravel Pit	Quarry	Park
50272-A	Robert L. & Bonnie Hilliard 0.25 ac				X	X					X					
50272-B	Robin and Eileen A. Sheedy 0.01 ac				X	X					X					
50272-C	Gus and Vella J. Vassios 0.41 ac				X	X					X					
50272-D	Curtis Otto & Edna M. Komning 0.04 ac				X	X					X					
50272-E	Donald A. & Jean P. Newhart 0.2 ac				X	X					X					
50272-F	Vernon and Barbara Morris 0.08 ac				X	X					X					
50272-G	Carl & Betty Sheedy (Clayton & Eileen Claughton, C.P.) 0.01 ac				X	X					X					
50272-H	John & Charlene Gardner 0.01 ac				X	X					X					
50272-I	Peter & Karen Barrietua 0.2 ac				X	X					X					
50272-J	Elizabeth Craige (Tylton Walker, Jr. & Mary Walker, C.P.) 0.36 ac				X	X					X					
50272-K	Tylton Walker, Jr. & Mary Walker 0.01 ac				X	X					X					
50272-L	Carl & Betty Sheedy (Harold A. Hermann, C.P.) 0.17 ac				X	X					X					
50272-M	Frank & Mildred J. Beaver 0.10 ac				X	X					X					
50272-N	Terrence & Carol Weitgenant 0.45 ac				X	X					X					
50272-O	Alva & Helen Conlee 0.06 ac				X	X					X					

Submitted Floyd O. Scott Floyd O. Scott Date JUN 30 1978
R/W Description Engineer

Approved .... Date ....
Assistant Design Engineer

Approved .... Date

8907

ROBERT W. STRAUS
GOVERNOR

Oregon State Highway Division

W.E. Schwartz
Region Engineer

P.O. Box 850 La Grande, Oregon 97850 Telephone 963-3177

July 7, 1978

The Hon. Francis Cole
Grant County Court
Courthouse
Canyon City, Oregon 97820

FAS B539

Dear Judge Cole:

Re: Oregon Action Plan
Public Hearing Requirements, Boot Hill Cemetery-Dog Cr. Section.

In order to comply with the Oregon Action Plan Public Hearing requirements, the Local Government Agency must offer a hearing when significant amounts of right of way are required for a project.

An exception to the requirement is when the project has been explained to each of the affected property owners; no one has objected to the project or the required right of way; and no one has requested a public hearing.

Upon reviewing the project data, it appears there is no objection to the project. If I am correct in my assumption, please date and sign the enclosed certification and return to me.

This action will assist in keeping the project on schedule.

Sincerely,

RC Lang
R.C. Lang
Region Federal Aid Specialist

RCL/vmt
Enc.
cc: Gerald Wimer
F.E. Terpin

PROJECT MANAGEMENT
PME ☒ CCE ☐ OM ☐
LGE ☒ FAE ☐ OPE ☐
JUL 10 1978
File: PM FA
TAA Beynoldson LG OP

Form 81-734-3122

8907

Form E-30 (Rev. 9-71)

i- 7

OREGON STATE HIGHWAY DIVISION

AUTHORITY FOR SURVEY

Section Boot Hill Cemetery-Dog Creek FAS-C

Highway Canyon City-Dog Creek Road, FAS B536

County Grant

Date May 31, 1977

Authorization No. 1

Survey Prefix 512-1909 (Assigned by Salem office)

Description of termini, route, length, etc.:

Beginning at about M.P. 1.2 from John Day-Burns Highway and continuing easterly along described right of way to about M.P. 3.3; about 2.1 miles in length.

County is doing the grading.
Contract just to Rock + paving

Purpose of survey:

To prepare plans, specifications and estimate of cost for base course, level course and paving. Also to determine grades, determine drainage, relocate irrigation ditches and identify right of way necessary.

Estimate of cost:

Field	901	10,000
Plans	905	2,500
R/W	909	2,500
Soils	910	1,500
Liaison	913	1,500
Utility	914	250
Specifications	921	750

INSTRUCTIONS

Submit four copies to Salem. After approval by the Assistant State Highway Engineer, one copy will be sent to the Regional Engineer and one copy to the Resident Engineer.

This form does not constitute authority for making survey until approved and returned.

Submit separate order for each survey.

Total estimated cost of survey	$ 19,000
Previous authorization	
Additional authorization requested	
Additional authorization approved (Salem)	
Total all authorizations approved (Salem)	

Requests made by:

R. Lange
Regional Federal Aid [redacted] Engineer

Recommended for Approval:

Regional Engineer

STATE ☐ CONST ☐
FED-AID TE ☒ CONST ☒
HWY AUTH. 11-1-77

SP*82804-734

Recommended for Approval:
Frank E. Perpin
Location Engineer

Approved:
E S Hunter
Deputy
X Assistant State Highway Engineer

FAid

8907

STATE OF OREGON

INTEROFFICE MEMO

TO: Memo to Files

DATE: May 22, 1978

Robert H Prange

FROM: Robert H. Prange
Local Projects Supervisor

SUBJECT: Deviation from Standards
Boot Hill Cemetery-Dog Creek Road Section
FAS B536
Grant County
RS-B536(1)

Because this project is in mountainous terrain and similar substandard conditions exist on adjacent sections Grant County feels that the following deviations from standards for this section are in the public interest:

1. a 12% grade.
2. Curves up to 22 degrees which will be properly signed.

RPH:dmc
cc: D. E. Swan
J. H. Versteeg
C. T. Keasey

81-125-1387

8967

OREGON STATE HIGHWAY DIVISION
Location Section
Surfacing Design Unit

Section: Boot Hill Cemetery-Dog Creek FAS-C

Highway: F.A.S. B536 (Canyon City-Dog Cr. Rd.)

County: Grant

Prefix: 512-1909

Res. Engr. Barry Hatcher

Date April 11, 1978

Ten Year Traffic Coefficient 5.2

18 kip s.a. per day 2.5

R value 8

Frost Penetration ± 30"

CBE Total Requirement 17.0"

STRUCTURAL SECTION
NEW WORK

ACTUAL THICKNESS	COMPONENT	CREDIT
1.5"	A.C.W.S.	3.0
1.5"	A.C.B.	3.0
2.0"	A.L.	2.0
10.0"	A.B.	10.0
15.0"		18.0"

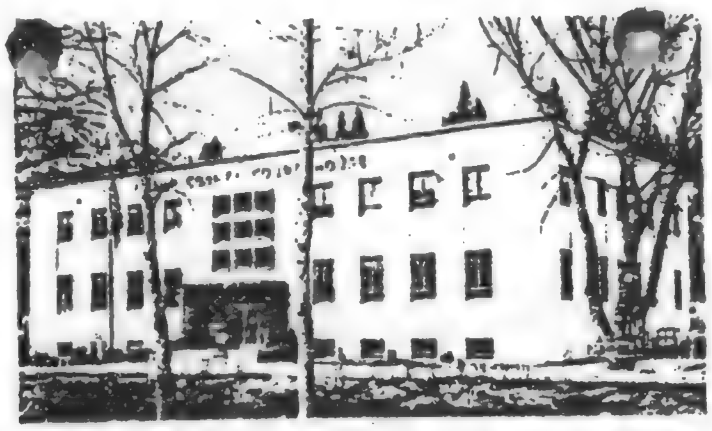
1.0" Asphaltic Concrete Wearing Surface & Base = 2.0" Aggregate Base
1.0" Cement Treated Base = 1.8" Aggregate Base
1.0" Plant Mix Bituminous Base = 1.8" Aggregate Base
1.0" Emulsion Treated Wearing Surface & Base = 1.8" Aggregate Base
1.0" Soil Cement (Existing Roadway Material) = 1.5" Aggregate Base
1.0" Oil Mat = 1.1" Aggregate Base
1.0" Lime or Cement Treated Subgrade = 1.0" Aggregate Base
1.0" Aggregate Subbase = 0.8" Aggregate Base

Above Factors apply to materials that comply with Standard Specifications and Special Provisions.

F.H.W.A.
Location Engineer
Construction Engineer
Materials
Region Engineer
Resident Engineer
Specifications Engineer
Final Design Engineer
Regional Geologist
Local Government Programs ✓

PROJECT MANAGEMENT
PME ☐ CCE ☐ OM ☐
LGE ☒ FAE ☐ OPE ☐
APR 12 1978
File: PM FA
TAA LG OP

8907



GRANT COUNTY
CANYON CITY, OREGON

B 536

March 21, 1978

☐ RE ☐ RCE ☐ RME ☐ ROE
cy ☒ RFA MAR 22 1978 ☐
cy Hatcher RECEIVED
REGION 5 OFFICE

Department of Transportation
PO Box 850
La Grande, Oregon 97850

Attn: W.E. Schwartz

Dear Pat:

We are cognizant of the extra and unexpected design problem on the Boat Hill-Dog Creek project. We recognize the need for the $5,000.00 additional design allocation and agree to the additional obligation.

Sincerely,

Francis R. Cole
FRANCIS F. R COLE, County Judge

FERC:lh

Judge Cole
No obligation. Agreement written under "old" Secondary Rd. Agreement which identifies the State shall perform P.E. at no cost to County.

Roger

cy D.N. Harwell
Barry Hatcher
Region

PROJECT MANAGEMENT
PME ☐ CCE ☒ OM ☐
LGE ☒ FAE ☐ CPE ☐
MAR 28 1978
File: PM LG FA OP
TAA ______

[illegible] 8907

FORM 81-734-3030

OREGON STATE HIGHWAY DIVISION FILE:

INTER-OFFICE CORRESPONDENCE

Burns, Oregon

March 10, 1978

B. N. Hatcher

FROM: B. N. Hatcher
Resident Engineer

TO: W. E. Schwartz
Regional Engineer

L A G R A N D E

SUBJECT: Boot Hill Cemetery - Dog Cr. Rd.
FAS B536
Grant County

☐ RE ☐ RCE ☑ RME ☑ ROE

☐ RFA MAR 13 1978 ☐

RECEIVED
REGION 5 OFFICE

Attached please find a request for an increase in authorization to complete the subject survey.

The main reason for this increase is that some of the adjacent property owners have not accepted our proposed centerline location. We have revised it several times and ran some in the field for viewing by all concerned.

A public meeting was held last Wednesday night (3-8-78) in the Grant County Courthouse to try and resolve the problem. I went over the project Thursday A.M. (3-9-78) with the County Court, Roadmaster and Roger Lang to see what compromises could be made. They suggested that we investigate and project some alternate lines that may possibly please everyone. We are in this process now. We will probably have to make at least one more trip over there to run the revised proposed "L" line again in the problem area.

As soon as the "L" line location is confirmed, the office work can be completed and the survey submitted.

One other factor to be considered in the overrun is the distance from this office to the work area.

The original authorization for preliminary field engineering was $10,000. The estimated cost to complete it is $15,000 or an increase of 50%.

NOTE 3/21/78
Terpin was in & I called Schwartz in this - he will contact Grant Co & request approval for county to pay proportionate share.
Don H.

BNH/bh

March 16, 1978
To C. T. Keasey - Your approval is recommended. Also, it would help us schedule our work if you could expedite approval and advise this office by teletype.

Region 5 Construction Engineer

cc Hatcher

RECEIVED
[illegible] 1978
LOCATION SECTION

Don H.

8907

2-28-78

Boot Hill Cemetery - Dog Cre[illegible] Road
Canyon City - Dog Cr. Rd. (FAS B536)

Grant County
Prefix: 512-1909

SUPPLEMENTAL LOCATION NARRATIVE REPORT

Some questions have been brought up as to several details that were not mentioned in the Location Narrative Report for this project. Most of these were understood to be County obligations, but still deserve to be brought out so that there will be no misunderstandings.

Cattle Guards

The existing cattle guards are 14 feet in width. These may be salvaged and reinstalled along with another panel to bring the total width to 28 feet; or replaced with new 28 footers. At any rate, this and all related work will be performed by Grant County Forces.

Fence and Gates

The present fences encroach on the existing R/W in several locations. In order to accommodate the new alignment and wider cuts and fills, a considerable amount of fence will have to be replaced or relocated. All of this type of work will be performed by Grant County Forces.

Signing

The sharp reversing curve (station 173 - 180) that is substandard; in the respect that its safe speed is below the design speed, will have to be Signed accordingly. The County has taken this responsibility and will probably place an "S" curve at each end with a 25 M.P.H. rider.

Any other permanent-type signing that is required will also be done by the County.

Utilities

There will be a few minor utility conflicts within the project limits. The County will be responsible for having any necessary adjustments made. This work would have to be done in the grading stage before the contract portion is let.

Three telephone poles will probably have to be moved; near station 115,122 and 136+50. One power pole anchor will have to be relocated at station 140. One television cable pole will probably have to be moved at station 185.

Either the telephone or T.V. or both are planning on going to underground service in this area in the near future, so some of the problems may be solved before construction begins.

SUPPLEMENTAL LOCATION NARRATIVE REPORT (cont.)

Traffic

The grading will be worked under traffic. In most places, the grade is close enough to the existing that the present road may be used. One way traffic may be necessary through work areas. In new alignment areas, the existing road can be used as a detour until the fill is made. Some stage construction may be necessary in one or two locations where the grade has been lowered significantly.

During the contract portion of the work, traffic should be adequately controlled by flagmen. One way traffic may be necessary through work areas. No detours or pilot car should be needed. This road is primarily used by local people, so they will understand and bear with the inconvenience for the short duration that the contract work should take.

Approaches

The County desires to pave all approaches to houses and any others that get a lot of use throughout the section. This will amount to about twenty in all.

Special Provisions

Standard special provisions should apply to this project and should include standard construction signing.

At this time, I can't foresee any unusual or unique problem that may be peculiar to this job that should be covered by the special provisions.

Right of Way

In the Construction-Finance Agreement, Grant County is to obtain the necessary R/W for the project.

It is now apparent that there may be as high as ten private landowners affected as well as the B.L.M. property.

The existing centerline and R/W are shown on the detail map as well as the proposed centerline and minimum proposed R/W widths.

The County has expressed a desire to have the State assist them in the preparation of R/W descriptions and other necessary paperwork and negotiations.

Harold Brainerd, Regional R/W Superuisor in Bend, has been contacted and has agreed to meet with Grant County concerning the R/W for this project.

B.N. Hatcher

BNH/kf
cc: Grant County

B. N. Hatcher
Resident Engineer

Boot Hill Cemetery - Dog Cr[illegible] Road
Canyon City - Dog Cr. Rd. (FAS B536)

Grant County
Prefix: 512-1909

LOCATION NARRATIVE REPORT

General

This section begins about 1.2 miles east of the John Day - Burns Highway at Canyon City and extends easterly for a distance of 1.94 miles. It will close the gap between two previously oiled sections. It runs through a rapidly - developing rural residential area.

The grading and drainage work is to be done by Grant County Forces. The crushing, rock placement and paving will be contracted out. All engineering is to be performed by the State.

Alignment

In this mountainous area, it was impossible to achieve the desired standard vertical and horizontal alignment. The maximum grade will be 12% and the maximum degree of curve will be 22°. In checking with Dave Carter of the FHWA; he said that this would be permissible if only for a short distance on the grade and if the curves were properly signed. At present, on the paved section closer to Canyon City, the grade is 14% in places. The safe speed on the sharpest curves would be 28 M.P.H. with .04'/ft. super which is close to the 30 M.P.H. design speed that the County desires along with keeping the superelevation as flat as possible to enhance winter driving conditions. The County also wants to preserve the aesthetics of a winding mountain road and are afraid of creating a "speedway" if the alignment is improved too much.

Four major alignment changes were investigated and we wound up proposing three as shown by the "L" line on the detail map. Two of these run through B.L.M. land and the other encroaches on two private landowners.

In this one problem area (Station 180); several lines were projected on the map and some ran in the field. In order to satisfy one landowner, we had to meet his criteria of missing his duck pond and mahogany bush and make his driveway entrance grade no steeper than the one going up the hill. The "L" line shown on the detail map meets these requirements and has been run in the field to verify that it does.

Right-Of-Way

The acquisition of necessary R/W is the responsibility of the County. We are assisting them in preparing the necessary applications and maps for the R/W needed through the B.L.M. land.

LOCATION NARRATIVE REPORT (cont.)

Typical Section

The typical section calls for a 32 foot subgrade, 10" of course crushed base, 2" of 3/4"-0 for leveling and 3" of Class "B" A.C. pavement with an overall top width of 28 feet - 22 feet paved with 3 foot rock shoulders.

Our Base Design Section provided the depths required and the widths will match into the previously constructed section on the east end of this job.

Earthwork

The grading will be done by County Forces. For the most part it will just be a matter of widening the existing road. We have tried to match the existing grade with the proposed subgrade in most places, except where there will be new alignment or where a grade change was necessary to meet minimum sight distance requirements.

There will be less than 20,000 cubic yards of excavation and the quantities balance when using a shrink factor of 20 - 25%.

No mass diagram was made.

Borrow areas are available where needed (Sta. 127 and 180).

Drainage

This work will also be performed by County Forces. Existing culverts will be extended or replaced. Culverts placed under new alignment will meet or exceed existing facilities, which have proved to be adequate.

Material Source

The original designated source was a quarry located up Pine Creek which lies east of the project. This would have resulted in a 9 mile haul. After submitting a qualifying sample from this source, our laboratory found that this material was unsuitable to be used for A.C. pavement rock due to an excess loss in the sodium sulfate soundness test.

Our geologist and Grant County Roadmaster found another prospective source just north of the John Day River that consists of dredge tailings. This is a privately-owned and controlled source, but controlling interests have indicated that they would be willing to sell the material needed for this job. It is closer to the project (about a 5 mile haul) and therefore should result in a savings by using it.

LOCATION NARRATIVE REPORT (cont.)

Water

There are several ponds that are spring or creek-fed on the project that may possibly be used, or, it wouldn't be but a short distance to the John Day River; so water shouldn't be a problem on this job.

Traffic

The current A.D.T. on the section is estimated at 175 with the 1985 projection being 250. There is no heavy truck traffic through this area as it is primarily a loop road running through a rural residential and farm-ranching community.

Miscellaneous

This has been classed as a Category 3 project of non-major action.

[redacted]

B. N. Hatcher

B. N. Hatcher
Resident Engineer

cc: Grant County

BNH/bh

Best Hill Cemetery -
Dog Cr. Rd. Section
FAS B536 County Rd.
Grant County

Prefix 512-1909

Summary of Quantities & Estimate of Costs

Item	Description	Unit	Net Quantity	Unit Price	Amount
1	Mobilization	L.S.	All	7%	$ 14,365.00
2	Temp. Prot. & Dir. Tra.	L.S.	All	1½%	3,033.00
3	Temporary Signs	Sq. Ft.	125	6.00	750.00
4	Temporary Barricades	Each	12	80.00	960.00
5	Flagmen	Hour	300	20.00	6,000.00
6	Water	M-gal	395	8.00	3,160.00
7	Coarse Aggregate Base	Ton	18,352	4.75	87,172.00
8	3/4"-0 Aggregate Leveling	Ton	4,716	5.00	23,580.00
9	Class "B" A.C. Mix	Ton	4,158	12.00	49,896.00
10	Asphalt Cement in Mix	Ton	270	101.00	27,270.00
11	Asphalt in Tack Coat	Ton	2	200.00	400.00
12	Extra for Asphalt Appr.	Each	20	150.00	3,000.00
	Sub Total				$ 219,586.00
	Contingencies (4%)				8,783.00
	Engineering (9%)				19,763.00
	Total				$ 248,132.00

Prices via George Sanford - 2/28/78

8907

ROBERT W. STRAUB
GOVERNOR

Department of Transportation

TRANSPORTATION BUILDING, SALEM, OREGON 97310

October 25, 1977

TO G. L. Green, Division Administrator
Federal Highway Administration

FROM D. E. Swan
Federal Aid Engineer

SUBJECT PROJECT DATA SUBMISSION
Item No. 80027
Project No. RS-B536(1)
Boot Hill Cemetery-Dog Creek Section - FAS-C
Grant County

Attached is data for the subject project.

This project has been selected by the Oregon Transportation Commission and local officials in cooperation with each other as required by the Federal Aid Act.

We request the following:

> Authorization to proceed with all phases of preliminary engineering as programmed at an estimated total cost of $19,000 with an obligation of $16,300 in federal funds.

State Clearinghouse and District 12 Clearinghouse A-95 review approval letters were previously submitted.

CL:dmc
cc: W. E. Schwartz
✓H. Reynoldson

Budget Bureau No. 41-R2967;
U.S.

MONTHLY TRANSACTION NO.

DATE SUBMITTED TO W.O.

FORM PR-1
(REV. 4-61)

October 25, 1977

FEDERAL-AID PROGRAM DATA
(PPM 21-1)

CARD 2
REPORT NUMBER (19) (20)
PROJECT LOCATION (45 typewriter spaces): Co. Rd., Approx. 1 mi. E of Canyonville
ADT: PRESENT DHV 20 175
FUTURE 250
YEAR 97
REGION 10
STATE NAME Oregon

CARD 3
CHARACTER OF PROPOSED WORK (35 typewriter spaces): Preliminary Engineering
NATL. FOREST
FH ROUTE NO.
SUPV AGCY
DA CLASSIF.
DA AREA
EMERG. YR.
PL. AUTH YR
PROJECT NUMBER: PREFIX LETTER(S) RS- NUMBER B536 (1)

CARD 4
CLASS OF FEDERAL FUNDS: Rural Secondary
NAME OF URBAN AREA: --
COUNTY NAME: Grant
ROUTE NO.: S ~~FEDERAL-AID~~ B536
STATE: Co. Rd.
U.S.: --

ESTIMATED PROJECT COST BY PHASES

CARD	LINE NO.	CHANGE CODE	PROJECT CODE	CLASS	WORK TYPE	WORK STEP	TERMINI (Full description)	MILES	TOTAL ESTIMATED COST	FEDERAL FUNDS	STATE FUNDS	OTHER FUNDS
1	(14-15)	(16	41	42	43 46	53		(54) (58)	(59) (66)	(67) (76)		
5					PE		"Boot Hill Cemetery- Dog Creek Section"	2.1	19,000	16,300	2,700	-
5					ROW							
5					CONST (CODE)							

CARD	CODE	PREPARED BY					
1	1	CL	PROJECT TOTALS	2.1	19,000	16,300	2,700	-
1	14	PROGRAM APPROVAL DATES		(16) (23)	(24) (33)	REMARKS	

Budget Bureau No. 41-R2057; Approval Expires February 28, 1966

FORM PR-1
(REV. 4-61)

FEDERAL-AID PROGRAM DATA

(PPM 21-1)

U.S. DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS

October 25, 1977

CT LOCATION (45 typewriter spaces)	ADT	PRESENT	FUTURE	YEAR	REGION	STATE NAME	STATE CODE	APPN CODE	ITEM NO.
Rd., Approx. 1 mi. E of Canyonville		DHV 20 175	250	97	10	Oregon	41	075	80027

ORK (35 typewriter	NATL. FOREST	FH ROUTE NO.	SUPV AGCY	DA CLASSIF.	DA AREA	EMERG. YR.	PL. AUTH YR	PROJECT NUMBER PREFIX LETTER(S)	PROJECT NUMBER NUMBER	PROJECT NUMBER SEQ. NO.	I. Projects Only POST MI.	I. Projects Only DESIG.
ering								RS-	B536 (1)			

COUNTY NAME: Grant
CODE: 023

PROGRAM STAGE: ☐ 1 OR ☐ 2

ROUTE NO.: FEDERAL-AID: S B536
STATE: Co. Rd.
U.S.: --

ESTIMATED PROJECT COST BY PHASES

WORK TYPE	STEP	TERMINI (Full description)	MILES	TOTAL ESTIMATED COST	FEDERAL FUNDS	STATE FUNDS	OTHER FUNDS	CHARACTER OF PROPOSED WORK (Full description)
E		"Boot Hill Cemetery- Dog Creek Section"	2.1	19,000	16,300	2,700	-	ROW-60' normal; Access Control-None; Parking Restrictions- None
OW								
ONST ODE)								
CL		PROJECT TOTALS	2.1	19,000	16,300	2,700	-	

ROVAL DATES

REMARKS

-over-

USCOMM DUSCOMM-DC 46908-P61

BOOT HILL CEMETERY- Dog CREEK SECTION
PROJECT NO. RS-B536(1)

Existing Facility: Variable 20 to 24 foot gravel surface with no shoulders.

Adjacent Sections: W. End -- 22 foot oil surface.
E. End -- 26 foot A.C. surface.

Project Data: Work under this project consists of preliminary engineering all phases including preliminary engineering by utility forces for the future construction necessary to widen and realign the existing facility to provide for 2-10 foot A.C. surface travel lanes with 4 foot shoulders.

System Action, Railroads, Water Developments, Historical and Recreational Areas: None involved.

Airports: John Day Airport is located approximately 2 miles west of the project and no conflict with the operation of the airport is anticipated.

FHPM 7-7-2 Requirements: Nonmajor action project concurred in by FHWA on August 2, 1977.

FHPM 4-1-4 Requirements: State Clearinghouse and District 12 Clearinghouse A-95 review letters of approval dated October 11, 1977 and September 23, 1977 respectively.

FHPM 7-7-5 Requirements:
a) Public Hearings -- Not required under Oregon Action plan.
b) Location/Design -- Not a factor in the development of this project.

NOTE: This project is in Congressional District No. 2.

8927

U.S. DEPARTMENT OF TRANSPORTATION - FEDERAL HIGHWAY ADMINISTRATION

11-1-77

LETTER OF APPROVAL AND/OR AUTHORIZATION

FEDERAL AID PROJECT NO.
F[illegible]B536(1)

STATE PROJECT NO.
See Below

COUNTY NAME
Grant

PROGRAM STAGE (Check) ☐ 1. ☐ 2.

PROGRAM NO.

ITEM NO.
80027

FROM:
G. L. Green, Division Administrator
Salem, Oregon

TO:

Mr. F. B. Klaboe
Chief of Operations, ODOT
State of Oregon
Salem, Oregon

DATE PS & E APPROVED

DATE AUTHORIZATION EFFECTIVE
11-1-77

FEDERAL ROUTE NUMBER
Secondary B536

STATE ROUTE NUMBER
County Road

GENERAL LOCATION:
"Boot Hill Cemetery - Dog Creek Section"

GENERAL DESCRIPTION OF WORK:
Preliminary Engineering

YOU ARE AUTHORIZED TO PROCEED WITH THE WORK CHECKED BELOW

PRELIMINARY ENGINEERING TO DETERMINE
☐ LOCATION ONLY
PRELIMINARY ENGINEERING FOR SURVEY AND PLAN
XX PREPARATION TEC NTE $19,000 - F.F. $16,300
☐ OTHER (Specify)

☐ ACQUISITION OF RIGHT-OF-WAY
CONTRUCTION - ADVERTISE FOR RECEIPT
☐ OF BIDS
☐ CONSTRUCTION - PROCEED ON AN AGREED PRICE AND/OR FORCE ACCOUNT BASIS

REMARKS
As requested in Mr. Swan's October 25, 1977 letter

NOTED
F. B. KLABOE

Swan
11-4-77

DATE
11-1-77

SIGNATURE OF APPROVING OFFICIAL
G. K. Hosmer

TITLE
for Division Administrator

FORM PR-1240 (REV. 9-70)
EXISTING STOCKS OF FORM PR-1240 (REV. 6-68) WILL BE USED

☆ U.S. GOVERNMENT PRINTING OFFICE: 1976—626-787

8907
(#2)

8

ROBERT W. STRAUB

DEPARTMENT OF TRANSPORTATION

STATE HIGHWAY BUILDING • • SALEM, OREGON • • 97310

August 30, 1977

TO Executive Department
Federal Aid Coordination Unit

East Central Oregon Association
of Counties
116 South Main, Room 15
Pendleton, OR 97801

FROM D. E. Swan
Federal Aid Engineer

SUBJECT Notice of Intent for Federal Aid Funds
State Admin. Dist. No. 12
Section: Boot Hill Cemetary-Dog Creek Rd.
Highway: FAS B 536
County: Grant

In accordance with Executive Memorandum 02-270-20, attached are copies of the Notices of Intent for the subject project.

Early programing of this project for advance planning in anticipation of future construction is necessary; therefore, your prompt attention to this proposal will be appreciated.

Allowing time for your review, we estimate the date of filing for federal aid funds on this project to be Sept. 30, 1977

NOTED
H.S. COULTER

RECEIVED
STATE HWY ENG
AUG 31 77
REFER TO

FOR

Info	Inves	R/D	D/R	Sign	Act	File

BLG:dmc

Attachment

cc: G. L. Green ✓
H. S. Coulter
F. E. Terpin
J. B. Bovd
J. H. Versteeg
Gary Potter
W. J. Hart

Region 5 ; W. E. Schwartz
District 12 ; H. W. Oswald
Aeronautics Division
Paul Hartwig, Parks
Gerald Wimer
B. L. Gifford

OREGON PROJECT NOTIFICATION AND REVIEW SYSTEM

NOTIFICATION OF INTENT TO APPLY FOR FEDERAL AID

For Internal Use Only	1-8] PNRS #	Page One [79

02 — 12] APPLICANT [45: Dept. of Transportation | 46] DIVISION [79: Highway

03 — 12] APPLICANT ADDRESS STREET [45: O'DOT Building | 46] CITY [60: Salem | 76] ZIP [80: 97310

04 — 12] CONTACT PERSON [45: D. H. Moehring | 46] AREA CODE [48: 503 | 49] PHONE [55: 378 | 56] EXTENSION [59: 6563

01 — 12] PROJECT TITLE [71: Boothill Cemetary-Dog Creek Rd.

11 — 12] PROJECT LOCATION—CITY: FAS-B536 | PROJECT LOCATION—COUNTY: Grant | PROJECT LOCATION SEC: T: R: [79

SUMMARY PROJECT DESCRIPTION (ATTACH SUPPORTING DOCUMENTS AS NECESSARY—SEE INSTRUCTIONS ON BACK)

05 [71

06 12] The proposed project is improve the vertical and horizontal alignment to meet [71

07 12] FAS-C standards. The existing facility is difficult for school buses and other [71

08 12] traffic to negotiate safely during winter months. [71

09 12] (See attachment) [71

10 12]

12

AMOUNT REQUESTED—FEDERAL FUNDS		NON-FEDERAL MATCHING FUNDS		OTHER	TOTAL
12] (A) Grant [19	20] (B) Other [27	28] (C) State [35	36] (D) Local [43	44] (E) FUNDS [51	52] (F) FUNDS [60
256,280	-	20,860	20,860	-	298,000

13 — 12] TYPE OF OTHER FEDERAL FUNDS (See 12B) [45 | 46] TYPE OF OTHER NON-FEDERAL FUNDS (See 12E) [79 [71

14 — 12] FEDERAL PROGRAM TITLE: Title 23 USC Highways [79

15 — 12] FEDERAL AGENCY NAME [45: US Dept. of Transportation | 46] FEDERAL SUB-AGENCY NAME: FHWA

17 — (A) TYPE OF APPLICANT: (Check (X) the single most applicable box)

STATE ☒ 12 | INTER-STATE ☐ 13 | COUNTY ☐ 14 | CITY ☐ 15 | SCHOOL DISTRICT ☐ 16 | SPECIAL DISTRICT ☐ 17 | COMMUNITY ACTION ☐ 18 | SPONSORED ORGANIZATION ☐ 19 | OTHER ☐ 20

(B) TYPE OF ACTION: (Check (X) as many boxes as apply to this action)

NEW GRANT ☒ 21 | CONT. GRANT ☐ 22 | SUPPL'T GRANT ☐ 23 | INCREASE DURATION ☐ 24 | DECREASE DURATION ☐ 25 | CANCELLATION ☐ 26 | INCREASE DOLLARS ☐ 27 | DECREASE DOLLARS ☐ 28

(C) HAS DISTRICT CLEARINGHOUSE BEEN NOTIFIED? Yes ☒ 29 No ☐ 30 Date: August 30, 1977

(D) REVIEW REQUIRED by A-95 Yes ☒ 31 No ☐ 32

(E) ENVIRONMENTAL IMPACT Yes ☐ 33 No ☒ 34

(F) HOUSING RELOCATION REQUIRED Yes ☐ 35 No ☒ 36

(G) ESTIMATED APPLICATION FILING DATE: 41] MONTH [42: Sept. | 43] DAY [44: 30 | 45] YEAR [46: 1977

ADDITIONAL INFORMATION—ALL APPLICANTS

I. A. Is the project consistent with the city or county comprehensive plan, zoning and subdivision ordinance? No ☐ Yes ☒

I. B. Is the proposal consistent with statewide land use goals? No ☐ Yes ☒

I. C. Is the proposal consistent with state and regional plans? No ☐ Yes ☒

II. Will the project have an impact on a neighboring jurisdiction? No ☒ Yes ☐

If so, is the project consistent with the comprehensive plan for that jurisdiction? No ☐ Yes ☐

III. Explain deviations if any, from pertinent plans.

IV. Federal Catalog number (or Public Law no. and title) 20.205 Highway Planning & Construction

V. Has funding agency been notified? No ☐ Yes ☒ Date: Aug. 30, 1977

VI. If project includes state funds (12C), identify agency Highway

STATE AGENCIES ONLY

VIII. (a) IS PROGRAM BUDGETED ☐ NON-BUDGETED ☐

(b) STATE SHARE

GENERAL FUND CASH	OTHER FUND CASH	IN KIND
$	$	$

(c) FUNDING METHOD

	FEDERAL SHARE		STATE SHARE		TOTAL	
First Year	%	$	%	$	%	$
Second Year	%	$	%	$	%	$
Third Year	%	$	%	$	%	$

(d) WILL PROGRAM REQUIRE HIRING OF NEW STATE EMPLOYEES? No ☐ Yes ☐ Number

(e) Will accounting for this grant be administered by the Executive Dept. Accounting Division? Yes ☐ No ☐

PLEASE ATTACH ANY ADDITIONAL NARRATIVE OR REMARKS

17 (E) This is a category 3 project of nonmajor environmental impact under Oregon's Action Plan.

CATEGORY
3 PROJECT
NON-MAJOR
RS-B536(-)

OREGON STATE HIGHWAY DIVISION
PROJECT ASSESSMENT

PART 1. GENERAL INFORMATION

A. Project Identification:

Date June 15, 1977

Section Boot Hill Cemetery-Dog Ck. Rd.

Unit (if appl)

County Grant

City

Highway FAS B 536

State Hwy. No.

Termini: M.P.(if appl) 1.2--3.3

Length 2.1 miles

Region 5

Construction Estimate about $300,000 (FAS-C)
Program Amount

B. Purpose of Project:

To increase the safety of this section by improving the vertical and horizontal alignment to meet FAS-C standards. Presently, the existing alignment is difficult for school buses and other traffic to negotiate safely during winter months.

C. Origin & History of Project:

The proposed project lies on a portion of the canyon city--Marysville (abondoned) Road which served as a link to mines on the north slope of Canyon Mtn. Improvement to this section of roadway is now required as this area is one of the few available for residential expansion. A Federal Aid project request was filed 5/27/77.

D. General Description of Project:

The existing variable width, gravel surface roadway would be surfaced and paved by county forces. The Highway Division would monitor subgrade construction as performed by county.

Alignment: New ________ Existing ________ Combined X

Typical Section: Existing: No. Lanes 2 ; Med. 0 ; Shldrs. 0 ; Parking 0

Proposed: No. Lanes 2 ; Med. 0 ; Shldrs. 2 ; Parking 0

Traffic: Existing Facility: Existing ADT 175 ; Projected ADT 250 ; Yr. 1985

Existing Level of Service inadequate

Proposed Facility: Projected ADT 250 ; Yr. 1985

Projected Level of Service 20 years

Right of Way: Additional anticipated Yes ; if yes, give approx. No. Parcels 10 (?)
Yes, No
To be determined by survey. Small strip parcels along section would be required.
Acres ↑ ; Type of Relocation Req. Fences and cut buildings. ; No. ________

Materials Source, Borrow, Waste Disposal Requirements, if any:

Materials to be obtained from right-of-way, existing material sources and/or commercial sources. No need for waste material disposal anticipated.

Type of Structure(s):

None

Brief Description of River or Stream and Type of Involvement, if any:

None

Local City, County or COG priorities of project:

County Court has identified this project as Number 1 Priority

FHWA and/or OSHD approvals given, if any:

None

Location or Design Alternatives (identify and describe):

No Location/Design alternative considered. Project is to utilize existing right-of-way with minimal deviation in order to correct horizontal alignment.

Other Descriptive Information or Comments:

(Attach project sketch map.)

PART II. ENVIRONMENTAL ASSESSMENT

A. Brief Environmental Setting of Project Area:

1. Natural:

The project lies at about elevation 3700' at the upper reaches of bench over the John Day Valley on the north slope of Canyon Mtn. The route winds over the bench easterly alternately in forest land and grassland. The area is attractive to all forms of wildlife native to Eastern Oregon including deer, coyote, rock chucks, pheasant, grouse and many others. Soil conditions vary from substantial deposits of top soil, to scant amounts over rock out cropings, to tailing remains from mining operations which began about 1865.

2. Cultural:

The area is being utilized as a residential growth area because of the limited lands available in the area. Majority of the parcels combine modern residential dwelling and rural lifestyle.

B. Preliminary Assessment of Environmental Impacts:

1. Consequences and Significance of Right-of-Way Acquisition:
   Fences and some out-buildings would require relocation. At various locations, property owners are encroaching on existing right-of-way.

2. Estimated Impact on Traffic Patterns:

   No adverse impact on traffic patterns, route does not appear attractive to traffic other than local commuters.

   Consequences--Air Quality, Noise, Safety, etc.:

   Air quality and noise levels should not increase. Safety should improve with elimination of sub-standard alignment.

3. Estimated Impact on Land Use:
   No direct impact on land use anticipated. However, improvement of this section would aid in hastening secondary (residential) land development as called in the local plans and zoning ordinances.

   Consequences:

4. Expected Impact on Natural Ecological Resources:

   None

   Consequences:

5. Expected Impact on Cultural and Scenic Resources:

   A cultural resource survey may be necessary.

   Consequences:

6. Preliminary Identification of Areas of Critical Concern:

None

7. Potential for Controversial Issues:

None

8. Potential for Consistency of Proposal With:

a. Clean Air Implementation Plans

No Conflict

b. Noise Standards

A noise study report as per FHPM 7-7-3 will be required.

c. Water Quality Standards

Water Quality should not be affected.

d. Area Land Use and Transportation Plans, and Zoning

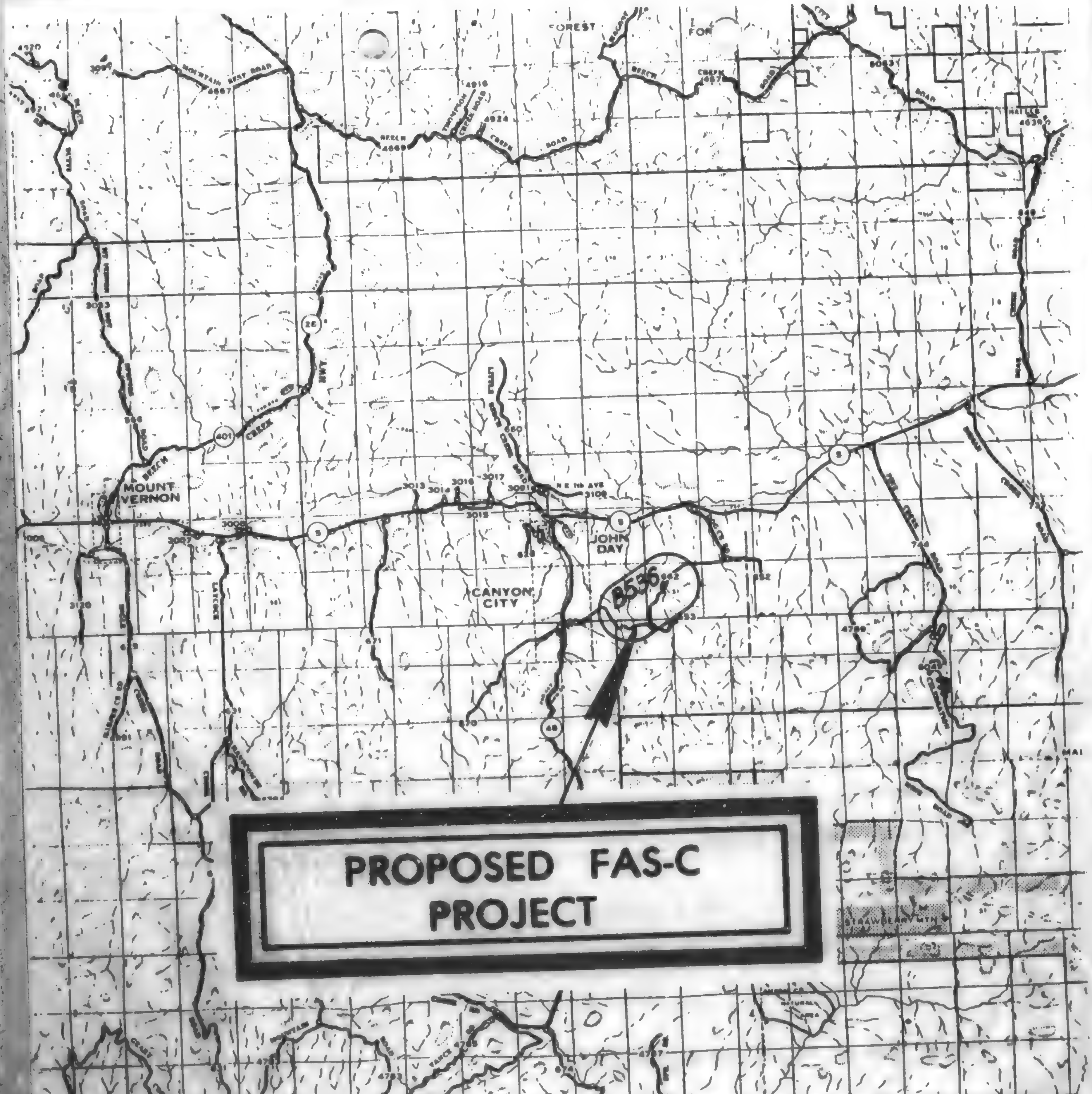
Consistent with goals of the planning commission.

C. Recommended Type of Action and Documentation:

-------------MAJOR ACTION-----	-----------	----NON-MAJOR ACTION-----
SIGNIFICANT:	NON-SIGNIFICANT:	
____ D & FEIS	____ D & F Neg.Dec.	_X_ ASSESSMENT ONLY
____ Section 4(f)	____ Section 4(f)	____ STATEWIDE ASSESSMENT

Basis for Type of Action and Documentation:

D. Recommended Project Category: ____ 1 ____ 2 _X_ 3 ____ 4


FOREST
MOUNT VERNON
JOHN DAY
CANYON CITY
B536
STRAWBERRY MTN
MALHEUR
26
395

PROPOSED FAS-C
PROJECT

890

8

August 18, 1977

Grant County Court
Courthouse
Canyon City, OR 97820

MISC. CONTRACTS and
AGREEMENTS No. 6229

Attention: John Liveira
County Clerk

Gentlemen:

Attached for your files is a fully executed copy of an agreement to construct the Boot Hill Cemetery-Dog Creek Section of the Canyon City-Dog Creek Road.

We are retaining a fully executed copy of this agreement for the Transportation Commission's files.

Very truly yours,

C. W. Head
COMMISSION SERVICES

hkr

Enclosure

bc: Don Harwell (agreement attached)

8707 8

STATE OF OREGON **INTEROFFICE MEMO**

TO: E. S. Hunter
Technical Services Engineer

DATE: August 18, 1977

FROM: Gerald Wimer Gerald Wimer
Local Government Engineer

SUBJECT: PROJECT ASSESSMENT
Project No. RS-B536(-)
Boot Hill Cemetary-Dog Cr. Rd.
Grant County

Attached for your information is an assessment, concurred in by the Federal Highway Administration.

Project Management classifies this section as a Category 3 project of NON-MAJOR action.

Your approval will place this project in our Project Management System and allow its development in accordance with Action Plan procedures.

BLG:ljt

Attachment

APPROVED
8-18-77
DEPUTY STATE HIGHWAY ENGINEER
Date ESH

cc: J. B. Boyd (3)
L. E. George
W. J. Hart
C. T. Keasey
J. H. Versteeg (4)
F. E. Terpin (3)
G. A. Potter (2)
George Bell
Surfacing Design - Lab Bldg.
Region 5 : W. E. Schwartz
District 12 : H. W. Oswald
Region 5 Geologist: Vernal Moore
B. L. Gifford

8907

J

Form FHWA 121 (Rev. 5-73)

UNITED STATES GOVERNMENT

Memorandum

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
Box 300
Salem OR 97308

DATE: August 2, 1977

In reply refer to: HB.4-OR

SUBJECT: Oregon RS-B536(-)
Boot Hill Cemetary-Dog Creek Road
Grant County
Project Assessment

FROM : G. L. Green, Division Administrator

TO : Mr. H. Scott Coulter, State Highway Engineer
Salem, Oregon

The subject project assessment submitted with Mr. Wimer's July 19, 1977 letter has been reviewed. We concur with your finding that the project project constitutes a non-major action. We also concur with your traffic noise analysis.

The proposed standards, design, and other specific details contained in the assessment will be subject to future reviews at the appropriate stage during the project development.

William H. [illegible]
for G. L. Green

cc:
OSHD (Potter)
OSHD (Laux)
Reg Env, Roger Lang

RECEIVED
STATE HWY ENGR
AUG 15 '77
REFER TO [illegible]
FOR
Info Inves R/D D/R Sign Act File

orig X

8907

DATE: July 8, 1977

TO: OREGON TRANSPORTATION COMMISSION

FROM: H. S. Coulter
State Highway Engineer

SUBJECT: FAS-C Project Requests

On the consent calendar for the July 19 meeting will be two requests for approval of Federal Aid Secondary System projects.

Baker County is requesting a $31,000 preliminary engineering project to prepare contract documents for a project to place a concrete deck on existing girders of the U.P.R.R./Burnt River Bridge on Snake River Road.

The request from Grant County is for a $298,000 project to place base rock and pave a 2.1 mile section of Canyon City-Dog Creek Road between Boot Hill Cemetery and Dog Creek.

Federal Aid Secondary funds for these projects are estimated at $282,940 with the State providing approximately $23,030 in match funds and a like amount being contributed by the counties.

These projects have been investigated and are eligible for funding under the Federal Aid Secondary Program. I recommend your approval and request authority to sign the project agreements for an on your behalf.

HSC:GEZ:lml

Att.

bc: R. A. Burco
C. W. Head
F. B. Klaboe
E. S. Hunter
R. L. Schroeder
L. W. Rulien
J. H. Versteeg
L. E. George
F. E. Terpin
V. F. Skoog
W. E. Schwartz
D. M. Harwell
George Bell
Max Klotz

GRANT COUNTY
Proposed FAS-C Project

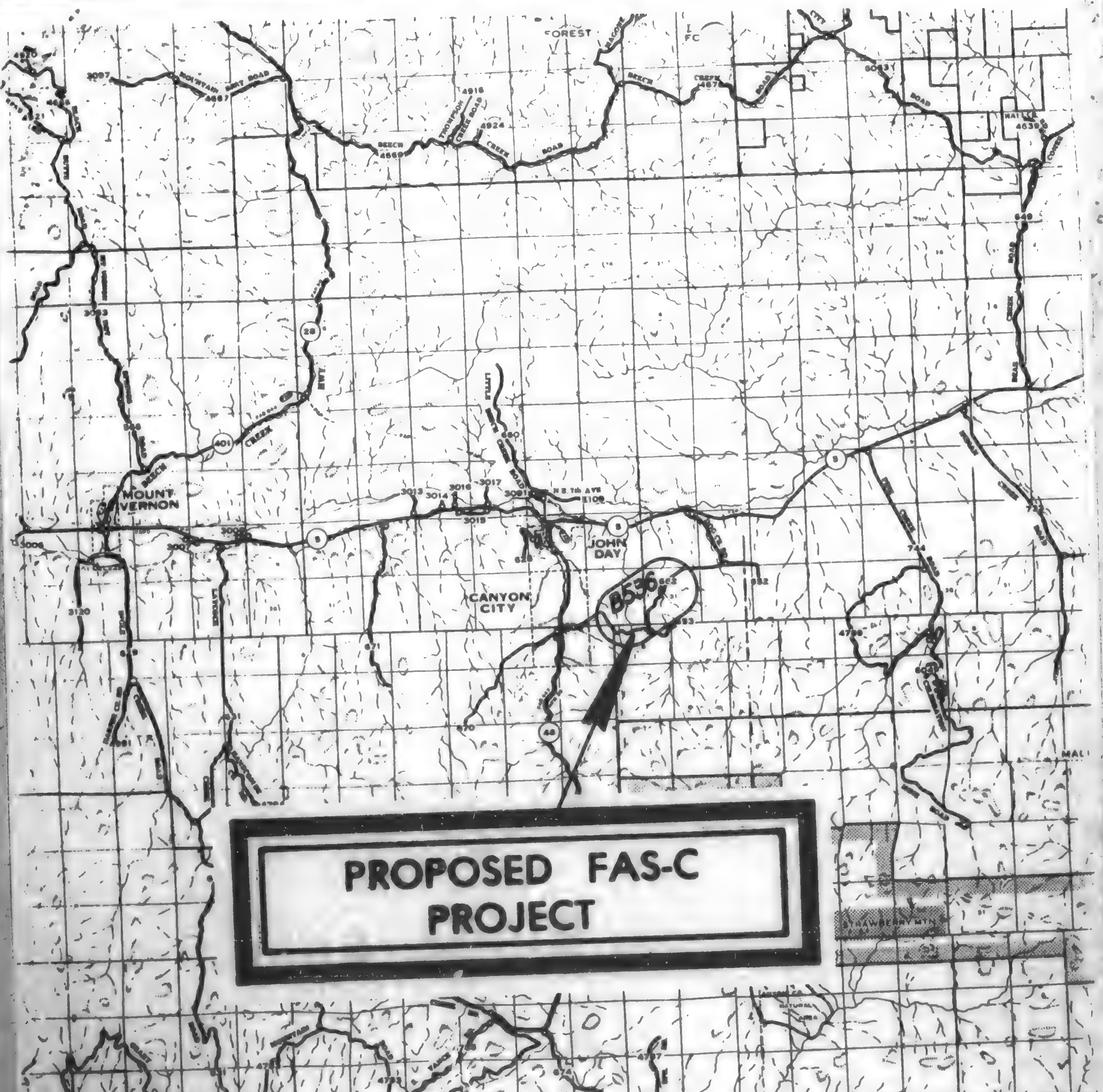
Boot Hill Cemetery-Dog Creek Section
Canyon City-Dog Creek Road, FAS B536
Base and Pave
2.1 Miles
$298,000

This project consists of placing base rock, leveling course and asphaltic concrete on a 2.1 mile section of Canyon City-Dog Creek Road.

County will perform the grading, drainage, relocation of irrigation ditches and acquire any necessary right-of-way for the project.

State will perform preliminary engineering at no cost to the County, under terms of the Secondary Road Agreement, and perform construction engineering as a participating item of the project.

77-b
7/8/77



FOREST
MOUNT VERNON
JOHN DAY
CANYON CITY
B536
STRAWBERRY MTN
MALHEUR

PROPOSED FAS-C PROJECT

6-16-77

Local Gov't Programs

Dog Creek road segment boosted for federal aid

Grant County commissioners are making application to the Oregon State Highway Division for federal assistance in improving and paving a narrow, twisting segment of the Dog Creek-Marysville Road with federal funds.

The improvement covers the segment from the end of paving at the Chester Elliott Ranch westerly toward Marysville.

If the application is approved, 84 per cent of the cost will be covered under the federal aid systems (FAS-C) cost-sharing program, and 84 per cent federal money with 16 per cent county money to complete the project.

County commissioners conferred about the project May 25-26 with Roger Lang, La Grande, OSHD federal aid engineer, and authorized Lang to prepare the application.

The road segment has not been surveyed and right-of-ways need to be obtained, according to County Judge Francis F. R. Cole.

Commissioners identified the improvement as their No. 1 priority under the FAS-C program after evaluating several suggestions with Lang.

The area to be improved includes narrow stretches between the Alva Conlee and Frank Beaver properties and a deep gully in the vincinity of the Pete Barrietua and Jim Walker properties.

Cole indicated that just how far west the improvement may go will depend upon the amount of funding available and cost estimates.

The Dog Creek portion of the road was widened, realigned and paved by the county several years ago.

At the commissioners' meeting on June 1, the County Court authorized painting of the Halfway House, John Day, with a private contractor, with the county providing the paint. They also approved conveying an easement for the new sewer interceptor line through the Grant County Fairgrounds to the City of John Day.

The County Court also approved a resolution to vacate a portion of the old Granite-Sumpter Road (Road No. 24). The segment has been replaced by a Forest Service Road.

At their meeting Wednesday of last week, county commissioners approved a proposal by the California-Pacific Utilities Company to bury cable parallel to the Canyon Creek Road (County Road No. 65).

Capitalize on the efficiency and economy of BME Classified.

The Blue Mountain Eagle
[illegible] the Great John Day Country
[illegible] Oregon 97845
June 16, 1977
Twenty Cents
One Section
[illegible] Pages

ARCHITECT TO BE HIRED

Boot Hill Cemetery - Dog Creek Section

Canyon City - Dog Crk Rd. B 536

PROJECT MANAGER
JUN 22 77
REFER TO
FOR
Info
Investigate
R/D
Action
File
Letter

8907

FORM 81-734-3030

OREGON STATE HIGHWAY DIVISION

FILE:

INTER-OFFICE CORRESPONDENCE

La Grande, Oregon

May 31, 1977

Roger C Lang

FROM: Roger C. Lang
Regional Federal Aid Engineer

TO: George Hopkins
Local Government Programs Engineer

SALEM

SUBJECT: Proposed Project
Boot Hill Cemetery-Dog Creek Section
Canyon City-Dog Creek Road
FAS B536

Attached is a project application for the above described section submitted by Grant County.

FAS funding is requested for base rock, level course and paving. The County is obligating themselves to obtaining the necessary right of way; performing necessary grading and relocating private irrigation systems as determined by the Location Survey.

A project assessment has been prepared and by copy of this letter is being forwarded to Jim Kennedy, Region Environmentalist, for further action.

The project costs have been reviewed and appear to be in order. It may be possible to reduce the costs by using select base materials in lieu of crushed base materials. Costs were computed using 8" of base, 3" level and 3½" A.C. pavement.

The County has not requested the project be let at any specific time as several variables enter into this project. Primarily, they cannot do anything until the project is designed. They do expect us to proceed towards design of the project as rapidly as possible.

I have informed the County that if everything fell into place we may be able to have the job ready for the 1978 construction season. If any delay is encountered, we may have to defer bid letting until the 1979 season.

Also attached is an Authority for Survey showing the anticipated field costs for preliminary engineering. Please have the Location Section add the necessary items involving the Salem sections.

Please take the necessary steps to program the project.

7-21-77
SURVEY AUTHORITY
TO TERPIN.

RCL/dlm
Attachments 2

cc: Francis R. Cole, County Judge
Jim Kennedy
Verne Allen
Verne Moore
Harlin Gerlach
Barry Hatcher

MAINOR - GARY
Review and prepare
for Trans. Corr

NOTED
MAINOR C. HOLMES

PROJECT MANAGEMENT

JUN 2 '77

REFER TO: Prag

FOR

Info	Investigate	R/D	Action	File	Letter	See me
			X			

8907

FEDERAL AID PROJECT REQUEST

Date 5/27/77

Applicant Agency GRANT COUNTY

Request for: Off-System ____, FAS-C X , FAUS ____ Project

Federal Aid Route No. B 536 Route Name CANYON CITY--DOG CREEK ROAD

Project Name BOOT HILL CEMETARY-DOG CREEK SEC.

Project Length 2.1 Project Location (Attach sketch map)

Project Description BASE ROCK, LEVEL COURSE AND PAVE.

Average Daily Traffic 175 (Estimated) Design Speed 40

Complete Applicable Sections:

I. ROADWAY DATA

1. Existing Roadway: (Attach sketch)

Width 20'-24' Travel Lanes 2 Shoulders N/A

Medians NONE Parking NONE

Sidewalks NONE

Remarks GRAVEL SURFACE ROADWAY, VARIABLE IN WIDTH.

2. Desired Roadway Cross Section: (Attach sketch)

Width 28' Travel Lanes 2-10' Shoulders 2-4'

Medians NONE Parking NONE

Curbed NONE Length Curb Radii NONE

Sidewalk/Bikeway NONE

Remarks APPARENT LOW USAGE OF SIDEWALK/ BIKEWAY DOES NOT WARRANT CONSTRUCTION.

II. RIGHT-OF-WAY DATA

1. Existing Right-of-Way:

General Width 60' Minimum ____ Maximum ____

2. Has right-of-way been acquired for this project subsequent to January 2, 1971?
Yes ____ No X

3. Will additional right-of-way be needed? Yes X No ____
If answer is "yes," will cost of right-of-way be subject to Federal reimbursement? Yes ____ No X

Remarks COUNTY WILL ACQUIRE NEEDED RIGHT OF WAY AS DETERMINED BY LOCATION SURVEY.

III. TRAFFIC CONTROL DATA

1. Existing Signalization and Location:

NONE

2. **Proposed Signalization:**

Location NONE

Type

Phases

Type of Suspension

Interconnected

Remarks

3. **Permanent Signing:**

Include in project or by applicant? BY APPLICANT

4. **Permanent Striping:**

Include in project or by applicant? BY APPLICANT

IV. ILLUMINATION DATA

1. **Existing Illumination and Location:**

NONE

2. **Proposed Illumination:**

Location NONE

Type

Remarks

V. STRUCTURE DATA

1. **Existing Structure:**

Location NONE

Type

Approach Roadway Width Shoulder Width

Length Width

To remain in place?

2. **Proposed Structure:**

Location NONE

Approximate Size: Length Width

Are sidewalk/bikeways desired:

Are any utilities to be attached to structure?

Are provisions for illumination desired?

Are there any unusual or complicating conditions?

Remarks

VI. RAILROAD DATA

1. Are there any railroad crossings? Yes ______ No X

Name of Railroad N/A

Existing Crossing Protection

2. Will existing railroad crossing be altered?

Remarks

VII. ACTION PLAN REQUIREMENTS

During project development for Category 1, 2, and 3 projects, the city or county shall perform and document responsibilities as found indexed in the Oregon Action Plan, particularly Citizen Involvement and Participation; Environmental Aspects; and Public Hearing Requirements.

The OSHD Region Engineer will provide assistance, liaison and monitoring for these activities.

Responsible local office and party to be contacted for the following activities:

1. Citizen Involvement — FRANCIS F.R. COLE, COUNTY JUDGE
Office
2. Environmental — FRANCIS F.R. COLE, COUNTY JUDGE
Office
3. Public Hearing — FRANCIS F. R. COLE COUNTY JUDGE
Office

Remarks

VIII. GENERAL INFORMATION

1. Project preliminary engineering to be performed by:

Applicant ______ State X Consultant ______

2. Project construction engineering to be performed by:

Applicant________ State X Consultant________

3. Will applicant perform any work prior to or after award of contract?

Yes X No________

If "yes," describe briefly: COUNTY TO PERFORM GRADING, DRAINAGE, RELOCATION OF IRRIGATION DITCHES AND OBTAIN REQUIRED RIGHT OF WAY AS DETERMINED BY LOCATION SURVEY.

4. Applicant's estimate of cost for requested project:

Roadway Work	$ 297,500.00
Right-of-way costs (if participating)	0
Traffic control	0
Illumination	0
Structures	0
Railroad	0
Other________	0
Preliminary engineering	0
PROJECT TOTAL	$ 297,500.00

Remarks ACCURATE PROJECT COSTS TO BE DETERMINED BY LOCATION SURVEY UNDER TERMS OF SECONDARY ROAD AGREEMENT.

THIS APPLICATION IS AN OFFICIAL REQUEST FROM:

CITY OF ________ and/or GRANT COUNTY

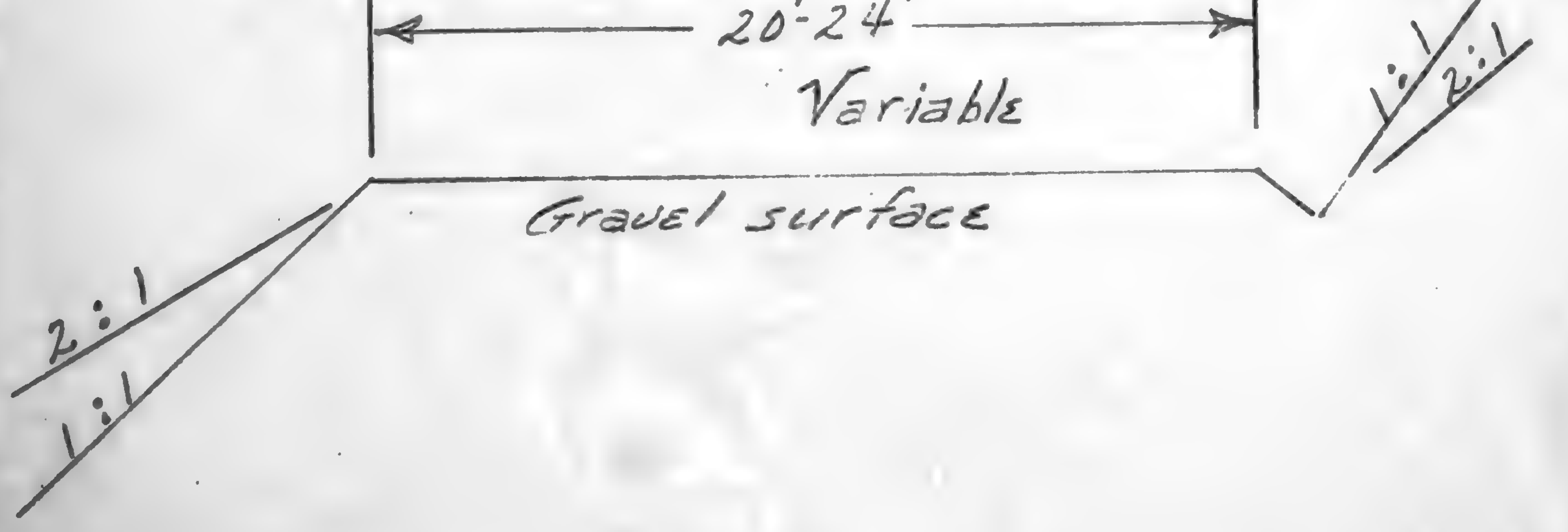
By________ By Francis S. R. Cole

By________ By Jim Maple

By Geo. Hansen

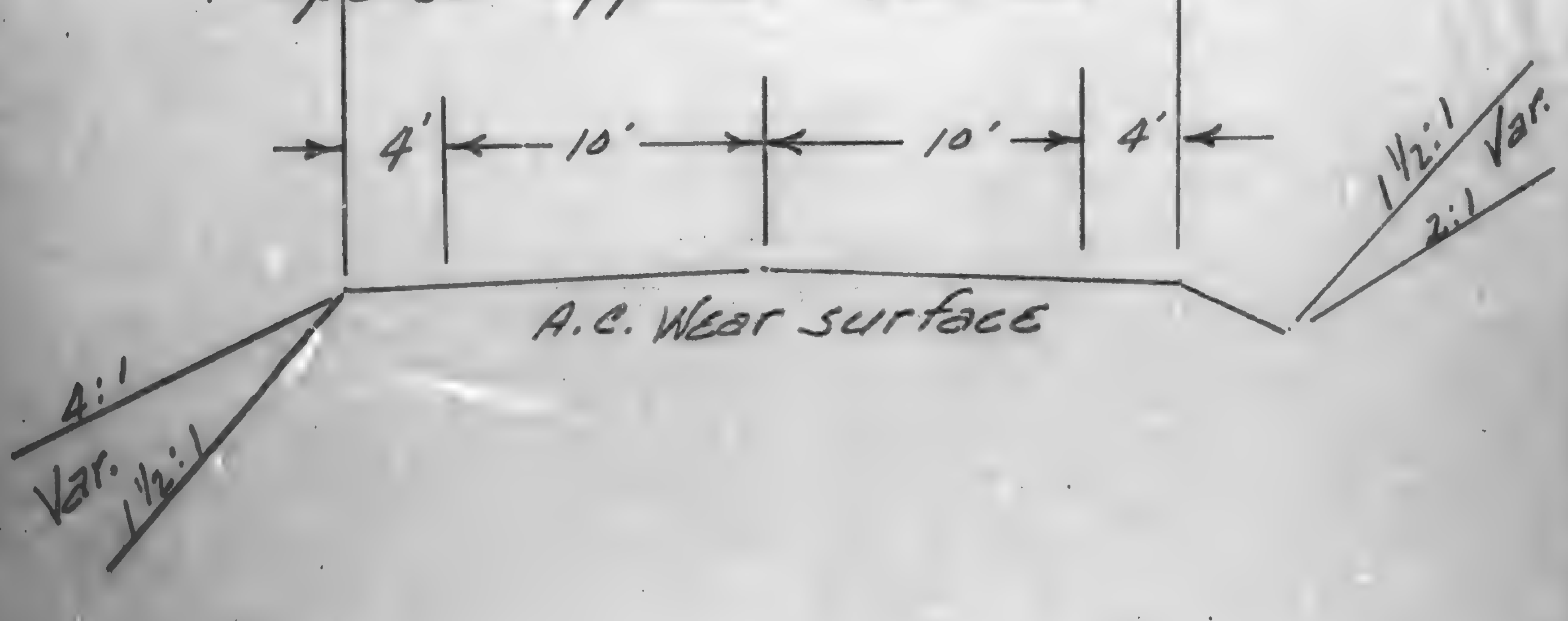
(1976)

Existing Typical Section FAS B536

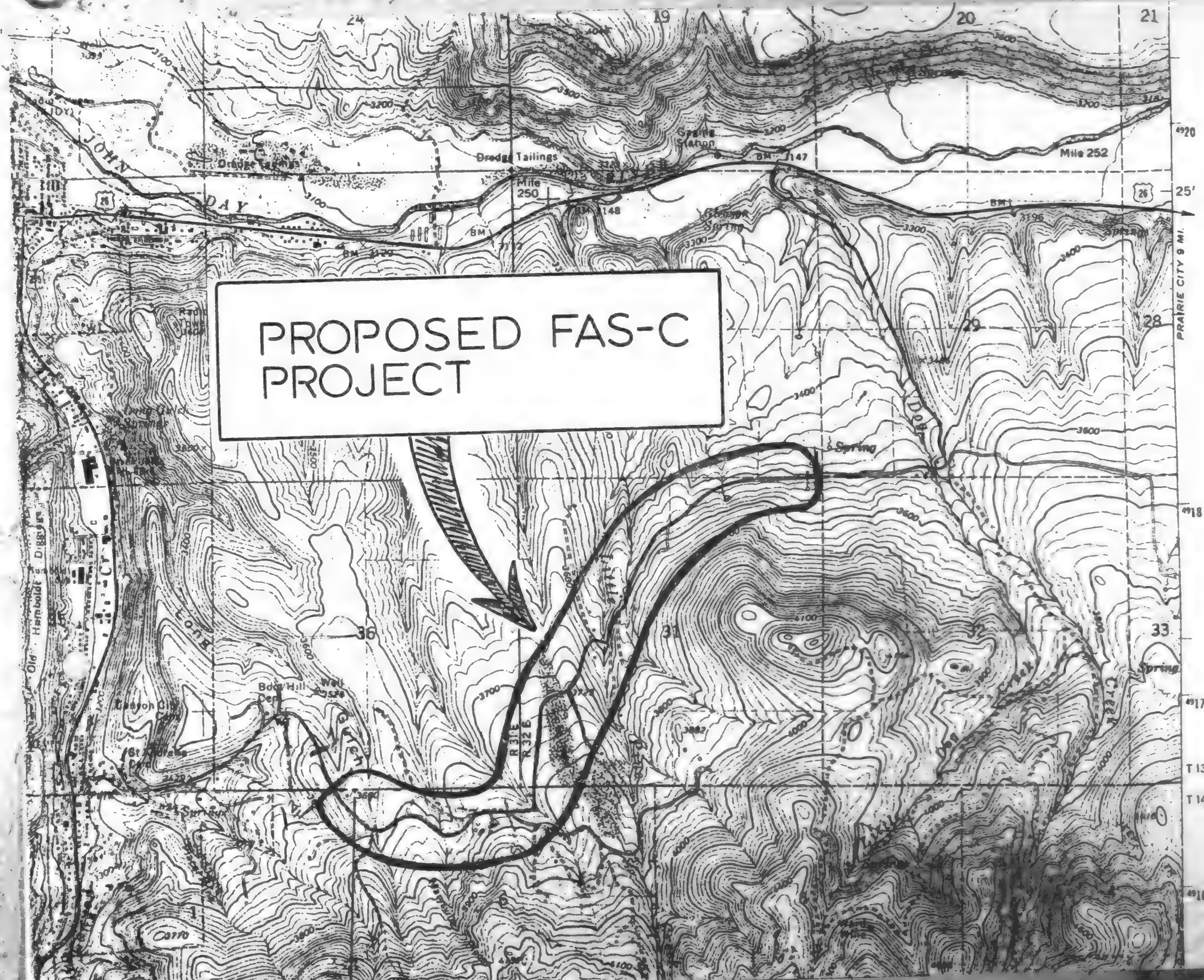


20'-24'
Variable
Gravel surface
2:1
1:1
1:1
2:1

Proposed Typical Section



4'
10'
10'
4'
A.C. Wear surface
4:1
Var.
1½:1
1½:1
Var.
2:1

PROPOSED FAS-C PROJECT
JOHN DAY RIVER
Dredge Tailings
Mile 250
Mile 252
Granite Station
Old Humboldt Diggings
R 31 E
R 32 E
T 13 S
T 14 S
Spring
Creek
PRAIRIE CITY 9 MI.
19
20
21
24
28
29
31
32
33
36
25'

8907

→ Hopkins
cy Region
Lang
Hatcher

OREGON STATE HIGHWAY DIVISIO
PROJECT ASSESSMENT
(Or Request)

Checked with County Planning Dept, State Fish & Wildlife and a property owner along the road. Adverse impacts would probably be slight. The proposed project seems to be in the best public interest. Recommend "Assessment Only".
J Kennedy
6-1-77

PART 1. GENERAL INFORMATION

A. Project Identification:

Date 5/27/77
Section BOOT HILL CEMETARY, DOG CREEK RD.
Unit (if appl) ___
County GRANT
City ___
Highway FAS E 536
State Hwy. No. ___
Termini: M.P. (if appl) 1.2--3.3
Length 2.1
Region V
Construction Estimate 297,500.00
Program Amount

B. Purpose of Project:

TO IMPROVE VERTICAL AND HORIZONTAL ALIGNMENT TO FAS-C STANDARDS.

☒ Info
☐ Investigate
☐ R/D
☐ Action
☐ File
☐ Letter
☐ See me
JUN 9 '77

C. Origin & History of Project:

THE PROPOSED PROJECT LIES ON A PORTION OF THE CANYON CITY-MARYSVILLE (ABONDONED) ROAD WHICH SERVED AS A LINK TO MINES ON THE NORTH SLOPE OF CANYON MTN. IMPROVEMENT TO THIS SECTION OF ROADWAY IS NOW REQUIRED AS THIS AREA IS ONE OF THE FEW AVAILABLE FOR RESIDENTIAL EXPANSION. PRESENT ALIGNMENT IS DIFFICULT FOR SCHOOL BUSSES AND RESIDENTS TO NEGOTIATE.

D. General Description of Project:

SURFACE AND PAVE ROADWAY CONSTRUCTED BY COUNTY FORCES. HIGHWAY DIVISION TO MONITOR SUBGRADE CONSTRUCTION PERFORMED BY COUNTY.

Alignment: New ___ Existing ___ Combined x

Typical Section: Existing: No. Lanes 2; Med. 0; Shldrs. 0; Parking 0
Proposed: No. Lanes 2; Med. 0; Shldrs. 2; Parking 0

Traffic: Existing Facility: Existing ADT 175; Projected ADT 250; Yr. 1985
Existing Level of Service INADEQUATE

Proposed Facility: Projected ADT 250; Yr. 1985
Projected Level of Service 20 YEARS

NOTED
M..NOR C. HOLMES

Right of Way: Additional anticipated YES ; if yes, give approx. No. Parcels 10 (?)
Yes, No

Acres UNKNOWN ; Type of Relocation Req. S&E COMMENT BELOW ; No.

Materials Source, Borrow, Waste Disposal Requirements, if any:

MATERIALS TO BE OBTAINED FROM RIGHT OF WAY, EXISTING MATERIAL SOURCES AND/OR COMMERCIAL SOURCES. NO WASTE MATERIAL DISPOSAL PROBLEM IS ANTICIPATED.

Type of Structure(s):

NONE

Brief Description of River or Stream and Type of Involvement, if any:

NONE

Local City, County or COG priorities of project:

COUNTY COURT HAS IDENTIFIED THIS PROJECT AS NUMBER 1 PRIORITY.

FHWA and/or OSHD approvals given, if any:

NONE

Location or Design Alternatives (identify and describe):

NO LOCATION/ DESIGN ALTERNATIVE CONSIDERED. PROJECT IS TO UTILIZE EXISTING RIGHT OF WAY CORRIDOR WITH MINIMAL DEVIATION IN ORDER TO CORRECT HORIZONTAL ALIGNMENT.

Other Descriptive Information or Comments:

PROPERTY OWNERS APPARENTLY ARE ENCROACHING ON COUNTY RIGHT OF WAY WITH FENCES AND OUT-BUILDINGS AT VARIOUS LOCATIONS. PROPER ADJUSTMENTS AND RELOCATION OF FENCES AND BUILDINGS WILL BE ACCOMPLISHED DURING THE PROJECT. SCHOOL BUSSES AND OTHER LOCAL TRAFFIC HAVE TROUBLE NEGOTIATING CURVES AND GRADES DURING WINTER MONTHS.

(Attach project sketch map.)

PART II. ENVIRONMENTAL ASSESSMENT

A. Brief Environmental Setting of Project Area:

1. Natural:

THE PROJECT LIES AT ABOUT ELEVATION 3700' AT THE UPPER REACHES OF BENCH OVER THE JOHN DAY VALLEY ON THE NORTH SLOPE OF CANYON MTN. THE ROUTE WINDS OVER THE BENCH EASTERLY ALTERNATELY IN FOREST LAND AND GRASSLAND. THE AREA IS ATTRACTIVE TO ALL FORMS OF WILDLIFE NATIVE TO EASTERN OREGON INCLUDING DEER, COYOTE, ROCK CHUCKS, PHEASANT, GROUSE AND MANY OTHERS. SOIL CONDITIONS VARY FROM SUBSTANTIAL DEPOSITS OF TOP SOIL, TO SCANT AMOUNTS OVER ROCK OUT CROPINGS, TO TAILING REMAINS FROM MINING OPERATIONS WHICH BEGAN ABOUT 1865.

2. Cultural:

THE AREA IS BEING UTILIZED AS A RESIDENTIAL GROWTH AREA BECAUSE OF THE LIMITED LANDS AVAILABLE IN THE AREA. MAJORITY OF THE PARCELS COMBINE MODERN RESIDENTIAL DWELLING AND RURAL LIFESTYLE.

B. Preliminary Assessment of Environmental Impacts:

1. Consequences and Significance of Right-of-Way Acquisition:

MINIMAL CONSEQUENCE OF RIGHT OF WAY ACQUISITION.

2. Estimated Impact on Traffic Patterns:

NO ADVERSE IMPACT ON TRAFFIC PATTERNS, ROUTE DOES NOT APPEAR ATTRACTIVE TO TRAFFIC OTHER THAN LOCAL COMMUTERS.

Consequences--Air Quality, Noise, Safety, etc.:

AIR QUALITY AND NOISE LEVELS SHOULD NOT INCREASE. SAFETY SHOULD IMPROVE WITH ELIMINATION OF SUB-STANDARD ALIGNMENT.

3. Estimated Impact on Land Use:

NO IMPACT ON LAND USE ANTICIPATED, PRESENT ZONING LAWS GOVERN USE.

Consequences:

4. Expected Impact on Natural Ecological Resources:

NONE

Consequences:

5. Expected Impact on Cultural and Scenic Resources:

NONE

Consequences:

6. Preliminary Identification of Areas of Critical Concern:

NONE

7. Potential for Controversial Issues:

NONE

8. Potential for Consistency of Proposal With:

a. Clean Air Implementation Plans

NO CONFLICT

b. Noise Standards

CONSISTENT WITH NOISE ABATEMENT REQUIREMENTS.

c. Water Quality Standards

WATER QUALITY SHOULD NOT BE AFFECTED.

d. Area Land Use and Transportation Plans, and Zoning

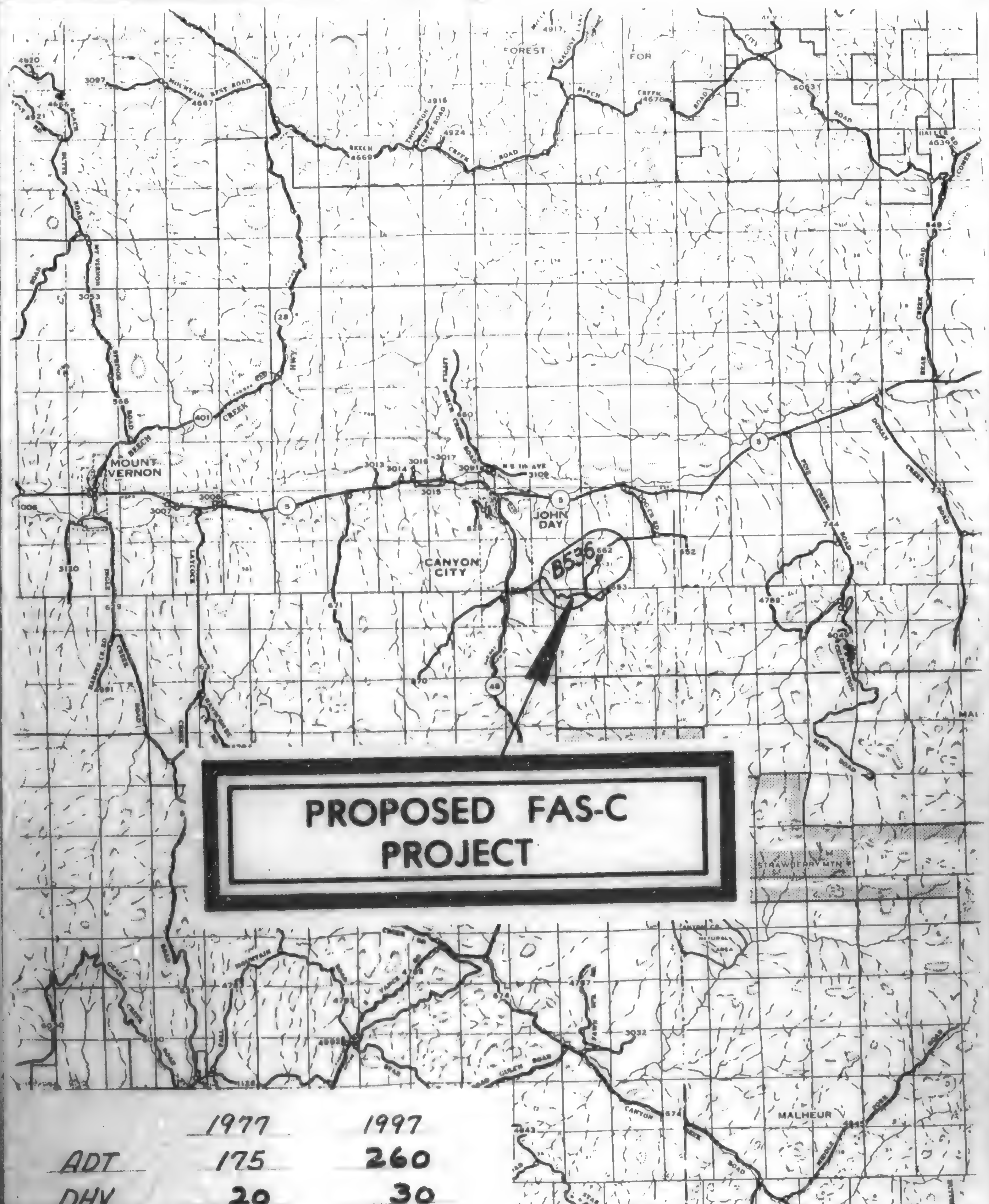
CONSISTENT WITH GOALS OF THE PLANNING COMMISSION.

C. Recommended Type of Action and Documentation:

------------MAJOR ACTION------------		----NON-MAJOR ACTION----
SIGNIFICANT:	NON-SIGNIFICANT:	
____ D & FEIS	____ D & F Neg.Dec.	_X_ ASSESSMENT ONLY
____ Section 4(f)	____ Section 4(f)	____ STATEWIDE ASSESSMENT

Basis for Type of Action and Documentation:

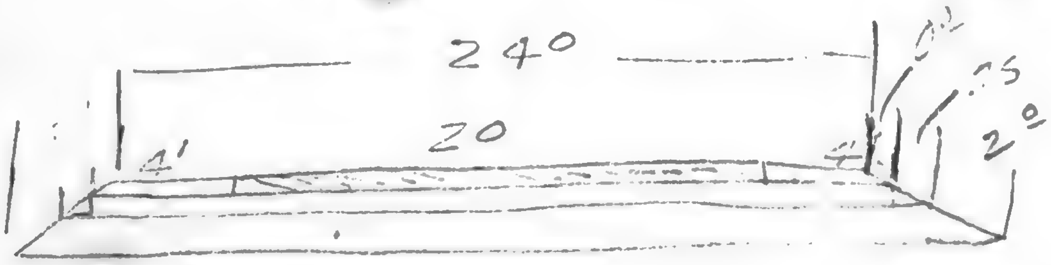
D. Recommended Project Category: ____ 1 ____ 2 _X_ 3 ____ 4


B536
MOUNT VERNON
JOHN DAY
CANYON CITY
STRAWBERRY MTN
MALHEUR
FOREST
5
26
401
4920
3097
4666
4667
4669
4916
4924
4917
4676
6063
4639
3053
566
3006
3007
3008
3013
3014
3016
3017
3015
3018
3109
3120
629
631
671
670
682
652
653
4789
744
733
648
4991
4743
4737
3032
3030
674
4843
4845
4830
4831
1126
MOUNTAIN REST ROAD
BEECH CREEK ROAD
MT VERNON HOT SPRINGS ROAD
BUTTE ROAD
FOX CREEK ROAD
DIXIE CREEK ROAD
CANYON CREEK ROAD
LAYCOCK

PROPOSED FAS-C PROJECT

	1977	1997
ADT	175	260
DHV	20	30

8907   Lang   Recon — Foothill Cem – Dog Cr.   3/26/77
Grant Co.



18" CBE

1/2 3 1/2" AC = 7
11" { 8" 1½-0- 8
3 ¾-0 - 3
14½   18

shldrs.
$\frac{8.87 \times 0.29 \times 10982}{27} \times 1.3 = 1363$ C.Y. / 7.50 (6.57)   (8955) 10,223

Level
$\frac{26.49 \times 0.25 \times 10982}{27} \times 1.3 = 3502$ C.Y. / 7.50 (6.57)   (23,000) 26,265

Base
$\frac{29.24 \times 0.67 \times 10982}{27} \times 1.3 = 15,461$ C.Y. / 7.00 (5.84)   (90,290) 108,227

Watering .025 × 20326 = 508 M-Gal / 7.00 (5.84)   (2967) 3556

B Asph Concrete
20 × .00608 × 3½ × 10982 = 4675 Tons / .28 (23)   (107525) = 130,900

$279,171 ←
(232,737) ←

Asph in Prime
$\frac{20 \times 10982}{9} \times .35 \div 265 = 32$ Tons / 150.00   4,800

Aggr in Prime
$\frac{20 \times 10982}{9} \times .006 = 1318$ C.Y. / 10.00   13,180

297,151 ←
(250,717) ←

Use 297,500 for
Est. purposes

Note Inflation factor @
12%/yr = $373,184

STATUS FAS FUNDS

The status of FAS funds as of the date below is shown in the following tabulation. Federal funds are the governing factor in this status, and the actual apportionment of federal funds to each county is offset by actual federal funds collected for individual projects when available and by estimated federal funds when not available.

For estimating and programming purposes, federal funds are assumed to represent approximately 88% of total costs, and total FAS funds (include federal funds 88%, state funds 6%, and county funds 6%)* are arrived at by dividing the available federal funds by 88% and rounding to even thousands.

Federal Allocations

Balance Forward	$ 500,334
Fiscal Year	
1970	43,504
1971	43,221
1972	40,058
1972**	379
1973	40,282
1974	40,985
1975	48,602
1976	47,536
1976a	5,943
1976b	13,370
1977	47,807
1978	47,763
1979c	61,520
1980	
TOTAL	$ 981,304 ✓

Federal Funds Committed for Projects Programmed to Date

FAS Rte. No.	Section	Federal Funds Final	Federal Funds Estimated
	Balance Forward	$ 329,232 ✓	$
12-104	Canyon Creek Road, Miller Ranch-Wickiup Forest Camp, base	290,241	
	Subtotal		619,473 ✓
B536	Boot Hill Cemetery-Dog Creek (updated Est of cost)		321,395 ✓
B536	Boot Hill Cemetery-Dog Creek (P.E.)		~~20,640~~ NC
			$ 961,508

FEDERAL FUNDS

ALLOCATED	COMMITTED		UNCOMMITTED BALANCE
$ 981,304	$ ~~961,508~~ 940,868	=	$~~19,796~~ 40,436

			TOTAL FUNDS UNCOMMITTED BALANCE
$~~19,796~~ 40,436	0.88	=	~~$23,000~~ 45,950

GRANT County, No. 12
Date December, 1978

$$\$ \frac{321,395}{.88} = 365,222$$

PAGE 2 of 2

* Program changed from 78% federal to 86% federal in July, 1976.
** Additional FAS-C allocation based on new census.
a Federal Aid Highway Amendments Act 1974.
b Transition Quarter FY from July 1, to October 1, 1976.
c Program changed from 86% federal to 88% federal in November, 1978.

1979 Malheur River (Airport Rd.) 8908
Bridge Sec. of FAS B495 south of
Vale (Grading, paving & structure)

C&A 6711 8-24-78
C&A 6994 3-29-79

County Const. the appr. and install guard rail
(furnish on part of proj.) State pile guard rail at county's expense -
PE only yet.

8908

P

Form 734-1191 (Rev. 5/77)

OREGON STATE
HIGHWAY DIVISION

REQUEST FOR OUTSIDE BILLING

(OR ADVICE OF CASH TRANSACTION)

DATE	BILLING REQ. NO.	YOUR ORDER NO.	CREDIT DISTRIBUTION
3-6-81	CC 81-16		523-1975-297 523-1066-297

BILL TO: Code:

Malheur County Court
Courthouse - 251 B Street West
Vale, Oregon 97918
ATTN: Honorable E. M. Seuell, County Judge

DESCRIPTION: (Describe the service rendered, location, etc. Refer to agreements, letters and orders by which payer authorized the service.)	QUANTITY	UNIT PRICE	TOTAL PRICE
FINAL BILLING: Malheur R. (Airport Road) Br. Section FAS-B495 Project No. RS-B495(243)			
County Advance Deposit P.E.			$ 715.00
Construction			13,800.00
County Share of Costs			12,311.68
REFUND DUE COUNTY			$ 2,203.32
(Please send copy of itemized statement with billing)			

Advance Deposit Amount	715.00 $ 13,800.00
Advance Deposit Previously Transferred to Highway Fund	$ 10,915.00
Balance	$ 3,600.00
Transfer to Highway Fund	$ 1,396.68
Refund Due	$ 2,203.32
Partial or final request for billing	FINAL
Number of the previous request in connection with this service.	CC 2019, 1892

Amount Due . . . . . $

Submitted by:

Harold Reynoldson
Harold Reynoldson

Approved:

D. E. Swan

SP*35736-734

OREGON STATE HIGHWAY DIVISION

ITEMIZED STATEMENT OF FINAL COSTS **DATE:** March 6, 1981

COUNTY MALHEUR **Contract No.** 8908 **Date Completed** August 20, 1979

PROJECT # RS-B495(3) **Section** Malheur R. (Airport Road) Br.

PAYMENTS TO CONTRACTOR

ITEM		TOTAL COST
P.E.	(Federal Participation)	$ 13,163.08
	(Non Participating)	22.50
TOTAL P.E. COST		$ 13,185.58
P.E. Federal Funds Collected		$ 11,289.97
Construction		
Payment to Contractor	(Federal Participation)	$175,129.55
Engineering		14,677.34
TOTAL	(Federal Participation)	$189,806.89
Payment to Contractor	(Non Participating)	$ 100.81
Engineering		68.47
TOTAL	(Non Participating)	$ 169.28
Construction Federal Funds Collected		$167,371.72
TOTAL PROJECT COST		$203,161.75

County's Share of Project Costs are as follows:

1/2 ($202,969.97 + $68.47 - $178,661.69) + $123.31 = $ 12,311.68

County Advance Deposit	P.E.	$ 715.00
	Construction	13,800.00
County Share of Costs		12,311.68
REFUND DUE COUNTY		$ 2,203.32

Reference: Billing Form CC 81-16

FORM 734-1745

STATEMENT OF COSTS INCURRED UNDER PROJECT AGREEMENT

ITEM NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT	NOTATIONS (Payee must not use this column)
	Malheur River (Airport Rd.) Bridge County FAS B495 Malheur County					
	Construction					
	Type Code 6201					
	Roadway (Sta. 13+00 To Sta. 16+24)(Sta. 17+64 To Sta. 21+00)				$ 35,295.85	
	Formal Contract Payment Summary	Lump Sum				
	Type Code X080					
	Structure Bridge No. 16375 (Sta. 16+24 To Sta. 17+64)				139,833.70	175,129.55
	Formal Contract Payment Summary	Lump Sum				
	Construction Engineering	All Required			14,677.34	
	State					
	Type Code 6201 $ 2,935.47					
	Type Code X080 11,741.87				$189,806.89	
	Total Participating Cost					
	Nonparticipating Cost	All Required			$ 100.81	
	Interest on Final Payments	All Required			68.47	
	Construction Engineering				$ 169.28	
	Total Nonparticipating Cost				$189,976.17	
	Total Cost					
	Prepared based on Participating Costs as shown on Federal Billing as of 1/29/81.					
	AMOUNT CARRIED FORWARD					

GPO 944 893

MEMORANDUM

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

FINAL VOUCHER FOR PAYMENT UNDER 23 U.S.C. 117

D.O. VOUCHER NO.

STATE VOUCHER NO.

DATE

FHWA SCHEDULE NO.

PAID BY

Appropriation:

The United States, Dr., TO Treasurer of the State of Oregon

Address Capitol Bldg. - Salem, OR 97310

STATE Oregon

FEDERAL AID PROJECT NO. RS-S495(3)

PROGRAM APPROVED

VOUCHER PERIOD From: 3-21-79 To: 8-29-80

FINANCIAL DATA

TOTAL ACTUAL COST	TOTAL PARTICIPATING COST	PRO-RATA OF PARTICIPATING COST CLAIMED FROM U.S.	TOTAL AMOUNT CLAIMED FROM U.S.	LESS PREVIOUS PAYMENTS	NET AMOUNT CLAIMED
$189,976.17	$189,806.80	88.18%	$167,371.72	$167,371.72	$ 0.00

	DATE	BY
RECEIVED IN FHWA DIVISION OFFICE		
FHWA REVIEW PERFORMED		
PASSED FOR PAYMENT		Oregon
FORWARDED BY FHWA DIVISION OFFICE	V.E. Skoog, Controller	1/28/81

0.00

Form FHWA-1447A (4-78) PREVIOUS EDITIONS ARE OBSOLETE

```
                                        ** JOB TOTALS **             **       11.48  **   141,419.06  **

MALHEUR RV BR-AIRPORT RD    CONT NO 8908 * FA PROJ NOS RS  495003 100                                 STATE
                                 523    1066     201     00 P 1                           175,129.55    79     79
                                 523    1066     206     00 N 1                               100.81    79     79
                                 523    1066     296     00 N 9                 23.02CR   17,  19.87CR  79     80
                                 523    1066     297     00 N 9                            10,400.00    80     80
                                 523    1066     298     00 N 9                 23.02     167,219.87 ✓  79     80  See Voucher
                                 523    1066     900     00 P 1                 11.48      14,430.28    79     80
                                 523    1066     900     00 N 1                                68.47    79     79
                                 523    1066     920     00 P 1                                50.19    79     80
                                 523    1066     921     00 P 1                               195.62    79     79
                                 523    1066     926     00 P 1                                 1.25    80     80
                                                 TOT     P1                     11.48     189,806.89
                                                 TOT     N1                                   169.28
                                        ** JOB TOTALS **             **       11.48  **   189,976.17  **

CHANGE TO 523-1073          CONT NO        FA PROJ NOS SR  482001 100                                 STATE
                                 523    1069     220     01 P 1             15,632.34      15,632.34    80     81
                                 523    1069     296     00 N 9             13,596.21CR    13,900.00CR  80     81
                                 523    1069     298     00 N 9             13,596.21      13,900.00    80     81
                                 523    1069     900     00 P 1                 13.55          34.33    80     81
                                 523    1069     900     02 P 1                               331.05    80     80
                                 523    1069     915     01 P 1                609.04         609.04    80     81
                                                 TOT     P1                 16,254.93      16,606.76
                                        ** JOB TOTALS **             **   16,254.93  **    16,606.76  **
```

```
TAL TO DATE JOB COST SUMMARY                                            JANUARY 1981      PAGE  266

DESCRIPTION OF JOB OR DEPARTMENT     PREFIX       FUNCTION  GR  CURRENT MONTH     FISCAL          GRAND TOTAL    ACTIVE YRS
                                                                                YEAR TO DATE       TO DATE      BEG   END

 JORDAN VALLEY-IDAHO ST L     CONT NO 9141 = FA PROJ NOS SR  482001 100                                        STATE
                                 523    1073     201     00 P 1   1,475.37CR     188,313.65      188,313.65     80     81
                                 523    1073     204     00 P 1   9,489.45                                      80     81
                                 523    1073     206     00 N 1     138.91           138.91          138.91     80     81
                                 523    1073     270     03 P 1                      495.15          495.15     80     81
                                 523    1073     296     00 N 9   7,143.84CR     185,368.70CR    185,368.70CR   80     81
                                 523    1073     297     00 N 9                   10,500.00       10,500.00     80     80
                                 523    1073     298     00 N 9   7,143.84       174,868.70      174,868.70     80     81
                                 523    1073     900     00 P 1      43.48         9,259.41        9,402.07     80     81
                                 523    1073     920     00 P 1                       77.35          167.86     80     80
                                 523    1073     945     00 P 1      89.82           115.66          115.66     81     81
                                 523    1073     960     00 N 1                       90.43           90.43     81     81
                                                 TOT     P1       8,147.38       198,261.22      198,494.39
                                                 TOT     N1         138.91           229.34          229.34
                                        ** JOB TOTALS **          8,286.29  **   198,490.56  **  198,723.73  **
```

```
                                                                                                              STATE
ALHEUR RV BR-AIRPORT RD       CONT NO 8908 * FA PROJ NOS RS  495003 100
                                 523    1066     201     00 P 1                                  175,129.55    79    79
                                 523    1066     206     00 N 1                                      100.81    79    79
                                 523    1066     296     00 N 9                       23.02CR   17,  19.87CR   79    80
                                 523    1066     297     00 N 9                                   10,400.00    80    80
                                 523    1066     298     00 N 9                       23.02      167,219.87 /  ~~79    80~~ See Voucher
                                 523    1066     900     00 P 1                       11.48       14,430.28    79    80
                                 523    1066     900     00 N 1                                       68.47    79    79
                                 523    1066     920     00 P 1                                       50.19    79    80
                                 523    1066     921     00 P 1                                      195.62    79    79
                                 523    1066     926     00 P 1                                        1.25    80    80
                                                 TOT     P1                           11.48      189,806.89
                                                 TOT     N1                                          169.28
                                            ** JOB TOTALS **               **         11.48  **  189,976.17  **

                                                                                                              STATE
CHANGE TO 523-1073            CONT NO       FA PROJ NOS SR  482001 100
                                 523    1069     220     01 P 1                   15,632.34       15,632.34    80    81
                                 523    1069     296     00 N 9                   13,596.21CR     13,900.00CR  80    81
                                 523    1069     298     00 N 9                   13,596.21       13,900.00    80    81
                                 523    1069     900     00 P 1                       13.55           34.33    80    81
                                 523    1069     900     02 P 1                                      331.05    80    80
                                 523    1069     915     01 P 1                      609.04          609.04    80    81
                                                 TOT     P1                       16,254.93       16,606.76
                                            ** JOB TOTALS **               **     16,254.93  **   16,606.76  **


TAL TO DATE JOB COST SUMMARY                                             JANUARY 1981         PAGE  266
                                                                             FISCAL          GRAND TOTAL     ACTIVE YRS
DESCRIPTION OF JOB OR DEPARTMENT       PREFIX      FUNCTION  GR  CURRENT MONTH   YEAR TO DATE      TO DATE       BEG   END

                                                                                                              STATE
JORDAN VALLEY-IDAHO ST L      CONT NO 9141 = FA PROJ NOS SR  482001 100
                                 523    1073     201     00 P 1   1,475.37CR     188,313.65      188,313.65    80    81
                                 523    1073     204     00 P 1   9,489.45                                     80    81
                                 523    1073     206     00 N 1     138.91           138.91          138.91    81    81
                                 523    1073     220     03 P 1                      495.15          495.15    80    81
                                 523    1073     296     00 N 9   7,143.84CR     185,368.70CR    185,363.70CR  80    81
                                 523    1073     297     00 N 9                   10,500.00       10,500.00    80    80
                                 523    1073     298     00 N 9   7,143.84       174,868.70      174,868.70    80    81
                                 523    1073     900     00 P 1      43.48         9,259.41        9,402.07    80    81
                                 523    1073     920     00 P 1                       77.35          167.86    80    80
                                 523    1073     945     00 P 1      89.82           115.66          115.66    81    81
                                 523    1073     960     00 N 1                       90.43           90.43    81    81
                                                 TOT     P1       8,147.38       198,261.22      198,494.39
                                                 TOT     N1         138.91           229.34          229.34
                                            ** JOB TOTALS **      8,286.29  **   198,490.56  **  198,723.73  **

                                                                                                              STATE
HINES ST SE CITY OF SALEM     CONT NO       * FA PROJ NOS RRP 528004 100
```

STATEMENT OF COSTS INCURRED UNDER PROJECT AGREEMENT

ITEM NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT	NOTATIONS *(Payee must not use this column)*
	Malheur River (Airport Rd.) Bridge Section County Road in Malheur County					
	Preliminary Engineering Type Code P.E. Preliminary Engineering (3.6 mi S.W. of Vale) State P.E.	All Required			$13,163.08	
	Total Participating Project Cost				$13,163.08	
	Prepared based on Participating Costs as shown on Federal Billing as of 6/30/80.					
	AMOUNT CARRIED FORWARD					

MEMORANDUM

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

FINAL VOUCHER FOR PAYMENT UNDER 23 U.S.C. 117

D.O. VOUCHER NO.

STATE VOUCHER NO.

DATE

FHWA SCHEDULE NO.

PAID BY

Appropriation:

The United States, Dr., TO Treasurer of the State of Oregon

Address Capitol Bldg. - Salem, OR 97310

STATE Oregon	FEDERAL AID PROJECT NO. RS-B495(2)
PROGRAM APPROVED	VOUCHER PERIOD From: 8-11-78 To: 3-21-79

FINANCIAL DATA

TOTAL ACTUAL COST	TOTAL PARTICIPATING COST	PRO-RATA OF PARTICIPATING COST CLAIMED FROM U.S.	TOTAL AMOUNT CLAIMED FROM U.S.	LESS PREVIOUS PAYMENTS	NET AMOUNT CLAIMED
$13,163.08	$13,163.08	85.77%	$11,289.97	$11,289.97	$ 0.00

	DATE	BY
RECEIVED IN FHWA DIVISION OFFICE		
FHWA REVIEW PERFORMED		
PASSED FOR PAYMENT		Oregon
FORWARDED BY FHWA DIVISION OFFICE		7-15-80

V.E. Skoog, Controller

0.00

Form FHWA-1447A (4-78) PREVIOUS EDITIONS ARE OBSOLETE

```
                                523   1973     926      00 P 1                                                  438.06
                                               TOT      P1                                                    7,374.38
                                          ** JOB TOTALS **              **              **                    7,374.38  **

   MAL RIVER(ARPORT RD)BR SECT   CONT NO       * FA PROJ NOS RS-8495002 100                                               STATE
                                523   1975     296      00 N 9                                12.57          11,804.97CR
```

```
TOTAL TO DATE JOB COST SUMMARY                                                         JANUARY 1981        PAGE  793
                                                                                          FISCAL            GRAND TOTAL
DESCRIPTION OF JOB OR DEPARTMENT       PREFIX       FUNCTION   GR   CURRENT MONTH      YEAR TO DATE          TO DATE
                                523   1975     297      00 N 9                                                  515.00
                                523   1975     298      00 N 9                                12.57CR        11,289.97
                                523   1975     901      00 P 1                                                3,415.52
                                523   1975     901      00 N 1                                22.50              22.50
                                523   1975     905      00 P 1                                                2,150.99
                                523   1975     906      00 P 1                                                2,402.79
                                523   1975     910      00 P 1                                                  267.00
                                523   1975     914      00 P 1                                                  212.42
                                523   1975     918      00 P 1                                                1,271.54
                                523   1975     920      00 P 1                                                  140.40
                                523   1975     921      00 P 1                                                1,170.76
                                523   1975     922      00 P 1                                                   61.86
                                523   1975     926      00 P 1                                                2,069.80
                                               TOT      P1                                                   13,163.08
                                               TOT      N1                                    22.50              22.50
                                          ** JOB TOTALS **              **                    22.50   **     13,185.58  **

   JORDAN VLY-IDAHO STATE L      CONT NO       * FA PROJ NOS SR  482001 100                                               STATE
                                523   1989     296      00 N 9                               196.55CR         1,856.61CR
                                523   1989     298      00 N 9                               196.55           1,856.61
                                523   1989     901      00 P 1                                                  337.16
                                523   1989     905      00 P 1                                 1.50             372.82
                                523   1989     910      00 P 1                                                  291.83
                                523   1989     911      00 P 1                                                   57.90
                                523   1989     920      00 P 1                                                  124.05
                                523   1989     921      00 P 1                                                  695.48
                                523   1989     922      00 P 1                                                   22.26
                                523   1989     923      00 P 1                                                  204.69
                                               TOT      P1                                     1.50           2,106.19
                                          ** JOB TOTALS **              **                     1.50   **      2,106.19  **

   WILLOW CR BRIDGES             CONT NO        FA PROJ NOS RS  500002 100                                                STATE
                                523   1991     296      00 N 9      8,137.75CR           17,863.08CR         17,863.08CR
                                523   1991     298      00 N 9      8,137.75             17,863.08           17,863.08
                                523   1991     901      00 P 1      5,964.06             15,834.61           15,834.61
                                523   1991     901      00 N 1                               37.39               37.39
                                523   1991     918      00 P 1        315.24              1,363.44            1,363.44
                                523   1991     920      00 P 1                               14.64               14.64
```

```
                    CONT NO      * FA PROJ NOS RS-6495002 100                                                       STATE
                             523   1975     296      00 N 9                                12.57          11,804.97CR

TOTAL TO DATE JOB COST SUMMARY                                                      JANUARY 1981          PAGE  793

DESCRIPTION OF JOB OR DEPARTMENT          PREFIX        FUNCTION   GR   CURRENT MONTH          FISCAL          GRAND TOTAL
                                                                                           YEAR TO DATE        TO DATE
                                       523   1975      297      00 N 9                                           515.00
                                       523   1975      298      00 N 9                        12.57CR         11,289.97
                                       523   1975      901      00 P 1                                         3,415.52
                                       523   1975      901      00 N 1                        22.50               22.50
                                       523   1975      905      00 P 1                                         2,150.99
                                       523   1975      906      00 P 1                                         2,402.79
                                       523   1975      910      00 P 1                                           267.00
                                       523   1975      914      00 P 1                                           212.42
                                       523   1975      918      00 P 1                                         1,271.54
                                       523   1975      920      00 P 1                                           140.40
                                       523   1975      921      00 P 1                                         1,170.76
                                       523   1975      922      00 P 1                                            61.86
                                       523   1975      926      00 P 1                                         2,069.80
                                                       TOT         P1                                         13,163.08
                                                       TOT         N1                         22.50               22.50
                                                    ** JOB TOTALS **            **            22.50  **       13,185.58  **

  JORDAN VLY-IDAHO STATE L      CONT NO        * FA PROJ NOS SR  482001 100                                     STATE
                                       523   1989      296      00 N 9                       196.55CR          1,856.61CR
                                       523   1989      298      00 N 9                       196.55            1,856.61
                                       523   1989      901      00 P 1                                           337.16
                                       523   1989      905      00 P 1                         1.50              372.82
                                       523   1989      910      00 P 1                                           291.83
                                       523   1989      911      00 P 1                                            57.90
                                       523   1989      920      00 P 1                                           124.05
                                       523   1989      921      00 P 1                                           695.48
                                       523   1989      922      00 P 1                                      [illegible]
                                       523   1989      923      00 P 1                                           204.69
                                                       TOT         P1                          1.50            2,106.19
                                                    ** JOB TOTALS **            **             1.50  **        2,106.19  **

  WILLOW CR BRIDGES             CONT NO          FA PROJ NOS RS  500002 100                                     STATE
                                       523   1991      296      00 N 9      8,137.75CR    17,863.08CR         17,863.08CR
                                       523   1991      298      00 N 9      8,137.75      17,863.08           17,863.08
                                       523   1991      901      00 P 1      5,964.06      15,834.61           15,834.61
                                       523   1991      901      00 N 1                        37.39               37.39
                                       523   1991      918      00 P 1        315.24       1,363.44            1,363.44
                                       523   1991      920      00 P 1                        14.64               14.64
```

8908

STATE COPY

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

FINAL INSPECTION AND ACCEPTANCE OF FEDERAL-AID PROJECT CONSTRUCTED UNDER SECONDARY ROAD PLAN

(PPM 20-5) 8-29-8

INSTRUCTIONS: *State is to complete items 1 - 7 and submit original and three (3) copies to the Federal Highway Administration Division Office.*

1. PROJECT NO. BS-B495(3)	2. COUNTY Malheur	3. STATE Oregon 8908

4. DESCRIPTION OF IMPROVEMENT AS PROGRAMED

Besides additional and incidental, work performed on this project included construction of roadway subgrade, aggregate base and asphalt pavement, and construction of a bridge, No. 16375, over the Malheur River. The bridge is 140 feet long and has a roadway width of 27.5 feet. All work was completed on August 20, 1979 on the Malheur River (Airport Road) Bridge Section of FAS Route B495 located approximately 3 miles southerly of Vale.

5. CONTRACTOR'S NAME Douglas S. Coats	6. CONTRACT AMOUNT $ 180,800.00

7. *CERTIFICATION: I certify that the above listed project was completed as programed and in accordance with the procedures and standards contained in the State's approved Secondary Road Plan Agreement. Final acceptance by the Federal Highway Administration is requested.*

SIGNATURE (SHD Official)

TITLE Assistant State Highway Engineer

8. REMARKS

The project has been completed as programed and in apparent conformity with the procedures and standards contained in the State's Secondary Road Plan Agreement.

RECEIVED
STATE HWY ENGR
SEP 2 '80
REFER TO
FOR
File
Act
Sign
D/R
R/D
Inves
Info

9. IMPROVEMENT AS CONSTRUCTED

ROADBED (Width 40 feet)			STRUCTURES OVER 20-FOOT SPAN	
TYPE CODE NUMBER	NET LENGTH (Miles)	BASE SURFACING WIDTH (Feet)	TYPE CODE NUMBER	NET LENGTH (Miles)
6201	0.125	28.0	X080	0.027

10. FEDERAL HIGHWAY ADMINISTRATION INSPECTION MADE BY David B. Carter, Area Engineer	11. DATE OF INSPECTION 10-23-79

12. IN COMPANY WITH

Unaccompanied, discussed with E. Burnett, Resident Engineer, OSHD

ACCEPTANCE OF PROJECT IS RECOMMENDED		ACCEPTED BY FEDERAL HIGHWAY ADMINISTRATION	
13. SIGNATURE David B Carter David B. Carter		16. SIGNATURE G. K. Hussner Glenn K. Hussner	
14. TITLE Area Engineer	15. DATE 8/27/80	17. TITLE Field Operations Engineer	18. DATE 8/29/80

FORM PR-33C
(Rev. 7-72)

Previous editions of this form are obsolete

8908

MEMORANDUM

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

FINAL VOUCHER FOR PAYMENT UNDER 23 U.S.C. 117

7-15-80

D.O. VOUCHER NO.	
STATE VOUCHER NO.	
DATE	
FHWA SCHEDULE NO.	
PAID BY	

Appropriation:

The United States, Dr., TO Treasurer of the State of Oregon

Address Capitol Bldg. - Salem, OR 97310

STATE Oregon	FEDERAL AID PROJECT NO. RS-8495(2)
PROGRAM APPROVED	VOUCHER PERIOD From: 8-11-78 To: 3-21-79

FINANCIAL DATA

TOTAL ACTUAL COST	TOTAL PARTICIPATING COST	PRO-RATA OF PARTICIPATING COST CLAIMED FROM U.S.	TOTAL AMOUNT CLAIMED FROM U.S.	LESS PREVIOUS PAYMENTS	NET AMOUNT CLAIMED
$13,163.08	$13,163.08	85.77%	$11,289.97	$11,289.97	$ 0.00

	DATE	BY
RECEIVED IN FHWA DIVISION OFFICE		
FHWA REVIEW PERFORMED		
PASSED FOR PAYMENT		Oregon
FORWARDED BY FHWA DIVISION OFFICE		7-15-80

V.E. Stoeg, Controller

0.00

Form FHWA-1447A (4-78) PREVIOUS EDITIONS ARE OBSOLETE

STATEMENT OF COSTS INCURRED UNDER PROJECT AGREEMENT

ITEM NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT	NOTATIONS *(Payee must not use this column)*
	Malheur River (Airport Rd.) Bridge Section County Road in Malheur County					
	Preliminary Engineering Type [illegible] P.E. Preliminary Engineering (3.6 mi S.W. of Vale) State P.E.	All	Required		$13,163.08	
	Total Participating Project Cost				$13,[illegible]	
	Prepared based on Participating Costs as shown on Federal Billing as of 6/30/83.					
	AMOUNT CARRIED FORWARD					

8708

CON 5
#8908

October 22, 1979

Hartford Accident & Indemnity Co.
Surety Department
1820 Eastlake Avenue East
Seattle, Washington 98102

Gentlemen:

Contract No. 8908 awarded to Douglas S. Coats Construction, for work on the Malheur River (Airport Rd.) Bridge Section of FAS E493 in Malheur County was completed on August 20, 1979 and accepted by the State Highway Engineer on October 18, 1979.

Final payment in the amount of $8,784.22 will be released to the contractor after October 29, 1979. The total contract amount is $175,129.55 and no work was performed under force account.

No claims for labor or material have been filed with us against the performance bond on this contract.

Sincerely,

C. W. Head
COMMISSION SERVICES

rls

cc: Douglas S. Coats Construction
P. O. Box 311
Bend, OR 97701

bc: C. T. Keasey
Walt Hart
V. E. Skoog Attn: Dick Hacek
W. E. Schwartz

8708 2

STATE OF OREGON INTEROFFICE MEMO

Contract Payments 378-6594 FILE: CON 5
DEPT. TELEPHONE

TO: H. S. Coulter
State Highway Engineer

DATE: October 17, 1979

R D Church for

FROM: C. T. Keasey
Ass't. State Highway Engineer

SUBJECT: Highway Project Acceptance

Contract	8908, Work Completed August 20, 1979
Project	Malheur River (Airport Rd.) Bridge
Highway	FAS B495
County	Malheur
Type of Work	Grading, Paving & Structure
Contractor	Douglas S. Coats Construction
Recommended Acceptance Date	October 18, 1979

The contractor has completed all work according to specifications and I recommend your acceptance of the project.

RDC:mk

APPROVED

for STATE HIGHWAY ENGINEER

Date 10-18-79

cc: Walter Hart
R. D. Church

10/22/79 Surety notified final to be paid after 10/29/79.

8908 9-27-79 FAS B495

Malheur River (Airport Rd.) Bridge
~~F.A.S. B 495~~
Malheur County
Contract 8908 Prefix 523-1066
F.A.P. No. RS-B 495(3)
P. F. Burnett, Resident Engineer

The purpose of this project was to replace a narrow bridge over the Malheur River on Airport Rd., south of Vale. The contract was awarded to Douglas S. Coats on May 8, 1979, work began on project May 21 and proceeded on a continuous basis until project was completed. Structure was opened to traffic July 31, 1979.

No major problems were encountered during the course of the project; however, there were a couple of incidental items worth mentioning:

1. Contractor had some difficulty installing splice tubes in square tubing. Apparently the thickness of the galvanizing takes up more space than allowed for in the splice joint.

2. Contractor came up with an innovative idea in bolting the bridge rail posts to the slabs. He suggested that rather than using the standard bolts for this, we use all thread rod. All thread could then be bent if necessary to facilitate placement of the posts. This method would eliminate the problems encountered when an insert in the slab is cocked.

3. We would like to recommend that funds be set up to have contractor transport salvaged bridge components to the county's yard at least in this county. The contractor is usually better equipped to load and transport these materials as well as coordinating the operations.

4. The plans and specifications for this project were very specific in spelling out the pay limits of the bridge rail, but did not mention where pay for Type III rail was to begin. It is questionable whether the transition section shown on sheet 33500 is to be paid for as Type III guardrail or should be bid by the contractor as part of the bridge rail. A statement clarifying this in the special provisions would be helpful. Post spacing in the transition section was also questioned by the contractor. We had him put posts in on 3'-1½" spacing after discussion with design department. They said the standard drawing was being revised to show this change.

P. F. Burnett, Resident Engineer

Versteeg
Andersen
I Christensen DC
Olson
Sullivan Copy
Terpin
Trout
Wakerlig

RECEIVED
SEP 27 1979
ROAD DESIGN SECTION

Do Not File ☐
Return To
Bring Up / /
Action

Project: Malheur River (Airport Rd.) Bridge
Highway: F.A.S. B495
County: Malheur
Contractor: Douglass S. Coats Construction Co.

Contract No. 8908
Prefix No. 523-1066
F.A.P. No. RS B 495(3)
P. F. Burnett, Res. Engr.

STATEMENT OF OVERRUNS AND UNDERRUNS

ITEM	ORIGINAL AMOUNT	SEMI-FINAL EST.	PERCENT + or -
Contract Bid Items	$180,800.00	$175,100.35	- 3.2%
Anticipated Items	100.00	0.00	-100.0%
Contingencies	8,140.50	0.00	-100.0%
Construction Engineering	16,281.00	14,000.00	- 14.0%
TOTAL	$205,321.50	$189,100.35	- 7.9%

All substantial changes were evaluated and only those listed below meaningfully affected the total project cost.

ITEM NO.	ITEM	UNIT	CONTRACT QUANTITY	SEMI-FINAL	% OVERRUN (+) % UNDERRUN (-)
Changes					
Item 3.	Toe Trench Original estimated quantity did not take existing diking and rip rap use into account at bent 3.	Cu.Yd.	220	98	-59%
Item 6.	Class "B" A. C. Reduction in quantity due to shortening taper sections at each end of project. This was discussed and approved by county prior to asphalt placement.	Ton	345.00	263.43	-24%
Item 12.	Loose Rip Rap Class 700 Existing Rip Rap utilized at bent 3.	Cu.Yd.	500	257.4	-49%

(10K

2

FORM 734-3001

OREGON STATE HIGHWAY DIVISION

FIELD ENGINEER'S WEEKLY REPORT

FOR CONSTRUCTION PROJECTS ONLY
CONSTRUCTION AND BRIDGE SECTION

SECTION: Malheur River (Airport Rd.) Bridge

WEEK ENDING: September 15, 1979

SECTION PREFIX: 523-1066

HIGHWAY: F. A. S. B-495

COUNTY: Malheur

NAME OF JOB: Malheur River (Airport Rd.) Bridge

KIND OF WORK: Grading, Paving and Structure

CONTRACTOR: Douglas S. Coats Construction Co.

CONTRACT NUMBER: 8908

FEDERAL AID PROJECT NUMBER: RS-B495(3)

DATE OF CONTRACT: May 8, 1979

DATE WORK STARTED: May 21, 1979

ESTIMATED COMPLETION DATE:

AVERAGE FORCE ON PROJECT FOR THE WEEK: MEN: 0 SUPERVISION: 0

SPECIFIED WORK DAYS:

WORK DAYS USED:

SPECIFIED CALENDAR DAYS:

CALENDAR DAYS USED:

SPECIFIED COMPLETION DATE: August 31, 1979

PERCENT OF TIME ELAPSED: 91

PROJECT AUTHORIZATION: $ 205,321.50

EXCLUSIVE OF ENGINEERING: $ 189,040.50

ENGINEERING AUTHORIZATION: $ 16,281.00

PERCENT OF CONTRACT COMPLETED BASED ON ESTIMATED COST: 100

ESTIMATED COST OF COMPLETED PROJECT, EXCLUSIVE OF ENGINEERING: $ 174,656.00

ENGINEERING COST TO DATE: $ 12,551.00

PERCENT OF CONTRACT COMPLETED BASED ON TOTAL AUTHORIZATION: 91

ESTIMATED PERCENT: ~~OVERRUN~~ UNDERRUN 8 %

PERCENT OF AUTHORIZATION 77 %

DATE PROJECT WAS COMPLETED: August 21, 1979

ESTIMATED PERCENT COMPLETE (ROADWORK)

CLEARING	DRAINAGE	GRADING	BASE	OIL AND/OR PAVE.	MAT'L. PROD.		
		100	100	100			

	GRADING	SURFACING	MAINTENANCE MATERIALS	OIL & BITUMINOUS MACADAM	PAVING
MILES IN PROJECT					
MILES PARTIALLY COMPLETED					
MILES COMPLETED					
TOTAL ESTIMATED QUANTITIES (CONTRACT)	550 cy				345 ton
TOTAL QUANTITIES CORRECTED TO DATE	586 cy				263 ton
ESTIMATED QUANTITIES MOVED OR PLACED TO DATE	586 cy				263 ton
AVERAGE DAILY QUANTITIES	0				0
AVERAGE DAILY QUANTITIES NECESSARY TO COMPLETE PROJECT ON TIME	0				
NUMBER OF SHIFTS PER DAY	0				0
HOURS PER SHIFT	0				0

EQUIPMENT USED DURING THE WEEK:

None

ESTIMATED PERCENT COMPLETE (STRUCTURES)

BRIDGE NO.	16375						
PERCENT	100						

		WEATHER	WORK DAYS CHARGED	HOURS DELAY	CAUSE OF DELAY
SUNDAY	9	Fair	0		
MONDAY	10	Fair, Clear	0		
TUESDAY	11	Clear, Fair	0		
WEDNESDAY	12	Clear, Fair	0		
THURSDAY	13	Clear, Fair	0		
FRIDAY	14	Clear, Fair	0		
SATURDAY	15	Clear, Fair	0		

RECEIVED
SEP 17 1979
CONSTRUCTION BRANCH
Keesey
Jackson
Hopkins
Williams
Johnson
Glenn
Richards
Berg
Inloes
Widmer
Gebauer
Church

GENERAL DESCRIPTION OF ACTIVITIES FOR THE WEEK

SUNDAY 9	No activity. Project completed
MONDAY	
TUESDAY	
WEDNESDAY	
THURSDAY	
FRIDAY	
SATURDAY	

REMARKS

Project completed.

Submitted semi-final September 14, 1979.
This will be the final report on this project.

SIGNED P. F. Burnett
P. F. Burnett, Res. Engr.
LOCATION Ontario

PRIME RESIDENT SUBMIT 2 COPIES. WHEN BRIDGES AND GRADING BOTH ARE INVOLVED, SUBMIT 3 COPIES.

SP-F216

#8768

U.S. DEPARTMENT OF TRANSPORTATION - FEDERAL HIGHWAY ADMINISTRATION 6-20-79

LETTER OF APPROVAL AND/OR AUTHORIZATION

FEDERAL AID PROJECT NO. B 3-495(2)

STATE PROJECT NO. See below

FROM:
G. L. Green, Division
Administrator
Salem, Oregon

PROGRAM NO.

ITEM NO. 80359

COUNTY NAME Malheur

PROGRAM STAGE (Check) ☐ 1. ☐ 2.

TO:
Mr. H. S. Coulter
State Highway Engineer, ODOT
Salem, Oregon

RECEIVED
STATE HWY ENGR
JUN 22 '79
REFER TO
[illegible]
FOR
Info | Invc | R/D | D/R | Sign | Act | File

6-27
orig to

DATE PS&E APPROVED

DATE AUTHORIZATION EFFECTIVE 6-20-79

FEDERAL ROUTE NUMBER Secondary B495

STATE ROUTE NUMBER County Road

GENERAL LOCATION:
Malheur River (Airport Road) Bridge Section

GENERAL DESCRIPTION OF WORK:
Program Change

YOU ARE AUTHORIZED TO PROCEED WITH THE WORK CHECKED BELOW

PRELIMINARY ENGINEERING TO DETERMINE
☐ LOCATION ONLY
PRELIMINARY ENGINEERING FOR SURVEY AND PLAN
☐ PREPARATION
☑ OTHER (Specify) Program Change
See Below

☐ ACQUISITION OF RIGHT-OF-WAY
CONSTRUCTION - ADVERTISE FOR RECEIPT
☐ OF BIDS
☐ CONSTRUCTION - PROCEED ON AN AGREED PRICE AND/OR FORCE ACCOUNT BASIS

REMARKS

As requested in Mr. Swan's letter of 6-1-79 I approve the revised Preliminary Engineering costs to a TEC of $13,300 with Federal participation limited to $11,400.

(Increase TEC $3,300 - F.F. $2,830)

DATE 6-20-79

SIGNATURE OF APPROVING OFFICIAL G.K. [illegible]

TITLE For Division Administrator

FORM PR-1240 (REV. 6-70) EXISTING STOCKS OF FORM PR-1240 (REV. 6-68) WILL BE USED

U.S. GOVERNMENT PRINTING OFFICE: [illegible]

8908

STATE COPY

OMB No. 04-R2089

TO BE COMPLETED BY FHWA MONTHLY TRANSACTION NO. 5-152	U. S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION FEDERAL-AID PROJECT AGREEMENT 5-21-79	State Oregon County Malheur Project No. RS-B495(3)

The State, through its Highway Agency, having complied, or hereby agreeing to comply, with the applicable terms and conditions set forth in (1) Title 23, U.S. Code, Highways, (2) the Regulations issued pursuant thereto and, (3) the policies and procedures promulgated by the Federal Highway Administrator relative to the above designated project, and the Federal Highway Administration having authorized certain work to proceed as evidenced by the date entered opposite the specific item of work, Federal funds are obligated for the project not to exceed the amount shown herein, the balance of the estimated total cost being an obligation of the State. Such obligation of Federal funds extends only to project costs incurred by the State after the Federal Highway Administration authorization to proceed with the project involving such costs.

PROJECT TERMINI

Co. Rd., 3.6 Mi S.W. of Vale

PROJECT CLASSIFICATION OR PHASE OF WORK	EFFECTIVE DATE OF AUTHORIZATION	APPROXIMATE LENGTH *(Miles)*
HIGHWAY PLANNING AND RESEARCH (HP & R)		
PRELIMINARY ENGINEERING		
RIGHTS-OF-WAY		
CONSTRUCTION	3-21-79	0.152
OTHER *(Specify)*		

FUNDS Pro Rata 88.1%

ESTIMATED TOTAL COST OF PROJECT	FEDERAL FUNDS
$205,186.00	$180,768.00

The State further stipulates that as a condition to payment of the Federal funds obligated, it accepts and will comply with the applicable provisions set forth on the reverse hereof.

OREGON STATE HIGHWAY DIVISION
(Official name of Highway Agency)

By

Assistant Highway Engineer
(Title)

For: W.S. Coulter

State Highway Engineer
(Title)

By

(Title)

U. S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

By
(Division Administrator)

For: G.L. Green

Date executed by Division Administrator MAY 21 1979

Form PR-2 (Rev. 10-75) PREVIOUS EDITIONS ARE OBSOLETE

AGREEMENT PROVISIONS

1. RESPONSIBILITY FOR WORK

a. Except for projects constructed under Certification Acceptance procedures, the State highway agency will perform the work, or cause it to be performed, in compliance with the approved plans and specifications or project proposal which, by reference, are made a part hereof.

b. With regard to projects performed under Certification Acceptance procedures, the State highway agency will perform the work, or cause it to be performed, in accordance with the terms of its approved Certification, or exceptions thereto as may have been approved by the Federal Highway Administration.

2. HIGHWAY PLANNING AND RESEARCH (HP&R) PROJECT. The State highway agency will (a) conduct or cause to be conducted, under its direct control, engineering and economic investigations of projects for future construction, together with highway research necessary in connection therewith, pursuant to the work program approved by the Federal Highway Administration and (b) prepare reports suitable for publication of the result of such investigations and research, but no report will be published without the prior approval of the Federal Highway Administration.

3. PROJECT FOR ADVANCE ACQUISITION OF RIGHTS-OF-WAY. In the event that actual construction of a road on this right-of-way is not undertaken by the close of the tenth fiscal year following the fiscal year in which this agreement is executed, the State highway agency will repay to the Federal Highway Administration the sum or sums of Federal funds paid to the highway agency under the terms of this agreement.

4. PRELIMINARY ENGINEERING PROJECT FOR PREPARATION OF RIGHT-OF-WAY PLANS OR FOR PREPARATION OF CONSTRUCTION PLANS, SPECIFICATIONS AND ESTIMATES. In the event that right-of-way acquisition for, or actual construction of the road for which this preliminary engineering is undertaken is not started by the close of the fifth fiscal year following the fiscal year in which this agreement is executed, the State highway agency will repay to the Federal Highway Administration the sum or sums of Federal funds paid to the highway agency under the terms of this agreement.

5. INTERSTATE SYSTEM PROJECT. (a) The State highway agency will not add or permit to be added, without the prior approval of the Federal Highway Administration any points of access to, or exit from, the project in addition to those approved in the plans and specifications for the project. (b) The State highway agency will not permit automotive service stations, or other commercial establishments for serving motor vehicle users, to be constructed or located on the right-of-way of the interstate system. (c) The State highway agency will not after June 30, 1968, permit the construction of any portion of the Interstate Route on which this project is located, including spurs and loops, as a toll road without the written concurrence of the Secretary of Transportation or his officially designated representative. The term 'toll road' does not include toll bridges or toll tunnels.

6. PROJECT FOR CONSTRUCTION IN ADVANCE OF APPORTIONMENT. (a) This project authorized pursuant to 23 U.S.C. 115 as amended, will be subject to all procedures and requirements, and conform to the standards applicable to projects on the system on which located, financed with the aid of Federal funds. (b) No obligation of previously apportioned Federal funds is created by this agreement, its purpose and intent being to provide that, upon application by the State highway agency, and approval thereof by the Federal Highway Administration, any Federal-aid funds of the class designated by the project number prefix, apportioned to the State under 23 U.S.C. 104 subsequent to the date of this agreement, may be used to reimburse the State for the Federal share of the cost of work done on the project.

7. STAGE CONSTRUCTION. The State highway agency agrees that all stages of construction necessary to provide the initially planned complete facility, within the limits of this project, will conform to at least the minimum values set by approved AASHTO design standards applicable to this class of highways, even though such additional work is financed without Federal-aid participation..

8. BOND ISSUE PROJECT. Construction, inspection and maintenance of the project will be accomplished in the same manner as for regular Federal-aid projects. No present or immediate obligation is created by this Agreement against Federal funds, its purpose and intent being to provide aid to the State, as authorized by 23 U.S.C. 122, for retiring maturities of the principal indebtednesss of the bonds referred to below. When the State requests Federal reimbursement to aid in the retirement of such bonds, the request will be supported by the appropriate certification required by 23 CFR Part 140, Subpart F, and Volume 1, Chapter 4, Section 8 of the Federal-Aid Highway Program Manual or the alternative State procedure set forth in the State's Certificate, and payment of the authorized Federal share will be made from appropriate funds available. If in any year there is no unobligated balance of any apportioned Federal funds available from which payments hereunder may be made, there will be no obligation on the part of the Federal Government on account of bond maturities for that year. Funds available to the highway agency for this project are the proceeds of bonds issued by the governmental unit indicated on the attached tabulation, pursuant to the authority and in the amounts by date of issue and beginning date of maturities set forth therein.

9. SPECIAL HIGHWAY PLANNING AND RESEARCH PROJECT. The State Highway agency hereby authorizes the Federal Highway Administration to charge the State's pro rata share of costs incurred against funds apportioned to the State under 23 U.S.C. 307 (c), as amended. In the event a project is financed with both Federal-aid funds and State matching funds, the State agrees to advance to The Federal Highway Administration the State matching funds for its share of the estimated cost. For a National Pooled Fund study, the State hereby assigns its responsibility for the work to the Federal Highway Administration. For an Intra-Regional Cooperative Study, the State herebv assigns its responsibility for the work to the lead State for the study.

10. PARKING REGULATION AND TRAFFIC CONTROL. The State highway agency will not permit any changes to be made in the provisions for parking regulations and traffic control as contained in the agreement between the State and the local unit of Government referred to in the paragraph on "Additional Provisions," without the prior approval of the Federal Highway Administration, unless the State determines, and the Division Administrator concurs, that the local unit of Government has a functioning traffic engineering unit with the demonstrated ability to apply and maintain sound traffic operations and control.

File

Oregon State Highway Division
Salem, Oregon, May 8, 1979

Federal-Aid Project
No. RS-B495(3)

MALHEUR RIVER (AIRPORT RD.) BRIDGE
COUNTY FAS B495
MALHEUR COUNTY

Project agreement estimate.

Type Code 6201
Roadway (Sta. 13+00 to Sta. 16+24) (Sta. 17+64 to Sta. 21+00)

Mobilization	All Required (23%)		$ 3,450.00
Embankment	All Required		5,000.00
Toe Trench Excavation	220 cu.yd.	10.00	2,200.00
Watering	20 M-gal.	10.00	200.00
1" - 0 Aggregate Base	550 cu.yd.	10.00	5,500.00
Class B Asphalt Concrete	345 ton	35.00	12,075.00
Guard Rail, Type 2A	100 lin.ft.	14.00	1,400.00
Guard Rail, Type 3	100 lin.ft.	30.00	3,000.00
Guard Rail Anchors, Type 1	4 each	300.00	1,200.00
Rail End Pieces, Type C	4 each	70.00	280.00
Type 1 Fence	125 lin.ft.	2.00	250.00
Loose Riprap, Class 700	500 cu.yd.	12.00	6,000.00
Filter Blanket	120 cu.yd.	10.00	1,200.00
			$ 41,755.00

Anticipated Items

Temporary Erosion Control	All Required		$ 100.00
	Subtotal		$ 41,855.00
	Engineering		5,650.00
	Total		$ 47,505.00

Type Code X080
Structure Bridge No. 16375 (Sta. 16+24 to Sta. 17+64)

Mobilization	All Required (77%)		$ 11,550.00
Bridge Removal Work	All Required		18,000.00
Shoring, Cribbing, Etc.	All Required		5,000.00
Structure Excavation	50 cu.yd.	20.00	1,000.00
Furnish HP 10x42 Steel Piling	540 lin.ft.	14.00	7,560.00
Drive Steel Piles	15 each	200.00	3,000.00
Splice Steel Piles	3 each	100.00	300.00

Structural Concrete, Class 3300 (50 cu.yd.)	All Required		$ 9,000.00
4' x 70'/75' Prestressed Slabs	14 each	5,000.00	70,000.00
Reinforcement (4,500 lb.)	All Required		1,800.00
Metal Rail with Tubing	263 lin.ft.	45.00	11,835.00
	Subtotal		$139,045.00
	Engineering		18,636.00
	Total		$157,681.00

Length of Roadway - - -	0.125 Mile
Length of Structure - -	0.027 Mile
Total Length - - - -	0.152 Mile
Cost of Roadway Per Mi.	$380,040.00

SUMMARY OF FUNDS (88.1%)

Description	Total Cost	Federal Funds	State Funds	County Funds
Roadway	$ 47,505	$ 41,851	$ 2,827	$ 2,827
Structure	157,681	138,917	9,382	9,382
Total	$205,186	$180,768	$12,209	$12,209

Group 1 - 100k%
Contract No. 8908
Prefix 523-1066

8908

April 13, 1979

Malheur County Court
Courthouse
Vale, Oregon 97918

Attn: Honorable E. M. Sewell
County Judge

Gentlemen:

On April 12, 1979, a satisfactory bid was received from Douglas S. Coats, Construction, P.O. Box 311, Bend, Oregon 97701 for the Malheur River (Airport Rd.) Br. Section, FAS 8495.

The county's advance deposit based upon the contractor's bid is as follows:

Bid Items	$180,800.00
Temp. Erosion Control	100.00
4½% Contingencies	8,140.50
9% Engineering	16,281.00
Est. Total Construction Costs	$205,321.50
Est. PE Costs	12,900.00
Est. Total Project Cost	$218,221.50
County's Advance Deposit will be:	
6% of $218,221.50 =	$ 13,093.29
Less PE Advance Deposit	715.00
	$ 13,808.29

Rec'd 5/7/79 Total Region & State

By rounding the County advance deposit will be $13,800.00.

Please make your check in the amount of $13,800.00, payable to the Oregon State Highway Division and send it to Highway Accounting, Room 434, Transportation Building, Salem, Oregon 97310.

This project will be awarded upon receipt of your advance deposit, which should be in this office no later than May 4, 1979.

Very truly yours,

Gerald Wimer
Local Government Engineer

WR:pf

bcc w/AD # 618: Vern Skoog - Please return completed AD # 618 when check is received.
Region 5 Federal Aid Engineer Roger Lang

8908

8

March 29, 1979

Malheur County Court
Courthouse
Vale, OR 97918

Attention: Robert L. Morcom
County Clerk

MISC. CONTRACTS and
AGREEMENTS No. 6994

Gentlemen:

Attached for your files is a fully executed copy of an agreement concerning the construction of the Malheur River Bridge Section of Airport Road in Malheur County.

We are retaining a fully executed copy of this agreement for the Transportation Commission's files.

Sincerely,

C. W. Mead
COMMISSION SERVICES

bkr

Enclosure

bc: Gerald Wimer (agreement attached)

8908

RIGHT OF WAY SECTION
RECEIVED

OREGON STATE HIGHWAY DIVISION
117 DOT Building
Salem, Oregon 97310

Attention: Right-of-Way Section

Subject: Federal Aid Project No. RS-B495(2)
Project Name Malheur River (Airport Road) Br.
FAS-B495

Regarding the above referred to federal aid project, we hereby certify that to the best of our knowledge and belief:

A. Existing Right-of-Way

☐ 1. All construction can be accomplished completely within the existing right-of-way. This existing right-of-way was acquired prior to January 2, 1971.

B. New Right-of-Way

☒ 1. This project required additional right-of-way purchased after January 2, 1971. Right-of-way, easements, or rights-of-entry required for this project have been secured in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, and all incidental charges related to the transfer of property has been or will be paid by the ~~city~~ county in accordance with said Act.

☒ a. There has been no displacement of persons from residences, farms or businesses.

OR

☐ b. There has been displacement of persons from either residences, farms or businesses and in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, displaced persons, businesses, or farm operations have been provided relocation payments, if eligible, and relocation assistance. Displaced individuals or families have been relocated to decent, safe and sanitary housing or have been offered decent, safe, sanitary and fair housing immediately available on the open market.

C. Utilities

☒ 1. The occupancy and/or adjustment of existing utilities within the right-of-way of the above referred to federal aid project have been authorized by permit, franchise, or other approved procedure.

Signed at Vale, Oregon, this 26 day of March, 1979

County of Malheur

County Judge/Chairman

Commissioner

Commissioner

Certified By:

~~Regional Right-of-Way Supervisor~~ Agent
Date 3-28-79

Instructions: Complete A or B and C.
R/W File No. ______
Rev. 1/76

8908

3-21-79

U.S. DEPARTMENT OF TRANSPORTATION - FEDERAL HIGHWAY ADMINISTRATION

LETTER OF APPROVAL AI OR AUTHORIZATION

FEDERAL AID PROJECT NO. RS-B-495(3)

STATE   .CT NO. See below

COUNTY NAME Malheur

PROGRAM STAGE (Check) ☐ 1. ☐ 2.

FROM:

G. L. Green, Division Administrator
Salem, Oregon

PROGRAM NO.

ITEM NO. 90142

TO:

Mr. H. S. Coulter
State Highway Engineer, ODOT
Salem, Oregon

RECEIVED
STATE HWY ENGR
MAR 22'79
REFER TO
Mackenzie
FOR /

Info	Inves.	R/D	D:R	Sign	Act	File

DATE PS & E APPROVED	DATE AUTHORIZATION EFFECTIVE	FEDERAL ROUTE NUMBER
3-21-79	3-21-79	Secondary B-495
		STATE ROUTE NUMBER County Road

GENERAL LOCATION:

Malheur River (Airport Rd.) Bridge Section

GENERAL DESCRIPTION OF WORK:

Construct One Bridge

YOU ARE AUTHORIZED TO PROCEED WITH THE WORK CHECKED BELOW

PRELIMINARY ENGINEERING TO DETERMINE
☐ LOCATION ONLY
PRELIMINARY ENGINEERING FOR SURVEY AND PLAN
☐ PREPARATION
☒ OTHER (Specify) See below

☐ ACQUISITION OF RIGHT-OF-WAY
CONSTRUCTION - ADVERTISE FOR RECEIPT
☒ OF BIDS
☐ CONSTRUCTION - PROCEED ON AN AGREED PRICE AND/OR FORCE ACCOUNT BASIS

REMARKS

As requested in Mr. Swan's 3-19-79 letter you are authorized to proceed with actions necessary to advance to completion the physical construction provided for by the above project at a total estimated cost of $220,000 - Federal Funds $193,800 in accordance with the provisions of your approved Secondary Road Plan. If you subsequently find that exceptions to the procedure will be needed or that your proposed design standards for this project are lower than the minimum design standards as approved May 13, 1970, this office should be notified of such proposed exceptions and reasons thereof.

I accept the certification of Mr. Rod Henry, dated March 19, 1979, that provisions of FHPM 7-5-1 have been complied with and you are now authorized to advertise for bids.

DATE	SIGNATURE OF APPROVING OFFICIAL	TITLE
3-21-79	E J Holach	for Division Administrator

FORM PR-1240 (REV. 8-70) EXISTING STOCKS OF FORM PR-1240 (REV. 6-66) WILL BE USED

☆ U.S. GOVERNMENT PRINTING OFFICE: 1976—626-787

8908

9

DATE: March 20, 1979

TO: Glen L. Green, Division Administrator
Federal Highway Administration

FROM:
H. S. Coulter
State Highway Engineer

SUBJECT: Oregon Project RS-B487(-)
Malheur R. (Airport Rd.) Bridge Section
Bridge No. 16375
Malheur County

Re: Letter of March 9, 1979

As per the requirements on all federal-aid projects, the subject site was studied for the effects to be seen from the "basic" flood. The highest flood runoff at the site was placed in the 23-year flood frequency range by use of the Log-Pearson Type III distribution method approved for use by federal agencies.

As mentioned in the attached copy of the hydraulics report on the project, bankfull capacity is about 10,000 cfs. Runoff above this rate spreads out across a very wide flood plain so that large increases in runoff are reflected by only minor increases in stage. This is a replacement of bridge only with no elevation of the road profile on either end of the bridge. We are, therefore, maintaining status quo at the site.

Attachment

RLL:ge jh
bc W. J. Hart
F. E. Terpin
R. L. Lenz

Form FHWA 121 (Rev. 5-73)

UNITED STATES GOVERNMENT

Memorandum

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
The Equitable Center, Suite 100
530 Center NE. - Salem OR 97301

DATE: March 9, 1979

In reply refer to: HBR-OR

SUBJECT: Oregon Project RS-B487(-)
Malheur R. (Airport Rd.) Br. Section
Bridge 16375
Malheur County

FROM : G. L. Green, Division Administrator

TO : Mr. H. S. Coulter, State Highway Engineer, ODOT

A brief review of the plan sheet on the above structure shows a 23-year flood frequency used for design. We assume that you have studied the site and evaluated the flood hazard of the "basic flood" and that any encroachment on the flood plain will permit conveyance of the water without increasing flood height or velocities to an extent that would cause significant upstream or downstream damages. Please note that these are requirements on all Federal-aid projects (see FAP Vol. 6, Ch. 7, Sec. 3, Subsec. 2, Attach. 1, Pg. 1).

G.K. Hosner
for G. L. Green

cc:
W. J. Hart (ODOT)
R. L. Lenz (ODOT)

RECEIVED
STATE HWY ENGR
MAR 12 '79
REFER TO.
Turpin
FOR

Info	Inves	R/D	D/R	Sign	Act	File

RECEIVED
MAR 14 1979
LOCATION
SECTION

FORM 81-734-3030

OREGON STATE HIGHWAY DIVISION

FILE:

INTER-OFFICE CORRESPONDENCE
Salem, Oregon
January 9, 1979

David W. Bryson

FROM: David W. Bryson
Assistant Hydraulics Engineer

SUBJECT: Malheur River (Airport Rd) Bridge
FAS B495
Malheur County

TO: MEMO TO THE FILES

The proposed project will replace an existing 164-foot long, four-span, steel beam structure on the same alignment.

HYDROLOGY

The Malheur River is a west-east tributary of the Snake River and drains an area of approximately 3255 square miles above the proposed bridge site. Forty-two years of stream gage records were available from gage number 13-2200 which drains an area of approximately 3010 square miles. Flow in the river has been regulated by Warm Springs Reservoir since 1919 and Beulah Reservoir since 1935, so stream gage records prior to 1935 were not used in determining the frequency vs discharge relationship as only one reservoir was in operation prior to 1935. Some flow is also diverted for irrigation during the summer months. The frequency vs regulated discharge relationship for the bridge site is listed below based on a statistical analysis of the gage data using a Log-Pearson Type III distribution. These values were adjusted to reflect the difference in drainage area between the gage and the bridge.

Recurrence Interval	Peak Flow
100-year	22810 cfs
50-year	18050 cfs
25-year	13730 cfs
10-year	8920 cfs
5-year	5850 cfs

The largest flood of record occurred February 24, 1957 when a discharge of 12300 cfs was measured at the gage. Estimated peak for this same flood at the bridge site would be approximately 13300 cfs (23-year recurrence interval).

HYDRAULIC DESIGN

The February 1957 flood of 13300 cfs was chosen as the design flood. Estimated design highwater at the bridge site is 98.9 feet (assumed datum). The existing 164-foot structure will create approximately 1.5 feet of backwater during the design flood. If the existing pile bents were encased in concrete, the structure would only create approximately 1.0 feet of backwater.

For this crossing it is suggested that status quo conditions be maintained. A three-span, 142-foot long structure with concrete-encased bents would create 1.6 feet of backwater during the design flood. This design assumes that the existing northerly span has been eliminated. During the design flood,roadway overflow will occur in the sag south of the structure which acts as an overflow channel. It is suggested that this overflow pattern be maintained.

Bankful capacity of the river is approximately 10200 cfs (13-year recurrence interval) which corresponds to elevation 98.0 feet (assumed datum). The river has a relatively wide, flat floodplain, and once the river exceeds bankful stage a large increase in discharge will only result in a small increase in stage. Therefore, it is estimated that the 100-year flood of 22810 cfs would correspond to a stage of 100.0 feet (assumed datum).

RIPRAP

It is suggested that the fill slopes be protected with a 3-foot blanket of Class 700 loose riprap. A filter blanket will be required and this may be either a 9-inch layer of 4"-0 to 6"-0 river-run gravel or crushed rock. The riprap should be placed in a toe trench. It is suggested that piers in the channel be protected with special footing backfill as specified in Section 251.12 of the Standard Specifications.

DWB:lt

cc: F. Terpin
W. Hart
J. Davis
D. Christensen
D. Harwell
W. Schwartz

HYDRAULIC DATA

	DESIGN FLOOD	INTERMEDIATE REGIONAL FLOOD	MAXIMUM FLOOD YEAR (1957)
Discharge - cfs	13300	22810	13300
Discharge - m³/s			
Frequency - yrs	23	100	23
H.W. Elevation Natural Channel ft.	98.9	100.0	98.9
H.W. Elevation Natural Channel m.			
H.W. Elevation Channel Change ft.	—	—	—
H.W. Elevation Channel Change m.			
Average Velocity fps	12.0-12.5		12.0-12.5
Average Velocity mps			

NOTE FOR A CANAL: "DESIGN FLOOD" = Design Flow
"Discharge" = Capacity

REMARKS:

OREGON STATE HIGHWAY DIVISION
HYDRAULICS UNIT

Malheur River (Airport Rd.) Bridge
Airport Road (FAS B495)
Malheur County

COMPILED BY: Dave Bryson

DATE: December 21, 1978

8908

PRESIDENT EORGE CALVERT — JOSEPHINE COUNTY
FIRST VICE PRES. EARLE C. MISENER — UNION COUNTY
SECOND VICE PRES. • STAN SKOKO — CLACKAMAS COUNTY
TREASURER • F. E. KNIGHT — TILLAMOOK COUNTY

LOCAL GOVERNMENT CENTER
1201 COURT STREET N.E.
P.O. BOX 12729
SALEM, OREGON 97309
(503) 585-8351

ASSOCIATION OF OREGON COUNTIES

P. JERRY ORRICK, EXECUTIVE DIRECTOR

March 19, 1979

Mr. Gerald Wimer
Local Government Manager
Department of Transportation
Room 207
Salem, OR 97310

Re: Malheur R. (Airport Rd.) Br. Section
Malheur County FAS-C B-~~487~~ 495

Dear Jerry:

The AOC Board of Directors this date authorized the advancement of the subject project based upon:

1. Malheur County is number five on the FAS-C priority list with a reserve of $286,000 and receiving $138,000 of federal funds annually.
2. That this $260,000 project can be advanced now, hopefully at the April 12 bid opening, without delaying any previously authorized projects.
3. The AOC Technical Advisory Committee will review this matter Thursday, March 22, and hopefully support the board in its action. You may proceed as though they concur.

Sincerely,

Bill Penhollow
Executive Assistant

lp

PROJECT MANAGEMENT
PME ☐ CCE ☐ OM ☐
LGE W FAE ☐ OPE ☐
MAR 19 1979
File: PM FA
TA Reynoldson LG OP

cc H. S. Coulter
Roger Long
D.E Swan
Walt Hart
Jack Sullivan
D.O. Christensen

Sent 3-19-79 HW

8908

Department of Transportation

TRANSPORTATION BUILDING, SALEM, OREGON 97310

March 19, 1979

TO: G. L. Green, Division Administrator
Federal Highway Administration

FROM: D. E. Swan
Federal Aid Manager

SUBJECT: Project Data Submission
Item No. 90142
Project No. RS-B495(3)
Malheur River (Airport Rd.) Br. Sec.
Malheur County

Attached support data consists of PR-1 forms with project maps.

It is the Oregon State Highway Division's present intention to receive bids for this project on April 12, 1979.

We request authorization for construction at an estimated total cost of $220,000 with an obligation of $193,800 in Federal funds.

JLG:tmw

Attachments

cc: W. E. Schwartz, (Region 5)
[redacted]

Budget Bureau No. 41-R2067
U.S.

FORM PR-1
(REV. 4-61)

FEDERAL-AID PROGRAM DATA

(PPM 21-1)

MONTHLY TRANSACTION NO.

DATE SUBMITTED TO W.O. 3-16-79

CARD 2	REPORT NUMBER (19) (20)	PROJECT LOCATION (45 typewriter spaces) 21 Co. Rd., 3.6 mi. S.W. of Vale 65	ADT	PRESENT 80 DHV 10	FUTURE 120 (66) (70)	YEAR 99 (71) (72)	REGION 10	STATE NAME Oregon	
CARD 3	CHARACTER OF PROPOSED WORK (35 typewriter spaces) 28 One Bridge 62	NATL. FOREST (63) (65)	FH ROUTE NO. (66) (68)	SUPV. AGCY (69)	DA CLASSIF. (70)	DA AREA (71)	EMERG. YR. (72) (73)	PL. AUTH YR (74) (75)	PROJECT NUMBER PREFIX LETTER(S) 14 RS- 23 NUMBER 7 B495
CARD	CLASS OF FEDERAL FUNDS Rural Secondary							COUNTY NAME Malheur	
	NAME OF URBAN AREA 17-31 ----							ROUTE NO. S	FEDERAL-AID B495 (33)
								STATE Co. Rd. (36)	U.S. (37) ---

ESTIMATED PROJECT COST BY PHASES

CARD	LINE NO.	CHANGE CODE	PROJECT CODE	WORK CLASS	WORK TYPE	STEP	TERMINI (Full description)	MILES	TOTAL ESTIMATED COST	FEDERAL FUNDS 88.1%	STATE FUNDS	OTHER FUNDS
1	(14-15)	(16)	41	42	43 46	53		(54) (58)	(59) (66)	(67) (76)		
5					**PE**		"Malheur Riv. (Airport Rd.) Br. Section"					
5					**ROW**							
5					**CONST** (CODE) X080			0.152	220,000	193,800	13,100	13,100 (Co.)

CARD 1	CODE 1	PREPARED BY JLG	PROJECT TOTALS	0.152	220,000	193,800	13,100	13,100 (Co.)
				(10)	(23) (24)	(30)	REMARKS	
1	14	PROGRAM APPROVAL DATES						

REMARKS

Additional Data: Item No
No. RS-B495(2).

Budget Bureau No. 41-R2067; Approval Expires February 28, 1966

FORM PR-1
(REV. 4-61)

U.S. DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS

FEDERAL-AID PROGRAM DATA

(PPM 21-1)

3-16-79

ECT LOCATION (45 typewriter spaces)	ADT	PRESENT	FUTURE	YEAR	REGION	STATE NAME	STATE CODE	APPN CODE	ITEM NO.
Rd., 3.6 mi. S.W. of Vale		80 DHV 10	120	99	10	Oregon	41	075	90142

ORK (35 typewriter	NATL. FOREST	FH ROUTE NO.	SUPV AGCY	DA CLASSIF.	DA AREA	EMERG. YR.	PL. AUTH YR	PROJECT NUMBER PREFIX LETTER(S)	NUMBER	SEQ. NO.	I. Projects Only POST MI.	DESIG.
								RS-	B495	(3)		

Rural Secondary	COUNTY NAME Malheur	CODE 045
----	ROUTE NO. S — FEDERAL-AID B495 — STATE Co. Rd. — U.S. ---	PROGRAM STAGE ☐ 1 OR ☐ 2

ESTIMATED PROJECT COST BY PHASES

ORK TYPE	STEP	TERMINI (Full description)	MILES	TOTAL ESTIMATED COST	FEDERAL FUNDS 88.1%	STATE FUNDS	OTHER FUNDS	CHARACTER OF PROPOSED WORK (Full description)
								Util. adj. as req.
W								
NST DE) 80		"Malheur Riv. (Airport Rd.) Br. Section"	0.152	220,000	193,800	13,100	13,100 (Co.)	ROW-60' normal; Access Control-none; Parking Restrictions-none.
JLG		PROJECT TOTALS	0.152	220,000	193,800	13,100	13,100 (Co.)	

VAL DATES

REMARKS

Additional Data: Item No. 80359; Project No. RS-B495(2).

-over-

USCOMM-DC 48305-P61

MALHEUR RIV. (AIRPORT RD.) BR. SECTION
PROJECT NO. RS-B495(3)

Project Data: Construct, on existing alignment, a prestressed concrete slab span bridge (Br. No. 16375) 140 feet long with horizontal clearance of 27.5 feet, remove existing structure, grade and pave necessary approach roadways, install required guardrail and perform incidental work common to this type of project. Adjust utilities as required.

Accommodation of Utilities: A State-County agreement is being prepared to comply with paragraph 6d(1) of PPM 30-4.1.

Maintenance: A State-County agreement is being prepared to comply with Section 116, Title 23 U.S.C.

Note: This project is in Congressional District No. 2.

8908

The County of Malheur

Office of the County Court
COURTHOUSE

(503) 473-3123

P.O. BOX 130
VALE, OREGON 97918

PROJECT MANAGEMENT
PME ☐ CCE ☐ OM ☐
LGE ☒ FAE ☐ OPE ☐
MAR 20 1979
TAA
File: PM FA [✓ LG] OP

March 15, 1979

Mr. Bill Penhollow
Association of Oregon Counties
Local Government Center
P. O. Box 12729
Salem, Oregon 97309

Dear Mr. Penhollow:

After a visit with Roger Lang, the County Court decided we should write this letter requesting that you and your Board of Directors approve the monies for construction of the Malheur River (Airport Road) bridge.

The reasons we feel that this bridge should be funded now are:

1. That the present bridge is a very narrow, substandard bridge.
2. We were informed that it would be approved when the funds were available.
3. The funds seem to be available as the unobligated balance as of January 1, 1979 was $5,496,000 according to the state chart that we have (copy enclosed).
4. Our bridge project is ready to go to bids right now, so we are ready to start constuction. This puts us ahead of many of the projects that you have money committed to.

We feel the emergency exists because we need this bridge constructed before fall harvest. This bridge carries many tons of potatoes, sugar beets and other farm crops so it should be completed by at least September 1, 1979. So as you can see the time element is very important.

We wish to thank you for your consideration in this matter.

Sincerely,

MALHEUR COUNTY COURT

E. M. Seuell

E. M. Seuell
Malheur County Judge

EMS:lp

cc: Gerald Wimer
Roger Lang

FAS-C FUN[illegible]ATUS FY '54 - FY '79 January 1, 1979

COUNTY	FEDERAL F[illegible]									
	TOTAL ALLOTMENT	COMMITTED	BALANCE	TOTAL FUNDS	YEAR'S ALLOT.	YEAR'S :	PRIORITY		PRIORITY	COUNTY
BAKER	1,095,467	874,904	220,563	251,000	65,000	3.7			1	Jeff.
BENTON	1,411,087	1,389,051	22,036	25,000	95,000	0.3			2	Klamath
CLACKAMAS	4,404,919	4,566,429	-161,510	-184,000	254,000	-0.7			3	Baker
CLATSOP	1,324,882	1,536,540	-211,658	-341,000	90,000	-2.6			4	Douglas
COLUMBIA	1,572,866	1,806,923	-234,057	-266,000	108,000	-2.4			5	Malheur
COOS	2,237,432	2,153,319	84,113	96,000	148,000	0.6			6	Mult.
CROOK	1,106,091	1,224,458	-118,367	-135,000	72,000	-1.8			7	Desch.
CURRY	1,050,205	1,098,241	-48,036	-55,000	73,000	-0.7			8	Polk
DESCHUTES	1,395,877	1,240,176	155,701	177,000	98,000	1.7			9	Gilliam
DOUGLAS	3,216,513	2,677,110	539,403	613,000	229,000	2.6			10	Marion
GILLIAM	775,950	714,536	61,414	70,000	48,000	1.5			11	Wheeler
GRANT	981,304	961,508	19,796	23,000	62,000	0.4			12	Harney
HARNEY	1,129,102	1,049,370	79,732	91,000	71,000	1.2			13	Sherman
HOOD RIVER	1,125,777	1,432,428	-306,651	-348,000	73,000	-4.6			14	Coos
JACKSON	2,753,279	2,765,492	-12,213	-14,000	315,000	-0.1			15	Wallowa
JEFFERSON	1,022,341	723,308	299,033	340,000	68,000	4.7			16	Morrow
JOSEPHINE	1,545,103	1,990,517	-445,414	-506,000	110,000	-4.4			17	Lane
KLAMATH	1,912,922	1,532,515	380,407	432,000	101,000	4.1			18	Grant
LAKE	1,106,390	1,146,149	-39,759	-45,000	61,000	-0.7			19	Benton
LANE	4,553,142	4,440,249	112,893	128,000	265,000	0.5			20	Jackson
LINCOLN	1,500,613	1,656,280	-155,667	-177,000	101,000	-1.7			21	Umatilla
LINN	2,745,682	2,862,137	-116,455	-132,000	197,000	-0.6			22	Linn
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]			23	Clack.
MARION	3,773,649	3,496,043	277,606	315,000	228,000	1.3			24	Lake
MORROW	1,057,950	1,029,344	28,606	33,000	65,000	0.5			25	Curry
MULTNOMAH	4,947,594	4,821,636	125,958	143,000	74000	1.7			26	Wasco
POLK	1,546,828	1,410,904	135,924	154,000	92,000	1.6			27	Union
SHERMAN	729,826	696,708	33,118	38,000	45,000	0.8			28	Wash.
TILLAMOOK	1,397,809	1,578,530	-180,721	-205,000	92,000	-2.2			29	Lincoln
UMATILLA	2,485,879	2,520,664	-34,785	-40,000	168,000	-0.2			30	Crook
UNION	1,101,014	1,189,746	-88,732	-101,000	73,000	-1.3			31	Tillamook
WALLOWA	1,006,482	970,992	35,490	40,000	62,000	0.6			32	Yamhill
WASCO	1,133,819	1,196,488	-62,669	-71,000	73,000	-0.9			33	Columb.
WASHINGTON	3,652,019	3,888,382	-236,363	-269,000	167,000	-1.5			34	Clatsop
WHEELER	685,555	639,618	45,937	52,000	40,000	1.3			35	Joseph.
YAMHILL	1,817,965	2,053,894	-235,929	-268,000	116,000	-2.2			36	Hood Riv.
BALANCE	67,445,420	67,324,954	320,466	330,000	4,034,000					
UNOBLIGATED BALANCE		(1/1/79)	5,496,000							

— as of Jan 1

☐ RE ☐ RCE ☐ RME ☐ ROE

☐ RFA JAN 22 1979 ☐

RECEIVED
REGION 5 OFFICE

8908

ROBERT W. STRAUB
GOVERNOR

Department of Transportation
STATE HIGHWAY DIVISION

REGION 5 OFFICE

W. E. Schwartz
Region Engineer

P. O. Box 850 La Grande, Oregon 97850 Telephone 963-3177

March 13, 1979

The ~~Hon. Ernest~~ Seuell
Malheur County Court
251 B Street W
Vale, Oregon 97918

Dear Judge Seuell:

Re: Final Estimate
Malheur River (Airport Road) Bridge Section

Enclosed is a copy of the latest available estimate for the Malheur River (Airport Road) Bridge Section. Tabulation at the bottom of page 1 shows the estimated Preliminary Engineering costs, the amount of deposits to date and the anticipated deposit based on the estimated construction cost.

The Construction Estimate must remain confidential in order to receive fair and impartial bids from all prospective bidders and shall remain confidential until the low bidder has executed the contract documents.

Do not hesitate to call me if you have any questions.

Sincerely,

Roger C Lang

Roger C. Lang
Region Federal Aid Engineer

RCL:vt
Enc.
cc: Gerald Wimer
P. F. Burnett

Form 734-3122

8708

8

STATE OF OREGON

INTEROFFICE MEMO

TO: H. S. Coulter
State Highway Engineer

DATE: March 12, 1979

FROM: Gerald W. Wimer
Local Government Manager

SUBJECT: Malheur R. (Airport Rd.) Br. Section
Malheur County FAS-C B-487

The Association of Oregon Counties Technical Advisory Committee (AOC-TAC) agreed last year to early preliminary engineering (PE) on this and other projects. The Oregon Transportation Commission authorized early PE on this project July 18, 1978.

My sickness January 11 prevented my presenting to the AOC-TAC advancing such projects to construction where this could be done without delaying any previously authorized projects. My discussions with that committee February 1 and 22 pointed to the desirability of advancing at least some of the PE projects. With the closeness of the May 1 application cut-off date, and knowing of no imminent projects, we agreed my office should propose written guidelines for advancing such projects.

The subject project, though, advanced quicker than anticipated. The matter was discussed with Bill Penhollow, Dave Moehring and Roger Lang. Lang says the County is writing AOC for early authorization of project. Bill Penhollow promises to submit that letter to his Board of Directors March 22. With Malheur County number 5 on the priority list, a reserve of $286,000 and receiving $138,000 of Federal Funds annually towards this $260,000 project he anticipates no problem. He asks that we restore this project to the April 12 bid opening. Land Board review necessitates a two week advertisement. This allows reopening the roadway before harvest season.

Region and this office investigated the project and recommend it for financing under the FAS-C Program with the understanding we will remove it from the advertisement before March 28 if the AOC Board doesn't agree with advancing this project. State and County each provide $15,600 to match $228,800 Federal Funds. Please authorize construction of this project under delegated authority.

D. E. Swan: Please Process

NOTED
F. B. KLABOE

cc w/attachments: ✓
F. B. Klaboe ✓
E. S. Hunter
D. H. Moehring
C. T. Keasey
R. L. Schroeder
L. W. Rulien
George Bell
J. H. Versteeg
L. E. George
F. E. Terpin
W. T. Hart

J. B. Boyd
R. Trygstad
G. Potter
D. O. Christensen
J. Sullivan
F. W. Yarbrough
J. Maness
G. W. Wimer (3)
Frank Lowe
Region 5:
  W. E. Schwartz
  Roger Lang
  Harold Brainard

3-12
orig to Head
c4 Moehring

APPROVED BY:

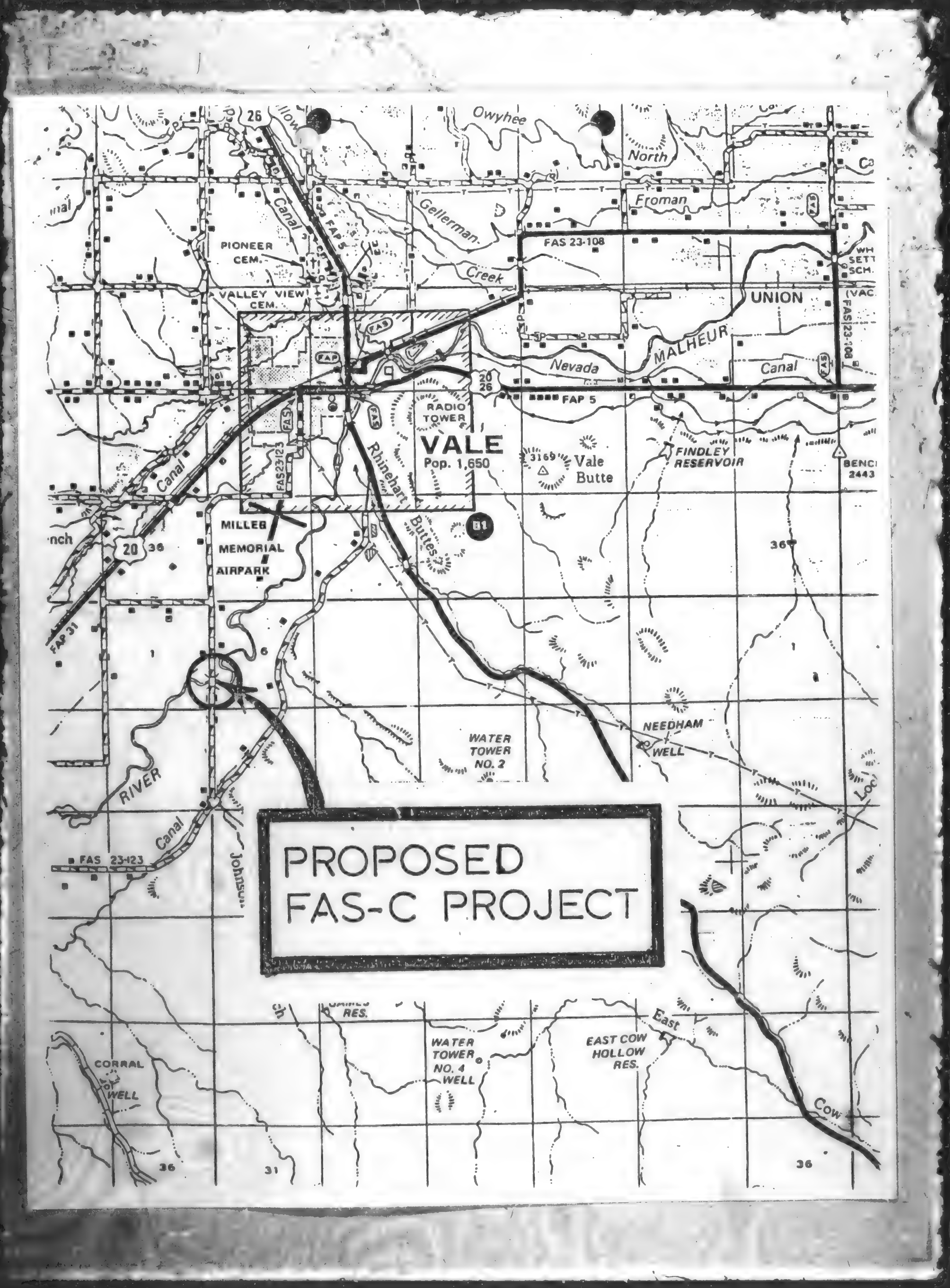
H S Coulter
State Highway Engineer

Date 3/12/79

RECEIVED
DOT DIRECTOR
MAR 16 '79
REFER TO
FOR

Info	Answer	R/D	D/R	Sign	Act	File

11-125-1887


PROPOSED
FAS-C PROJECT
VALE
Pop. 1,650
Owyhee
North
Froman
Gellerman
Creek
FAS 23-108
UNION
MALHEUR
Nevada
Canal
FAP 5
PIONEER CEM.
VALLEY VIEW CEM.
Canal
RADIO TOWER
3169
Vale Butte
FINDLEY RESERVOIR
BENCH 2443
Rhinehart Buttes
MILLER MEMORIAL AIRPARK
20
26
FAP 31
FAS 23-123
RIVER
Canal
Johnson
WATER TOWER NO. 2
NEEDHAM WELL
WATER TOWER NO. 4 WELL
EAST COW HOLLOW RES.
East
Cow
CORRAL WELL
RES.
36
31

10

Section Malheur R. (Airport Rd) Bridge Programming Estimate $

Highway FAS B495 Project Length

County Malheur Completion Time

Kind of Work Grade, Pave & Structure

Prefix 523-1975 FA Project No.

ROUTING SLIP—DEPT. OF TRANSPORTATION Date: 3-8-79

Director
Chief of Operations
Asst. Dir.-Administration
Asst. Dir.-Transportation Policy & Program Develop.
Accounting (Highway)
Administrative Services
Chief Counsel
Commission Services
Construction
Data Processing (Trans. Bldg.)
Employee Development
Engineering (Design)
Environmental
Equipment Shops & Storeroom
Finance (DOT)
FHWA

General Files
General Services (DOT)
Information Systems (Lana Ave.)
Labor Relations
Landscape
Library
Location
Mail Room
Maintenance
Materials & Research
Motor Vehicles
Organization & Manpower Services
Parks & Recreation
Permits & Weighmaster
Personnel Operations
Photocopy
Proj. Mgmt. & Operations Planning

Public Affairs
Public Transit
Radio
Right of Way
Safety & Health Services
Sign Shop
State Highway Engineer
Structures
Technical Services Engineer
Traffic Support Services
Transportation Policy & Program Development
Travel Information
Utilities
Metropolitan
[✓ Region Number 5]
District Number

ATTENTION: Roger Long.

FROM: Proj. Mgmt.

COMMENTS: Please inform the county.

Form 731-0022 (7/76) SP*70663-734

CONSTRUCTION AUTHORIZATION

Contract Amount $ 195,524^{00}

✓ 100

$ 100

Misc. Permit Fees

$ 195,624^{00}

Contingencies (4-1/2%) . . . . 8,803^{05}

Engineering (9 %) . . . . 17,606^{16}

~~SUBTOTAL~~ $

~~[illegible]~~

Estimated Net Authorization, Construction . . . . $ 222,033^{24}

Est. PE Costs	10,000.00
Est Project Cost	232,033^{24}
Less Advance Deposit for PE	715 00
	221,318^{24}

APPROVED

Road Design Engineer

Est. County share 6% of 231,318.24 = $13,879^{09}

Section Malheur R. (Airport Rd) Bridge Programming Estimate $

Highway FAS B495 Project Length

County Malheur Completion Time

Kind of Work Grade, Pave & Structure

Prefix 523-1975 FA Project No.

ESTIMATED CONSTRUCTION AUTHORIZATION

Estimated Contract Amount		$ 195,524.00
Anticipated Additional Items:		
Royalty Payment		
Building Permit Fees		
Slide Correction		
Railroad Protective Costs		
Other Railroad Costs		
Permanent Signing		
Permanent Pavement Striping		
Temporary Pavement Striping		
Remove Pavement Striping (Exist. & Temp.)		
Temporary Erosion Control	✓ 100	
State Furnished		
Install Water Meter		$ 100
Furnish Water		
Laboratory Fees		
On the Job Trainees		
State Responsibility for Damages		
Signal Controller Testing		
Bikeway Signs		
Furnish Mail Box Posts		
Adjust Utilities		
Misc. Permit Fees		
		$ 195,624.00
Contingencies (4-1/2%)		8,803.08
Engineering (9 %)		17,606.16
	~~SUBTOTAL~~	$
~~[illegible]~~		
Estimated Net Authorization, Construction		$ 222,033.24
	Est. PE Costs	10,000.00
	Est Project Cost	232,033.24
	Less Advance Deposit for PE	715.00
		221,318.24

APPROVED

Road Design Engineer

Est. County share 6% of 231,318.24 = $13,879.09

OREGON STATE HIGHWAY DIVISION
SUMMARY--BID SCHEDULE--COST ESTIMATE

Sheet 1 of 2
Date
Section Malheur River (Airport Rd) Br.
County
Kind Of Work
Length
Name Day

3-6-79

No	Item	Code	Unit	Quant.	Unit Cost	Total
	Mobilization (9%)		All	All		16,000
						—
	Embankment in Place		All	All	—	3000^{00}
	Toe Trench Excavation		Cu Yd	220	10^{00}	2200
	Watering		M-Gal	20	15^{00}	300
	1"-0 Aggregate Base		Cu Yd	550	12^{00}	6600
	Class "B" Asphalt Concrete		Ton	345	33^{00}	11,385
	Guard Rail, Type 2A		Lin Ft	100	15^{00}	1,500
	Guard Rail, Type 3		Lin Ft	100	25^{00}	2,500
	Guard Rail Anchor, Type 1		Each	4	300^{00}	1,200
	Rail End Posts, Type C		Each	4	125^{00}	500
	Type 1 Fence		Lin Ft	125	5^{00}	625
	Loose Riprap, Class 700		Cu Yd	500	20^{00}	10,000
	Filter Blanket		Cu Yd	120	15^{00}	1800
					total	(41,610)

OREGON STATE HIGHWAY DIVISION

S ARY--BID SCHEDULE--COST ESTIMAT

Sheet 2 of 2

Date

Section Malheur R (Airport Rd)

County

Kind Of Work

Length

Name

No	Item	Code	Unit	Quant.	Unit Cost	Total
	STRUCTURE					
	Bridge Removal Work		All	All		8500
	Shoring, Cribbing, Etc.		All	All		3000
	Structure Excavation		Cu Yd	50	12	600
	Furnish HP10x42 Steel Piling		Lin Ft	540	12	6480
	Drive Steel Piles		Each	15	680	10,200
	Splice Steel Piles		Each	3	100	300
	Structural Concrete, Class 3300 (50 cy @ $230)		All	All		11,500
	4'x 70/75' Prestressed Slabs		Each	14	6000	84,000
	Reinforcement (4500 lbs @ 0^{45}		All	All		2025
	Metal Rail with Tubing		Lin Ft	263	43	11,309

8908

H. S. Coulter
State Highway Engineer

March 7, 1979

Gerald Wimer
Local Government Manager

Malheur River (Airport Rd.) Br. Section
Malheur County

Malheur County is requesting a project to construct a bridge over the Malheur River on Airport Road south of Vale. The project is for a bridge approximately 160 feet long with a roadway 28 feet wide. The approaches are to be included in the contract. State will do the engineering. P.E. was approved by the Transportation Commission on July 18, 1978.

Jurisdiction	Section	Total Funds	Fed Funds	State Funds	County Funds
Malheur Co.	Malheur R. (Airport Rd.) Br. FAS-[illegible]495	$260,000	$228,800	$15,600	$15,600

The region and this office have investigated this proposed project, confirming its validity and financing under the FAS-C program. I recommend your approval and request you authorize this project under delegated authority.

APPROVED BY:

____
State Highway Engineer

Date _______________________

HR:pf
Attachment

8908

Malheur River (Airport Rd)
Br. Sec.
FAS B495

County Court Minutes - February 28, 1979

Court met with Judge E. M. Seuell presiding, with Commissioner W. C. Hammack and N. A. Toole present.

Bob Bungard from Riverside requested that culverts be installed on Road #513, as the road is washing out. Roadmaster Virgil Maupin said he planned to put culverts in as soon as he could work the road and the Court plan to check the road as soon as the weather permits.

The Court met with Ernie Josi and Chuck Liles from the State Soil and Water Conservation Commission and Darrell Standage, Floyd Hawkins, Lee Hardin and Steve Iwata from the Water Quality Commission. Mr. Liles said the Water Quality Program is voluntary and if it should be taken over by the Soil and Water Conservation Commission, from the Department of Environmental Quality, there would not be any changes in the program. The relationship would be through EPA to DEQ, with them being the lead agency. The Conservation Commission would help develop basic guidelines and provide assistance to the local groups, but the primary responsibility for the Water Quality Program would be up to the local group. At this stage there is no money available to carry out the recommendations from the study project.

The preliminary plans were reviewed on the Malheur River Bridge. An irrigation pump will have to be moved from the right of way and an easement obtained to go beyond the right of way for work to be done. Commissioner Toole will check on these matters. Commissioner Toole made the motion to approve the preliminary plan as prepared by the Highway Department on the bridge section of the Malheur River Bridge. Commissioner Hammack seconded and the motion was approved. It will be the County's responsibility to install the road closed signs and show the alternate routes by detour signs.

A copy of a letter from the State of Oregon Aeronautics Division to the Mayor of Jordan Valley was received for the Court's information. Funding to purchase the airport may be available under the Financial Aid to Municipalities Program and then the strip may be developed.

Two water project permit reviews were received for comment. The Court recommended approval of the permit for work on the Willowcreek stream bank and no comment on the second one.

Sanitarian Dale King reported on the meeting he recently attended regarding arsenic in the well water in Malheur County. Mr. King said the state may furnish funding for a study regarding arsenic and he would help in the collection of samples for the study. After further discussion, the Court felt there was no immediate danger, but any individual interested could have their own water tested by sending a sample to an address obtained by calling the County Health Department.

Mr. King said the state used to take private water samples to test for purity, but now the Sanitarian takes these samples and runs them at Nyssa. He said he is getting behind with this service as he is now working alone, but the Court suggested that he continue the service as his time permits as it can not be obtained anywhere else in the area.

Judge Seuell reported that he had resigned from the Economic Development Task Force and another person should be appointed to his position. Also, Chairman Fran McLean had asked for two additional members to be appointed to the Task Force. The Court decided to check further for members who would serve and contact the inactive members to see if they were interested in continuing to serve.

cy Hal Reynoldson
Region

c.c. - D O Christensen

8908

STATE OF OREGON

INTEROFFICE MEMO

TO: W. E. Schwartz
Region 5 Engineer

DATE: February 28, 1979

FROM: F. G. Thompson
Supervising Design Engineer

SUBJECT: Malheur R. (Airport Rd.) Br.
Malheur R. (Airport Rd.) Br. Sect.
FAS B495
Malheur County
Bridge 16375

Enclosed are two reduced prints of drawings 34097 and 34099 which are the advance detail drawings for the subject structure.

Our present estimate of costs for the proposed contract is as follows (Note: the grading and paving figure was current on January 17, 1979):

Grading and Paving	$ 49,600
Structure	$138,700
Engineering & Contingencies	$ 37,700
TOTAL	$226,000

It is planned to call for bids on this section on April 26, 1979.

Please make a field review and return one set with your comments and/or corrections noted thereon by March 12, 1979. It is also necessary to have the comments and/or corrections by Malheur County by March 12, 1979.

SKS:df
Enclosures

cc: Virgil Maupin, Malheur County Roadmaster (w/2 sets encls)
H. A. Schell (w/2 sets encls)
Specs Unit (w/1 set encls. plus estimate sheet-unchecked- and designer's notes)
Construction (w/1 set encl.)
Utility Unit (w/1 set encls.)
✓ County-City Unit
Engineering (w1 set encls.)
P. F. Burnett, Resident Engineer

PROJECT MANAGEMENT
PME ☐ CCE ☐ OM ☐
LGE ☑ FAE ☐ OPE ☐
MAR 1 1979
File: PM FA
LG OP
TAA ________

8908

The County of Malheur

Office of the County Court
COURTHOUSE

(503) 473-3123

P.O. BOX 130
VALE, OREGON 97918

February 20, 1979

Mr. Frank Burnett
Resident Construction Engineer
802 E. Idaho Avenue
Ontario, OR 97914

Dear Mr. Burnett:

This letter is to confirm our discussion of February 16, 1979. Malheur County Court will provide easement necessary for the construction of the approaches to the bridge across the Malheur River on Airport Road, south of Vale, in Section 6, Twp. 19S., Range 45 E.W.M.

Yours truly,

MALHEUR COUNTY COURT

E. M. Seuell
E. M. Seuell
County Judge

8908

FORM 81-734-3030-X

OREGON STATE HIGHWAY DIVISION
INTER-OFFICE CORRESPONDENCE

FILE:

La Grande, Oregon
February 13, 1979

FROM: Roger C. Lang
Roger C. Lang
Region Federal Aid Engineer

TO: P. F. Burnett
Resident Engineer

ONTARIO

SUBJECT: Malheur River (Airport Rd.) Br. Sec.
FAS B 495
Bridge No. 16375
Malheur County

Enclosed is a copy of drawing No. 34016 which shows some questions raised by Don Stoudenmeyer, Engineering Section, Technical Services Branch.

Please follow up on his questions as soon as possible and advise him directly of your findings. We need to move quickly to stay on schedule.

If R/W is involved, this includes construction/slope easements. I suggest that you contact Judge Seuell to see if they can obtain donation. Don English can furnish a form for this.

RCL/vt
Enc.
cc: Gerald Wimer
Harold Brainerd w/attach
Region 5 Right of Way w/attach
Don Stoudenmeyer
Harlin Gerlach

PROJECT MANAGEMENT
PME ☐ CCE ☐ OII ☐
LGE ☒ FAE ☐ OPL
[illegible] 1979
File: PM FA
LG OP
TAA

8908

Form 81-734-3030

OREGON STATE HIGHWAY DIVISION

INTER-OFFICE CORRESPONDENCE
La Grande, Oregon
January 26, 1979

FILE:

FROM: Roger C. Lang
Roger C. Lang
Region 5 Federal Aid Specialist

TO: T. G. Thompson
Supervising Structural Design Engineer

S A L E M

SUBJECT: Advance Plan Approval
Malheur River (Airport Rd)
Bridge Section
Bridge No. 16375
FAS B495
Malheur County

Enclosed is one set of advance plans (drawings nos. 34016 and 34052) dated January 17, 1979 which have been approved by the Malheur County Court. Also, the Court reviewed the enclosed preliminary cost estimate dated January 17, 1979.

In approving the advance plans and estimated cost, the Court requested final plans and cost estimate be developed for their review prior to bid letting on April 26, 1979.

Please note commercial mix has been requested as a single pay item in lieu of Class "B" AC mix and AC in mixture. Also, it is questioned why asphalt approaches are required for road approaches which will have low volume usage.

Please take the necessary steps to complete plans, specifications, and estimate of cost for bid letting on April 26, 1979. It is requested the designers work directly with P. F. Burnett, Resident Engineer, if any questions arise.

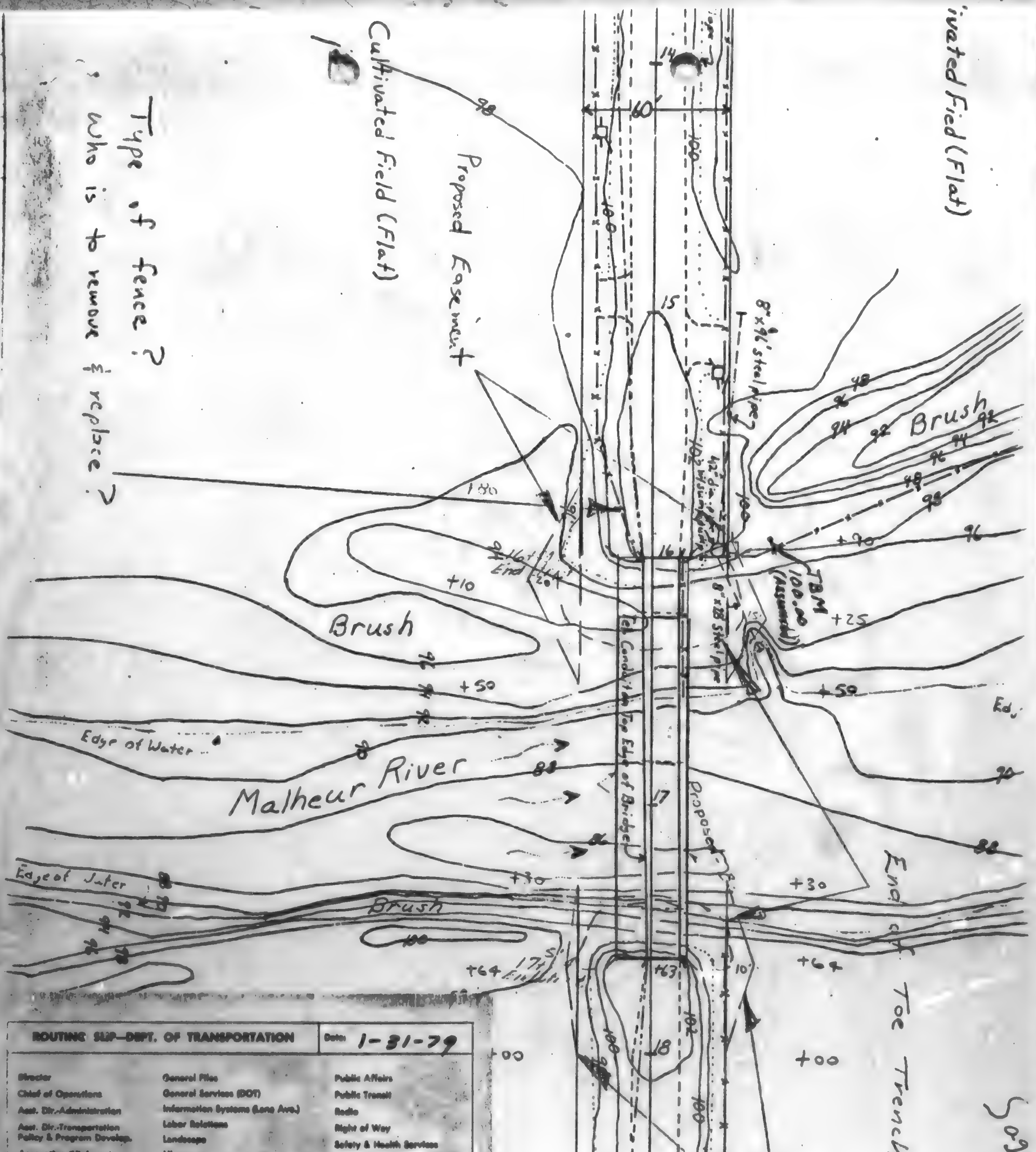
RCL:sh
Enclosures

cc Judge Seuell
H. A. Schell
Hal Versteeg
Gerald Wimer
P. F. Burnett
Don Steudenmeir

PROJECT MANAGEME[illegible]
[illegible] ☐ CCE ☐
LCF ☐ FAE ☐
JAN 2[illegible]

RL
M

Reynolson
Check re Rd Design position re single "AC" bid item and eliminating paved approaches & let me know.



Cultivated Field (Flat)
ivated Field (Flat)
Proposed Easement
60'
14
15
16
17
18
19
98
100
102
96
94
92
Brush
8" x 96' steel pipe
42" dia ... ...
TBM
100.00
(Assumed)
8" x 28' steel pipe
180
End
+10
+25
+50
+59
+90
Brush
Edge of Water
Malheur River
Edg
88
90
Proposed
Edge of Water
Brush
+30
+30
+64
+63
+64
+00
+00
End of Toe Trench
Proposed Easement
Underground Tel.
End Project
509
Elect. Conduit on Top Edge of Bridge

Type of fence?
who is to remove & replace?

ROUTING SLIP—DEPT. OF TRANSPORTATION

Date: 1-31-79

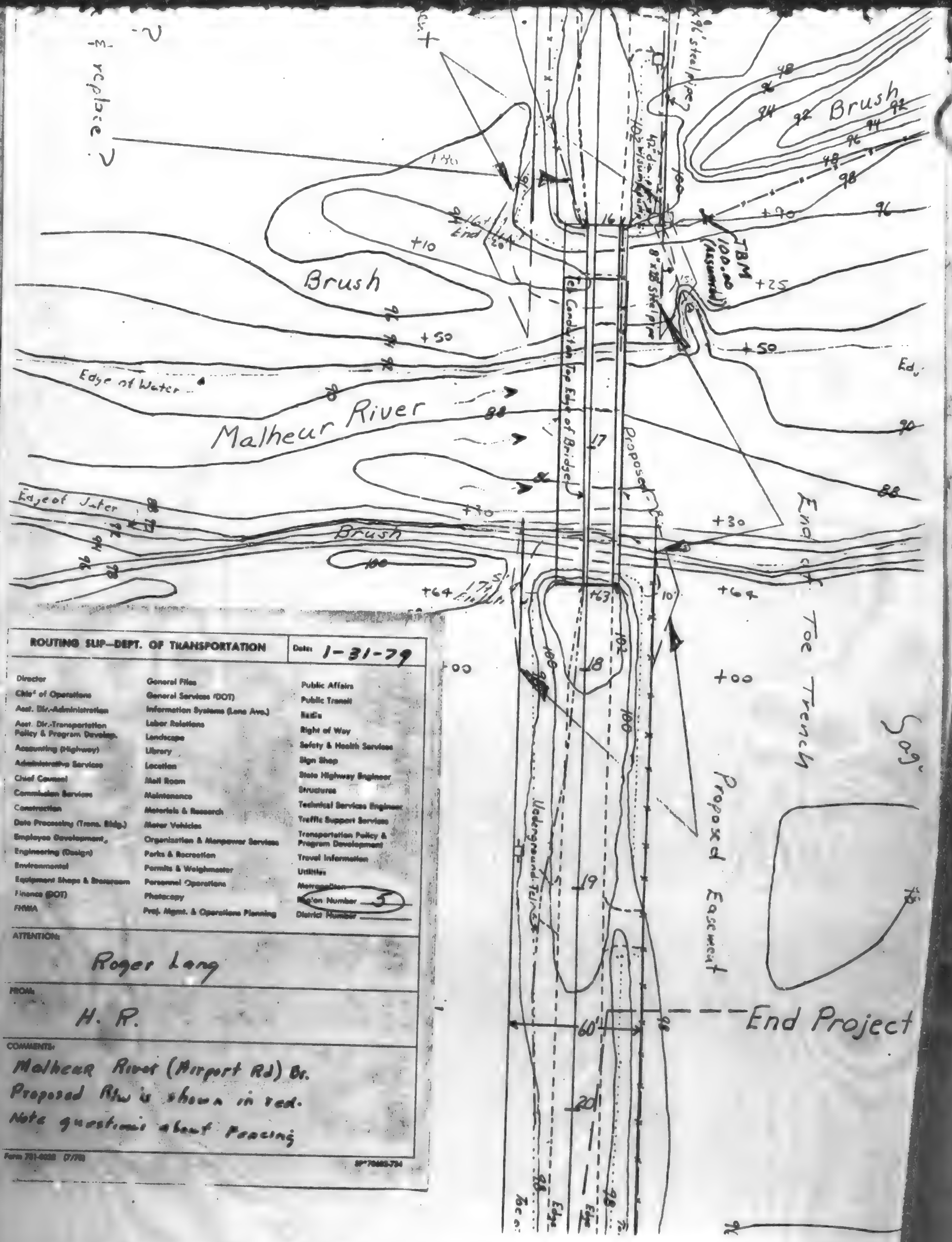
Director
Chief of Operations
Asst. Dir.-Administration
Asst. Dir.-Transportation Policy & Program Develop.
Accounting (Highway)
Administrative Services
Chief Counsel
Commission Services
Construction
Data Processing (Trans. Bldg.)
Employee Development
Engineering (Design)
Environmental
Equipment Shops & Storeroom
Finance (DOT)
FHWA

General Files
General Services (DOT)
Information Systems (Lana Ave.)
Labor Relations
Landscape
Library
Location
Mail Room
Maintenance
Materials & Research
Motor Vehicles
Organization & Manpower Services
Parks & Recreation
Permits & Weighmaster
Personnel Operations
Photocopy
Proj. Mgmt. & Operations Planning

Public Affairs
Public Transit
Radio
Right of Way
Safety & Health Services
Sign Shop
State Highway Engineer
Structures
Technical Services Engineer
Traffic Support Services
Transportation Policy & Program Development
Travel Information
Utilities
Metropolitan
[✓ Region Number 5]
District Number

ATTENTION: Roger Long

FROM:


Brush
92
94
96
98
+90
96
TBM 100.00 (Assumed)
+25
8"x28 Steel pipe
96" steel pipe
16
+10
End
Brush
+50
+50
Edge of Water
Malheur River
88
90
Tel Cond. 1' in Top Edge of Bridge
17
Proposed
+30
+30
Edge of Water
Brush
100
+64
+64
+63
10
18
102
100
+00
+00
End of Toe Trench
Proposed Easement
Sage
Underground Tel.
19
60'
End Project
20
Edge
Edge
Toe
98

ROUTING SLIP—DEPT. OF TRANSPORTATION

Date: 1-31-79

- Director
- Chief of Operations
- Asst. Dir.-Administration
- Asst. Dir.-Transportation Policy & Program Develop.
- Accounting (Highway)
- Administrative Services
- Chief Counsel
- Commission Services
- Construction
- Data Processing (Trans. Bldg.)
- Employee Development
- Engineering (Design)
- Environmental
- Equipment Shops & Storeroom
- Finance (DOT)
- FHWA
- General Files
- General Services (DOT)
- Information Systems (Lana Ave.)
- Labor Relations
- Landscape
- Library
- Location
- Mail Room
- Maintenance
- Materials & Research
- Motor Vehicles
- Organization & Manpower Services
- Parks & Recreation
- Permits & Weighmaster
- Personnel Operations
- Photocopy
- Proj. Mgmt. & Operations Planning
- Public Affairs
- Public Transit
- Radio
- Right of Way
- Safety & Health Services
- Sign Shop
- State Highway Engineer
- Structures
- Technical Services Engineer
- Traffic Support Services
- Transportation Policy & Program Development
- Travel Information
- Utilities
- Metropolitan
- [✓ Region Number 5]
- District Number

ATTENTION: Roger Lang

FROM: H. R.

COMMENTS: Malheur River (Airport Rd) Br.
Proposed R/w is shown in red.
Note questions about Fencing

Form 731-6038 (7/78)

SP*79603-734

8908

GON STATE HIGHWAY DIVISION

QUANTITY SUMMARY & COST ESTIMATE

Sheet 1 of ___ Sheets

ection Malheur River (Airport Rd.) Bridge
ghway County Rd. County Malheur Prefix 523-1975
ngth 800' Miles 0.15 Designer D. Read Date 1/17/79
gned ___ Title ___

Grading & Drainage $ ~~47,770~~ 49,940

$ ___

$ ___

$ ~~47,770~~ 49,940

$ ~~9554~~ 9988

Structures

140' Structure $ 193,000

TOTAL STRUCTURES $ 193.000

Right of Way $ ___

TOTAL ESTIMATED COST . . . . $ ~~[illegible]~~ 252,928

Authorized [illegible]
Field Est. 251,500

ROUTING SLIP—DEPT. OF TRANSPORTATION Date: 1-18-79

Director
Chief of Operations
Asst. Dir.-Administration
Asst. Dir.-Transportation Policy & Program Develop.
Accounting (Highway)
Administrative Services
Chief Counsel
Commission Services
Construction
Data Processing (Trans. Bldg.)
Employee Development
Engineering (Design)
Environmental
Equipment Shops & Storeroom
Finance (DOT)
FHWA

General Files
General Services (DOT)
Information Systems (Lana Ave.)
Labor Relations
Landscape
Library
Location
Mail Room
Maintenance
Materials & Research
Motor Vehicles
Organization & Manpower Services
Parks & Recreation
Permits & Weighmaster
Personnel Operations
Photocopy
Proj. Mgmt. & Operations Planning

Public Affairs
Public Transit
Radio
Right of Way
Safety & Health Services
Sign Shop
State Highway Engineer
Structures
Technical Services Engineer
Traffic Support Services
Transportation Policy & Program Development
Travel Information
Utilities
Metropolitan
[✓ Region Number 5]
District Number ___

ATTENTION: Roger Lang

FROM: Proj. Mngt.

COMMENTS: Would you please contact the county for their concideration of this estimate

Form 731-0082 (7/78)

OREGON STATE HIGHWAY DIVISION
QUANTITY SUMMARY & COST ESTIMATE

Sheet 1 of ___ Sheets

Section Malheur River (Airport Rd.) Bridge
Highway County Rd. County Malheur Prefix 523-1975
Length 800' Miles 0.15 Designer D. Read Date 1/17/79
Signed ___ Title ___

Grading & Drainage		$ ~~47,740~~ 49,940
Surfacing		$
Extra Work		
	$	
	$	
	$	
	$	
	$	
	$	
	$	
	$	
	$	
	$	
TOTAL EXTRA WORK		$
TOTAL		$ ~~47,740~~ 49,940
+ 20 % Engineering and Contingencies		$ ~~9548~~ 9988
Structures		
140' Structure	$ 193,000	
	$	
	$	
	$	
TOTAL STRUCTURES		$ 193.000
Right of Way		$
TOTAL ESTIMATED COST		$ ~~250,288~~ 252,928

Authorized 201 [illegible]
Field Est 251,500

SUMMARY--BID SCHEDULE--COST ESTIMATE Date 1/17/79

ection Malheur River (Airport Rd.) Bridge County Malheur

Of Work Grading, Paving, Structure Length 0.15 Name D. Read

Item	Code	Unit	Quant.	Unit Cost	Total
Mobilization (9%)		L.S.	100%		4124 ~~3942~~
Temp. signs		Sq. Ft.		6^{50}	130
Temp. Barricades		Ea.	2	125^{00}	250
Clearing & Grubbing		L.S.	100%	1000^{00}	1000
Removal of str. & obst.		L.S.	100%		
Toe Trench Exc.		C.Y.	250	10^{00}	2500
Embankment in Place		C.Y.	462	3^{25}	1502
Finish Roadbed & Slopes		L.S.	100%	500^{00}	500
Watering		M-Gal	22	15^{00}	330
1"-0 Aggr. Base		Tons	836	8^{25} ~~8^{00}~~	6897 ~~6688~~
Class "B" Asphalt Concrete Mix		Tons	362	30^{00} ~~25^{00}~~	10,860 ~~9050~~
Asphalt Cement in Mixture		Tons	25	120^{00}	3000
Guardrail, Type 3		Lin. Ft.	100	25^{00}	2500
Guardrail, Type 2A		Lin. Ft.	100	15^{00}	1500
Guardrail Anchors, Type 1		Each	4	300^{00}	1200
Rail End Pieces, Type C		Each	4	125^{00}	500
Extra for Asphalt Approaches		Each	4	175^{00}	700
Extra for Rock-Slope Surfacing		Sq. Yd.	54	12^{00}	648
Loose Riprap, Class 700		C.Y.	500	20^{00}	10,000
Filter Blanket		C.Y.	120	15^{00}	1800
					~~47,740~~
					49,940

8908

STATE OF OREG

INTERO CE MEMO

TO: Mr. W. E. Schwartz
Region 5 Engineer

Attention Roger C. Lang
Federal Aid Engr.

FROM: T. G. Thompson
Supervising Structural
Design Engineer

DATE: January 17, 1979

SUBJECT:
Malheur R. (Airport Rd.) Br.
Malheur R. (Airport Rd.) Br. Sec.
FAS B 495
Malheur County
Bridge 16375

Enclosed are four reduced prints of drawings 34052 and 34016 which are the preliminary plan and elevation and vicinity map for the subject structure.

Although consideration was given to utilizing portions of the existing structure, particularly the bents with steel piling and concrete caps, it was finally decided to not incorporate these elements primarily because of insufficient structural information and it would result in an inefficient span arrangement.

Our present estimate of costs for the proposed contract is as follows:

Grading and Paving	Not available
Structure	$148,000
Engineering & Contingencies	45,000
Total	$193,000

Please use these prints to obtain the approval of Malheur County.

If construction is to be completed prior to August 1, 1979, it will be necessary to call for bids on this project on April 26, 1979 at the latest. Rapid approval of the preliminary plan and elevation drawing by the County is required to meet this scheduling.

Please return one set of prints to this office with the appropriate approval stamped thereon.

SKS:dh
Enclosures

cc H. A. Schell /w/ 1 set
Engineering /w/ 1 set
County-City Unit
Environmental (M. Banks) /w/ 1 set

PROJECT MANAGEMENT
PME ☐ CCE ☐ OM ☐
LGE FAE ☐ CPE ☐
JAN 18 1979
File: PM FA
LG OP
TAA ______

81-125-1307

8908

FORM 81-734-3030

OREGON STATE HIGHWAY DIVISION

INTER-OFFICE CORRESPONDENCE
Salem, Oregon
January 9, 1979

FILE:

FROM: David W. Bryson
David W. Bryson
Assistant Hydraulics Engineer

SUBJECT: Malheur River (Airport Rd) Bridge
FAS B495
Malheur County

TO: MEMO TO THE FILES

The proposed project will replace an existing 164-foot long, four-span, steel beam structure on the same alignment.

HYDROLOGY

The Malheur River is a west-east tributary of the Snake River and drains an area of approximately 3255 square miles above the proposed bridge site. Forty-two years of stream gage records were available from gage number 13-2200 which drains an area of approximately 3010 square miles. Flow in the river has been regulated by Warm Springs Reservoir since 1919 and Beulah Reservoir since 1935, so stream gage records prior to 1935 were not used in determining the frequency vs discharge relationship as only one reservoir was in operation prior to 1935. Some flow is also diverted for irrigation during the summer months. The frequency vs regulated discharge relationship for the bridge site is listed below based on a statistical analysis of the gage data using a Log-Pearson Type III distribution. These values were adjusted to reflect the difference in drainage area between the gage and the bridge.

Recurrence Interval	Peak Flow
100-year	22810 cfs
50-year	18050 cfs
25-year	13730 cfs
10-year	8920 cfs
5-year	5850 cfs

The largest flood of record occurred February 24, 1957 when a discharge of 12300 cfs was measured at the gage. Estimated peak for this same flood at the bridge site would be approximately 13300 cfs (23-year recurrence interval).

HYDRAULIC DESIGN

The February 1957 flood of 13300 cfs was chosen as the design flood. Estimated design highwater at the bridge site is 98.9 feet (assumed datum). The existing 164-foot structure will create approximately 1.5 feet of backwater during the design flood. If the existing pile bents were encased in concrete, the structure would only create approximately 1.0 feet of backwater.

For this crossing it is suggested that status quo conditions be maintained. A three-span, 142-foot long structure with concrete-encased bents would create 1.6 feet of backwater during the design flood. This design assumes that the existing northerly span has been eliminated. During the design flood,roadway overflow will occur in the sag south of the structure which acts as an overflow channel. It is suggested that this overflow pattern be maintained.

Bankful capacity of the river is approximately 10200 cfs (13-year recurrence interval) which corresponds to elevation 98.0 feet (assumed datum). The river has a relatively wide, flat floodplain, and once the river exceeds bankful stage a large increase in discharge will only result in a small increase in stage. Therefore, it is estimated that the 100-year flood of 22810 cfs would correspond to a stage of 100.0 feet (assumed datum).

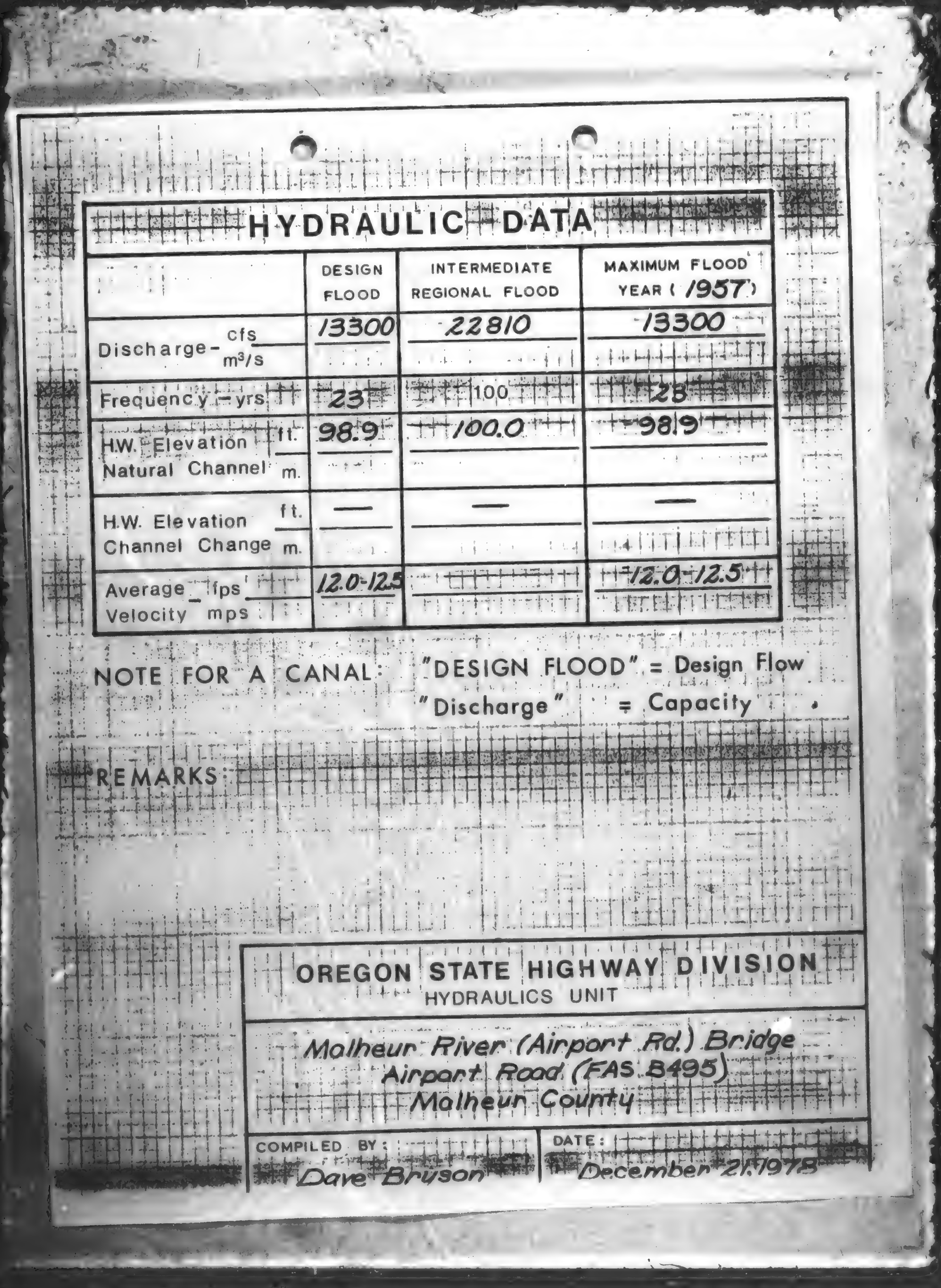
RIPRAP

It is suggested that the fill slopes be protected with a 3-foot blanket of Class 700 loose riprap. A filter blanket will be required and this may be either a 9-inch layer of 4"-0 to 6"-0 river-run gravel or crushed rock. The riprap should be placed in a toe trench. It is suggested that piers in the channel be protected with special footing backfill as specified in Section 251.12 of the Standard Specifications.

DWB:lt

cc: F. Terpin
W. Hart
J. Davis
D. Christensen
D. Harwell
W. Schwartz

PROJECT MANAGEMENT
PME ☐ CCE ☐ OM ☐
LGE ☑ FAE ☐ OPE ☐
JAN 10 1979
File: PM FA
TAA ______ [✓ LG] OP



HYDRAULIC DATA

	DESIGN FLOOD	INTERMEDIATE REGIONAL FLOOD	MAXIMUM FLOOD YEAR (1957)
Discharge - cfs	13300	22810	13300
Discharge - m³/s			
Frequency - yrs	23	100	23
H.W. Elevation Natural Channel ft.	98.9	100.0	98.9
H.W. Elevation Natural Channel m.			
H.W. Elevation Channel Change ft.	—	—	—
H.W. Elevation Channel Change m.			
Average Velocity fps	12.0-12.5		12.0-12.5
Average Velocity mps			

NOTE FOR A CANAL: "DESIGN FLOOD" = Design Flow
"Discharge" = Capacity

REMARKS:

OREGON STATE HIGHWAY DIVISION
HYDRAULICS UNIT

Malheur River (Airport Rd.) Bridge
Airport Road (FAS B495)
Malheur County

COMPILED BY: Dave Bruson

DATE: December 21, 1978

8908

OREGON STATE HIGHWAY DIVISION
Location Section
Surfacing Design Unit

Section: Malheur River (Airport Rd.) Bridge
Highway: F.A.S. B495
County: Malheur
Prefix: 523-1975
Res. Engr. P. F. Burnett

Date January 4, 1979
Ten Year Traffic Coefficient 6.2
18 kip s.a. per day 11.4
R value 16
Frost Penetration 24"±
CBE Total Requirement 18.5"

STRUCTURAL SECTION
NEW WORK

ACTUAL THICKNESS	COMPONENT	CREDIT
2.0"	A.C.W.S.	4.0
14.0"	A.B. (1.0"-0)	14.0
16.0"		18.0"

1.0"	Asphaltic Concrete Wearing Surface & Base	= 2.0" Aggregate Base
1.0"	Cement Treated Base	= 1.8" Aggregate Base
1.0"	Plant Mix Bituminous Base	= 1.8" Aggregate Base
1.0"	Emulsion Treated Wearing Surface & Base	= 1.8" Aggregate Base
1.0"	Soil Cement (Existing Roadway Material)	= 1.5" Aggregate Base
1.0"	Oil Mat	= 1.1" Aggregate Base
1.0"	Lime or Cement Treated Subgrade	= 1.0" Aggregate Base
1.0"	Aggregate Subbase	= 0.8" Aggregate Base

Above Factors apply to materials that comply with Standard Specifications and Special Provisions.

F.H.W.A.
Location Engineer
Construction Engineer
Materials
Region Engineer
Resident Engineer
Specifications Engineer
Final Design Engineer
Regional Geologist
R. H. Prange

PROJECT MANAGEMENT
CE ☐ CCE ☐
LCE ☑ FAE ☐
JAN 0 5 1979
File: PM FA
LG GP

8908

Form 734-1191 (Rev. 5/77)

OREGON STATE HIGHWAY DIVISION

REQUEST FOR OUTSIDE BILLING
(OR ADVICE OF CASH TRANSACTION)

DATE	BILLING REQ. NO.	YOUR ORDER NO.	CREDIT DISTRIBUTION
9/27/78	CC 1892		523-1975

BILL TO: Code:

Malheur County Court
Courthouse
Vale, Oregon 97918
Attn: Hon. Roy Hirai-County Judge

DESCRIPTION: (Describe the service rendered, location, etc. Refer to agreements, letters and orders by which payer authorized the service.)	QUANTITY	UNIT PRICE	TOTAL PRICE
Partial transfer of the Advance Deposit to Hwy. Fund. PE Advance deposit for the Malheur River (Airport Road) Bridge Section FAS B-495.			

Advance Deposit Amount	$ 715.00
Advance Deposit Previously Transferred to Highway Fund	$ -
Balance	$ 715.00
Transfer to Highway Fund	$ 515.00
Refund Due	$ -
Partial or final request for billing	Partial
Number of the previous request in connection with this service.	

Amount Due . . . . . $

Submitted by:
Harold Reynoldson
Harold Reynoldson

Approved:
for Gerald W. Wimer

SP*35736-734

8908 ①

GENERAL FILES

August 24, 1978

Malheur County Court
Courthouse
Vale, OR 97918

Attention: Robert L. Moreen
County Clerk

MISC. CONTRACTS and
AGREEMENTS No. 6711

Gentlemen:

Attached for your records is a fully executed copy of an agreement concerning the Malheur River Bridge Section of Airport Road in Malheur County.

We have retained a fully executed copy of this agreement for the Transportation Commission's files.

Very truly yours,

C. W. Head
COMMISSION SERVICES

dds
Attachment

bc Don Harwell (Agreement attached)

8908

August 22, 1978

Malheur County Court
Courthouse
Vale, OR 97918

Attn: Honorable Roy Hiari
County Judge

Gentlemen:

We have submitted a program to the Federal Highway Administration for approval of the preliminary engineering phase of the Malheur River (Airport Rd.) Bridge Section, FAS 8495.

Financial sharing of the preliminary engineering is:

Total P.E.	$10,000
Federal Funds	8,570
Balance	$ 1,430
Local Share:	
is ½ of $1,430 =	$ 715

Please make your check in the amount of $715.00 payable to the Oregon State Highway Division and send it to Highway Accounting, Room 434, Transportation Building, Salem, Oregon 97310.

Rec'd
9/11/78 ok
Called
Roger
Lang

Very truly yours,

For G. W. Wimer
Local Government Manager

HR:lml

bc w/AD #489: Vern Skoog - Please return completed AD #489 when check is received.
Region 5 Federal Aid Engineer Roger Lang

8708

8-11-78

U.S. DEPARTMENT OF TRANSPORTATION - FEDERAL HIGHWAY ADMINISTRATION

LETTER OF APPROVAL AND/OR AUTHORIZATION

FEDERAL AID PROJECT NO. RS-B-495(2)

STATE PROJECT NO. See below

COUNTY NAME Malheur

PROGRAM STAGE (Check) ☐ 1. ☐ 2.

FROM:
G. L. Green, Division Administrator
Division Administrator

PROGRAM NO.

ITEM NO. 80359

TO:

Mr. F. B. Klaboe
Chief of Operations, ODOT
State of Oregon
Salem, Oregon

DATE PS & E APPROVED

DATE AUTHORIZATION EFFECTIVE 8-11-78

FEDERAL ROUTE NUMBER Secondary B 495

STATE ROUTE NUMBER County Rd.

GENERAL LOCATION:

Malheur River (Airport Rd.) Bridge Section

GENERAL DESCRIPTION OF WORK:

Preliminary Engineering

YOU ARE AUTHORIZED TO PROCEED WITH THE WORK CHECKED BELOW

PRELIMINARY ENGINEERING TO DETERMINE
☐ LOCATION ONLY
PRELIMINARY ENGINEERING FOR SURVEY AND PLAN
☒ PREPARATION Including archeological salvage and utility preparatory work
☐ OTHER (Specify) TEC NTE $10,000 - F.F. $8,570

☐ ACQUISITION OF RIGHT-OF-WAY
CONTRUCTION - ADVERTISE FOR RECEIPT
☐ OF BIDS
☐ CONSTRUCTION - PROCEED ON AN AGREED PRICE AND/OR FORCE ACCOUNT BASIS

REMARKS

As requested in Mr. Swan's July 28, 1978, letter.

Swan
8-17

DATE 8-11-78

SIGNATURE OF APPROVING OFFICIAL

TITLE for Division Administrator

FORM PR-1240 (REV. 8-70) EXISTING STOCKS OF FORM PR-1240 (REV. 6-68) WILL BE USED

☆ U.S. GOVERNMENT PRINTING OFFICE: 1976—626-787

8908

ROBERT W. STRAUB
GOVERNOR

Department of Transportation

TRANSPORTATION BUILDING, SALEM, OREGON 97310

July 28, 1978

TO G. L. Green, Division Administrator
Federal Highway Administration

FROM D. E. Swan
Federal Aid Manager

SUBJECT Project Data Submission
Item No. 80359
Project No. RS-B495(2)
Malheur River(Airport Rd.) Bridge Section
Malheur County

Attached is data for the subject project.

This project has been selected by the Oregon Transportation Commission and local officials in cooperation with each other as required by the Federal Aid Act.

We request the following:

(1) Authorization to proceed with all phases of preliminary engineering including archeological salvage and utility preparatory work at an estimated total cost of $10,000 with an obligation of $8,570 in federal funds.

CL:psp

Enclosure

cc: W. Schwartz (Region 5)
H. Reynoldson ✓

Budget Bureau No. 41-R206

U.S

MONTHLY TRANSACTION NO.

FORM PR-1
(REV. 4-61)

DATE SUBMITTED TO W. O.
7-28-78

FEDERAL-AID PROGRAM DATA
(PPM 21-1)

CARD	REPORT NUMBER	PROJECT LOCATION (45 typewriter spaces)	ADT	PRESENT	FUTURE	YEAR	REGION	STATE NAME
2	(19) (20)	21 Co. Rd., 3.6 mi. S.W. of Vale 65		DHV 10 80	(66) 120 (70)	(71) 98 (72)	10	Oregon

CARD	CHARACTER OF PROPOSED WORK (35 typewriter spaces)	NATL. FOREST	FH ROUTE NO.	SUPV AGCY	DA CLASSIF.	DA AREA	EMERG. YR.	PL. AUTH YR	PROJECT NUMBER PREFIX LETTER(S)	NUMBER
3	28 Preliminary Engineering 62	(63) (65)	(66) (68)	(69)	(70)	(71)	(72) (73)	(74) (75)	14 RS- 23	7 B495(2)

CARD		
4	CLASS OF FEDERAL FUNDS: Rural Secondary	COUNTY NAME: Malheur
	NAME OF URBAN AREA: 17-31	ROUTE NO. S; FEDERAL-AID: B495 (32); STATE: Co. Rd. (33) (37); U.S.

CARD	LINE NO.	CHANGE CODE	PROJECT CODE	CLASS	WORK TYPE	WORK STEP	TERMINI (Full description)	MILES	TOTAL ESTIMATED COST	FEDERAL FUNDS	STATE FUNDS	OTHER FUNDS
1	(14-15)	(16	41	42	43 46	53		(54) (58)	(59) (66)	(67) (76)		
5					PE		"Malheur River(Airport Rd.)Bridge Section"	0.15	10,000	8,570	715	715 (Co.)
5					ROW							
5					CONST (CODE)							

CARD	CODE	PREPARED BY	PROJECT TOTALS	MILES	TOTAL ESTIMATED COST	FEDERAL FUNDS	STATE FUNDS	OTHER FUNDS
1	1	C.L.		0.15	(16) 10,000 (23)	(24) 8,570 (33)	715	715 (Co.)
1	14	PROGRAM APPROVAL DATES					REMARKS	

Budget Bureau No. 41-R2067; Approval Expires February 28, 1966

FORM PR-1
(REV. 4-61)

7-28-78

FEDERAL-AID PROGRAM DATA

(PPM 21-1)

U.S. DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS

LOCATION (45 typewriter spaces) d., 3.6 mi. S.W. of Vale	ADT	PRESENT DHV 10 80	FUTURE 120	YEAR 98	REGION 10	STATE NAME Oregon	STATE CODE 41	APPN CODE 075	ITEM NO. 80359

(35 typewriter ding	NATL. FOREST	FH ROUTE NO.	SUPV AGCY	DA CLASSIF.	DA AREA	EMERG. YR.	PL. AUTH YR	PROJECT NUMBER PREFIX LETTER(S) RS- NUMBER B495(2) SEQ. NO.	T. Projects Only POST MI. DESIG.

ural Secondary

COUNTY NAME Malheur CODE 045

ROUTE NO. S FEDERAL-AID B495 STATE Co. Rd. U.S.

PROGRAM STAGE ☐ 1 OR ☐ 2

ESTIMATED PROJECT COST BY PHASES

PE	STEP	TERMINI (Full description)	MILES	TOTAL ESTIMATED COST	FEDERAL FUNDS	STATE FUNDS	OTHER FUNDS	CHARACTER OF PROPOSED WORK (Full description)
		"Malheur River(Airport Rd.)Bridge Section"	0.15	10,000	8,570	715	715 (Co.)	ROW-60' normal; Access Control-None; Parking Restrictions-None.
Y								
ST								
C.L.		PROJECT TOTALS	0.15	10,000	8,570	715	715 (Co.)	

DATES

REMARKS

(Over)

MALHEUR RIVER(AIRPORT RD.)BRIDGE SECTION
PROJECT NO. RS-B495(2)

Existing Facility:
Roadway--2-11 foot lanes oil surface with 2-foot shoulders.
Structure--Br. #23C45; 160 foot steel and wood stringers with wood deck; HC 13 feet.

Adjacent Sections: Same as existing roadway facility.

Project Data: Work under this project consists of preliminary engineering all phases including archeological salvage and utility preparation work required for the future construction on existing alignment necessary to replace the present bridge with a prestressed concrete structure approximately 160 feet in length with a horizontal clearance of 28 feet.

System Action, Railroads, Water Developments, Historical and Recreational Areas: None involved.

Airports: Miller Memorial Airpark is located 1-1/2 miles N.E. of the project; however, no conflict with the operation of the airfield will result from this project.

FHPM 4-1-4 Requirements: Exempt from A-95 review under working agreement.

FHPM 7-7-2 Requirements: Nonmajor action project concurred in by FHWA on July 5, 1978.

FHPM 7-7-5 Requirements:
a) Public Hearings--Not required under Oregon Action Plan.
b) Location/Design--Not a factor in the development of this project.

Note: This project is in Congressional District No. 2.

8908

ROBERT W. STRAUB
GOVERNOR

Department of Transportation
STATE HIGHWAY DIVISION

REGION 5 OFFICE

W. E. Schwartz
Region Engineer

P. O. Box 850 ... ... La Grande, Oregon 97850 ... ... Telephone 963-3177

July 19, 1978

Hon. Roy Hirai
Malheur County Judge
Courthouse
Vale, Oregon 97918

Dear Judge Hirai:

RE: Final Project Assessment, Malheur River (Airport Road) Bridge Section

Under the terms of the project application, the County shall perform and document responsibilities as found in the Oregon Action Plan.

The Federal Highway Administration and the Department of Transportation have concurred with your draft assessment of Category 3 Non-Major Action. Enclosed is an approved copy of the assessment for your records and use in complying with the Action Plan.

Proposed standards, design, specific details contained in the assessment, and deviations from the scope of the project will be subject to review at the appropriate stage of project development.

Sincerely,

R C Lang
R. C. Lang
Region 5 Federal Aid Specialist

RCL:sh
Enclosure

cc Gerald Wimer
P. F. Burnett
Lang File

PROJECT MANAGEMENT
PME ☒ CCE ☐ OP ☐
LGE ☐ FAE ☐ OPE ☐
JUL 21 1978
File: PM FA
TAA LG OP

Form 81-734 3128

8908

Form FHWA 121 (Rev. 5-73)

UNITED STATES GOVERNMENT

Memorandum

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
The Equitable Center, Suite 100
530 Center NE - Salem, OR 97301

DATE: July 14, 1978

In reply refer to: HBR-OR

SUBJECT: Oregon Project RS B-495(1)
Bully Cr. Bridge (Vale)
Roadway Width

FROM : G. L. Green, Division Administrator

TO : Mr. E. S. Hunter, Mgr., Technical Services Branch
Oregon Dept. of Transportation
Salem, Oregon
Attn: Mr. Walt Hart, Structures

Mr. Hart's letter of July 11 requests an exception to the Secondary Roadway Standards to permit a 28' roadway section across the structure. We will approve 4' shoulders and 10' traffic lanes for this section of roadway only since the approach traffic lanes are only 10' with no future widening contemplated. The restricted speed is less than 30 mph and the ADT is less than 750.

for G. L. Green

PROJECT MANAGEMENT
PME ☒ CCE ☐ OM ☐
LGE ☒ FAE ☐ OPE ☐
JUL 18 1978
File: PM FA
LG OP
M
TAA HAL

RECEIVED
TECHNICAL SERVICES
JUL 17 '78
REFER TO
Hank
FOR
Info | Inves | R/D | D/R | Sign | Act | File

cy Moehring
Schwartz
7-12 78

8108

July 6, 1978

TO: OREGON TRANSPORTATION COMMISSION

FROM: H.S. Coulter
State Highway Engineer

SUBJECT: FAS-C Project Requests

On the Consent Calendar for the July 18 meeting will be requests for approval of 2 FAS-C Preliminary Engineering Projects and one FAS-C Construction Project.

Lake County's request is for 4 structures on the Hart Lake Section on FAS B 329. The estimated cost of the PE for this project is $10,000.

The request by Malheur County is for a bridge over the Malheur River on Airport Road FAS B 495. The estimated cost of the PE for this project is $10,000.

Washington County is requesting a grading, paving, and structure project on Glencoe Road FAS A 685 and on West Union Road FAS A 686. The PE is to be at State costs. The estimated cost of the project is $630,000.

FAS-C funds for these preliminary engineering and construction projects are estimated to be $559,000 with State providing approximately $45,500 in matching funds, and a like amount being contributed by the Counties.

These projects have been investigated and are eligible for funding under the FAS-C Program. I recommend your approval and request authorization to sign the project agreements for and on your behalf.

HR:cw
Attachment

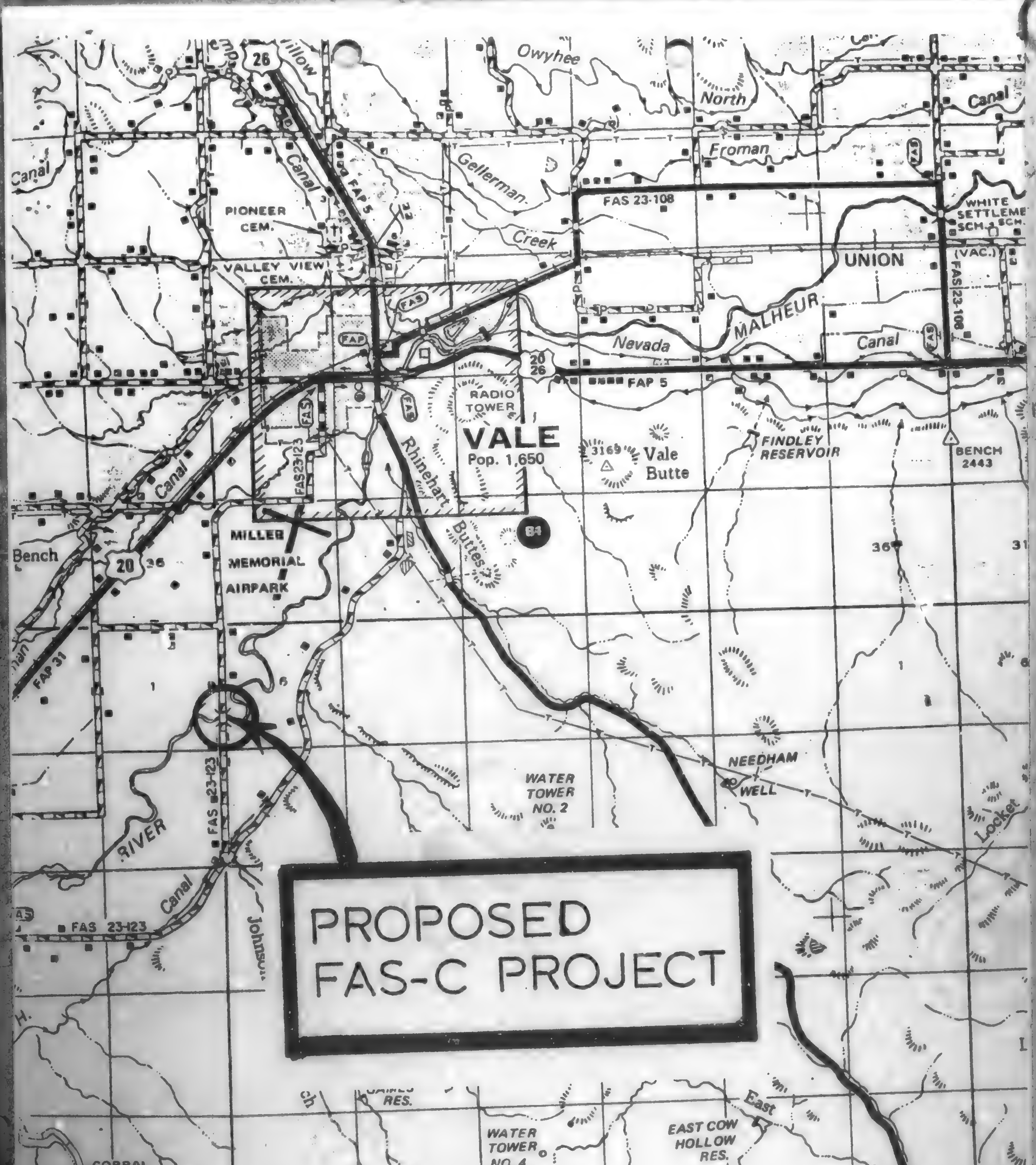
bc: R.A. Burco
F.B. Klaboe
C.W. Head
E.S. Hunter
D.H. Moehring
R.N. Bothman
V.E. Skoog
J.H. Versteeg
Dale D. Allen, Reg. 4
Ed Hardt, Reg. 1
W.E. Schwartz, Reg. 5
D.N. Harwell
George Bell

MALHEUR COUNTY
Proposed FAS-C Project

Malheur River (Airport Rd.) Bridge Section
FAS B495, Airport Road
Structure
$10,000 P.E. Only

Perform preliminary engineering in preparation for replacing a structure over the Malheur River south of Vale. The new structure will be approximately 160 feet long with a 28-foot roadway. Contract will include approaches and guardrail.

Engineering to be performed by State forces.



PROPOSED FAS-C PROJECT

26
Willow
Owyhee
North
Canal
Canal
Canal
Gellerman
Froman
FAS 23-108
PIONEER CEM.
FAP 5
Creek
WHITE SETTLEMENT SCH.
UNION
(VAC.)
FAS 23-108
VALLEY VIEW CEM.
FAS
FAP
MALHEUR
Nevada
Canal
20
26
FAP 5
RADIO TOWER
VALE
Pop. 1,650
3169
Vale Butte
FINDLEY RESERVOIR
BENCH 2443
FAS 23-123
Canal
Rhinehart
Buttes
MILLER MEMORIAL AIRPARK
Bench
20
36
FAP 31
36
1
NEEDHAM WELL
WATER TOWER NO. 2
RIVER
FAS 23-123
Locket
Canal
FAS 23-123
Johnson
RES.
East
EAST COW HOLLOW RES.
WATER TOWER NO. 4 WELL
CORRAL WELL
Cow
36
31
36

8908

Form FHWA 121 (Rev. 5-73)

UNITED STATES GOVERNMENT

Memorandum

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
The Equitable Center, Suite 100
530 Center NE. - Salem OR 97301

DATE: July 5, 1978

In reply refer to: HFO.5-OR

SUBJECT: Oregon Project RS-B495(-)
Project Assessment
Malheur River (Airport Rd.) Br.
County Road FAS-C B495
Malheur County

FROM : G. L. Green, Division Administrator

TO : Mr. G. A. Potter, Manager, Environmental Section
Oregon Department of Transportation
Salem, Oregon

The subject project assessment submitted with your June 28 letter has been reviewed.

We concur with your finding that the proposed project constitutes a nonmajor action. We also concur with your traffic noise analysis.

The proposed standards, design, and other specific details contained in the assessment will be subject to future reviews at the appropriate stage during the project development.

P. V. Reid
G. L. Green for

cc:
ODOT (Moehring, Mgr, Proj Mgmt)
OSHD (Reg 5. Env.)

Environmental Section
July 7, 1978

cc: D. H. Moehring
J. B. Boyd (3)
L. E. George
W. J. Jart
C. T. Keasey
J. H. Versteeg (4)
F. E. Terpin (3)
George Bell
Surfacing Design - Lab Bldg.
W. E. Schwartz
C. D. Hiatt
Vernal Moore
Gerald Wimer
B. L. Gifford (2)
John Preston
Don Keyes (8)

OREGON STATE HIGHWAY DIVISION
PROJECT ASSESSMENT

25 - B4951

PART 1. GENERAL INFORMATION

A. Project Identification:

Date June 28, 1978
Section Malheur River (Airport Rd.) Br.
Unit (if appl)
County Malheur
City
Highway County Rd. FAS-C B495
State Hwy. No.
Termini: M.P.(if appl)
Length 800' + (0.15 mile)
Region V
Construction Estimate $201,000
Program Amount

B. Purpose of Project:

To replace a substandard, one lane bridge which will not accomodate movement of modern farm machinery or permit two way traffic.

C. Origin & History of Project:

The structure was built during a period when the County had limited funds. Ranchers and farmers of the area have asked the Court to replace this structure. The Court has now placed this project at the top of the priority list.

D. General Description of Project:

Construct prestressed reinforced concrete slab span structure, road approaches and guardrail.

Alignment: New ______ Existing XX Combined ______

Typical Section: Existing: No. Lanes 2 ; Med. ____; Shldrs. 2 ; Parking ____
Proposed: No. Lanes 2 ; Med. ____; Shldrs. 2 ; Parking ____

Traffic: Existing Facility: Existing ADT 80 ; Projected ADT ____; Yr. ____
Existing Level of Service inadequate

Proposed Facility: Projected ADT ____; Yr. ____
Projected Level of Service ____

Right of Way: Additional anticipated No ; if yes, give approx. No. Parcels_______
Yes, No

Acres_______; Type of Relocation Req.________________; No.________

Materials Source, Borrow, Waste Disposal Requirements, if any:

Materials will be obtained from existing sources and/or from commercial suppliers.

Type of Structure(s):

3 span, prestressed reinforced concrete slab span.

Brief Description of River or Stream and Type of Involvement, if any:

Anticipate placing two bents in stream bed along with some rip-rap for protection of end bents. The river moves rather slowly through this area and is somewhat brackish because of irrigation return waters. The waters heat up during the summer.

Local City, County or COG priorities of project:

First priority of FAS projects by the Court.

FHWA and/or OSHD approvals given, if any:

None.

Location or Design Alternatives (identify and describe):

Alternate location would remove productive land from cultivation.

A single span structure would be the ultimate design but it is beyond the financing capability of the County. Also, the cost benefit ratio would be beyond the realm of sound economics. A do nothing alternative is not acceptable to the County Court or residents because of the threat to safety and constricted traffic movements.

Design of the 3 span structure and approaches should be compatable with the existing corridor.

Other Descriptive Information or Comments:

The Court has considered the aspects of a bicycle/sidewalk for this project and found the anticipated low usage does not warrant construction. The road is primarily a farm to market arterial, with few area residences to generate bicycle or foot traffic.

(Attach project sketch map.)

PART II. ENVIRONMENTAL ASSESSMENT

A. Brief Environmental Setting of Project Area:

1. Natural:

The project lies in the Malhuer Valley about 3.6 miles southerly of Vale. The valley floor is about elevation 2250 feet while the surrounding uplands rise to over 3000 feet. The Malhuer River moves rather slowly through the valley to its confluence with the Snake River about 16 miles to the northeast, just north of Ontario. Late summer flow is very low and is composed, to a large extent, of irrigation return waters.

The valley is about 5 miles wide at this point, soil conditions in the immediate area are very fertile except for a few isolated spots. Depths of the topsoil range from 6" to 18". Natural vegetation is limited to willows, cottonwood, sage brush and grasses along the river and in unimproved parcels of land.

Bird life normal to Eastern Oregon abounds in the area. Also pheasant, deer, coyote, rabbit, muskrat, and others native to the area are seen in the project area.

There are no anadromous fish in the river, but some sport fish are taken before the waters warm up and the fish become soft and unpalatable. During the summer period most fish would consist of carp, suckers and other "trash" fish. No threatened or endangered species are involved.

2. Cultural:

Primary use of the land is oriented to truck gardening. Unproductive areas of marginal value are used for grazing, feed lots and in some cases, allowed to go unused. A portion of the river flow is diverted for irrigation purposes and these same waters return to the river. Sugar beets and corn are produced on parcels immediately adjacent to the project area. A telephone conduit uses existing structure and would require change to new bridge.

The entire area is classed as F-1 farm use in the land use plan. The nearest residence is about 3/4 mile distant.

Proposed plans call for the possible closure of the bridge crossing during the construction period. This would dictate a construction schedule of prior to August 1 or after October 1 because of the need of the bridge crossing during the harvest period.

B. Preliminary Assessment of Environmental Impacts:

1. Consequences and Significance of Right-of-Way Acquisition:

   None.

2. Estimated Impact on Traffic Patterns:

   The current narrow, one-lane bridge presents a traffic hazard and eliminates all together the passage of some farm equipment. The proposed structure would facilitate the flow of traffic on this farm to market road in addition to enhancing safety.

   Consequences--Air Quality, Noise, Safety, etc.:

   Minor increase in noise levels during construction.

3. Estimated Impact on Land Use:

   None.

   Consequences:

4. Expected Impact on Natural Ecological Resources:

   Minor impact on the river during construction. no lasting effect.
   No wetland impacts are anticipated beyond the short term stream involvement during the construction peroid.

   Consequences:

5. Expected Impact on Cultural and Scenic Resources:

   None.

   Consequences:

6. Preliminary Identification of Areas of Critical Concern:

None.

7. Potential for Controversial Issues:

None.

8. Potential for Consistency of Proposal With:

a. Clean Air Implementation Plans

N/A

b. Noise Standards — This project will not increase noise levels to adjacent receptors however, a FHPM 7-7-3 noise report will be required. The nearest residence is approximately 3/4 mile distant.

c. Water Quality Standards

d. Area Land Use and Transportation Plans, and Zoning

Consistant

C. Recommended Type of Action and Documentation:

-------------MAJOR ACTION----------------- ----NON-MAJOR ACTION-----

SIGNIFICANT:	NON-SIGNIFICANT:	
____ D & FEIS	____ D & F Neg.Dec.	_X_ ASSESSMENT ONLY
____ Section 4(f)	____ Section 4(f)	____ STATEWIDE ASSESSMENT

Basis for Type of Action and Documentation:
The limited scope of the project with no right-of-way requirement, limited and short term stream impacts, and no adverse impacts on the human environments supports an "assessment only" designation.

D. Recommended Project Category: ____ 1 ____ 2 _XX_ 3 ____ 4

8908

PROJECT MANAGEMENT OFFICE MEMO

Date 6-29-78

Subject Bully Cr. (Vale) Bridge Sec. FAS B495 File No.

Received (call) (visit) from

Address

Made (call) (visit) to Judge Hirai Phone 473-3123

Reason for contact and general discussion: Called Judge Hirai to ascertain if the County wished to widen the proposed Bridge to meet 40 mph design or to request design of 30 mph in order to retain 28' width. Judge Hirai requested we lower design speed to 30 mph as the Br. is within Vale City limits and is under ORS 25 mph speed zones. Discussed this briefly with Dave Carter, FHWA, who did not voice any objection

Lang was following up with F. Erickson in getting Bridge concurrence.

Signature Roger Lang

File ( ) ( ) (✓) ( ) ( ) ( ) ( ) ( )
Circulate: PME LGE OPE FAE CCE OM Other

8901

ROBERT W. STRAUB
GOVERNOR

Department of Transportation
STATE HIGHWAY DIVISION

REGION 5 OFFICE

W. E. Schwartz
Region Engineer

P. O. Box 850 ... ... La Grande, Oregon 97850 ... ... Phone 963-3177

June 15, 1978

Hon. Roy Hirai
Malheur County Judge
Courthouse
Vale, Oregon 97918

Dear Judge Hirai:

RE: Bully Creek (Airport Road) Bridge Section, FAS B495, Bridge No. 16341

Enclosed are two copies of drawings 33452 and 33098 which are the preliminary plan/elevation and vicinity map for the Bully Creek Bridge on Airport Road (W. Main, Vale).

The estimated cost of the structure is $112,000, including contingency allowance of 4½% and construction engineering of 9%. This amount compares very favorably with the $107,000 reconnaissance estimate of February 1977 (+4.7%).

One of our design objectives is to achieve the best possible sight distance for the motorist. In order to achieve this, while not conflicting with the high water flow of Bully Creek, we have lowered the deck surface approximately three feet while maintaining about two feet of clearance from the recorded high water level. Also, the lowering of the grade will blend in and be more compatible with the adjacent residence landscape. Under the terms of the project application, the County is to perform the needed approach work. The lowering of the grade will increase the cost of this work, but it is felt this is the best solution in the long run.

Please examine the plans carefully and if found acceptable, present them to the Court for signature. If you have any questions, do not hesitate to contact P. F. Burnett, Resident Engineer, telephone 889-8558. After the plans have been signed, return one copy to me, retaining one copy for your records.

Our proposed bid letting date of September 21, 1978 remains firm.

PROJECT MANAGEMENT
PME LGE
CCE ☐ FAE ☐
OM ☐ OPE ☐
JUN 19 1978
File: PM FA LG OP
TAA Reynolds

Sincerely,

R C Lang
R. C. Lang
Region 5 Federal Aid Specialist

RCL:sh
Enclosures

cc W. J. Hart
Gerald Wimer
P. F. Burnett w/attach

Form 81-734 3123

MKAC001

1T

Form 81-734-[illegible]

8908

OREGON STATE HIGHWAY DIVISIO

AUTHORITY FOR SURVEY

Section Malheur River (Airport Rd.) Bridge Section

Date June 12, 1978

Highway FAS-C B495

Authorization No. 1

County Malheur

Survey Prefix 523-1975 (Assigned by Salem office)

Description of termini, route, length, etc.:

At the crossing of the Malheur River about 3.6 miles S.W. of Vale, approaches should be surveyed at least 600 feet each side of river to obtain the best vertical control.

Sent 6/27/78

Purpose of survey:

Prepare plans, specifications and estimate of costs.

Bridge design at no cost under provisions of ORS 369.210.

RS-B495(2)
8-11-78

Estimate of cost:	Field	901	2,500
	Plans	905	500
	Structural Design	906	4,500
	Soils	910	500
	Liaison	913	100
	Utility	914	250
	Hydraulics	918	650
	Specifications	921	500
	Foundation Expl.	926	3,000

Total estimated cost of survey	$12,500
Previous authorization	
Additional authorization requested	
Additional authorization approved (Salem)	
Total all authorizations approved (Salem)	

INSTRUCTIONS

Submit four copies to Salem. After approval by the Assistant State Highway Engineer, one copy will be sent to the Regional Engineer and one copy to the Resident Engineer.

This form does not constitute authority for making survey until approved and returned.

Submit separate order for each survey.

Requests made by: R. C. Lang
Field Engineer

Recommended for Approval:
Regional Engineer

Recommended for Approval:
Location Engineer

Approved:
Tech. Serv. Mgr. ~~Assistant State Highway Engineer~~ XXXXXXXXXXXXXXX

SP*18769-734

8908

FORM 81-734-3030

OREGON STATE HIGHWAY DIVISION FILE:

INTER-OFFICE CORRESPONDENCE
La Grande, Oregon
June 12, 1978

FROM: R. C. Lang
Region 5 Federal Aid Specialist

R C Lang

TO: Gerald Wimer, Manager
Local Government Section

SALEM

SUBJECT: Proposed FAS-C Project
Malheur River (Airport Rd.) Bridge Section
FAS B495, Airport Road
Malheur County

6/9/78

Enclosed is Project Application and copy of letter from Malheur County concerning the above project and requesting advancement of funds which should become available to them in October. ✓

Presently, Malheur County has a fundable project balance of $160,000. With the anticipated allotment of $109,000, the fundable balance would be at $287,538 which is well above the reconnaissance estimate of $201,000.

The project assessment is being reviewed by John Preston, Region Environmentalist, and will be forwarded to the Environmental Unit when completed.

Also enclosed is an Authority for Survey showing the anticipated costs.

Please take the necessary steps to program this request. Also, note the County is requesting construction during the 1979 season. ✓

To Type
6/30

PROJECT MANAGEMENT
PME ☐ CCE ☒ OM ☐
[✓ LGE] FAE ☐ OPE ☐
JUN 15 1978
File: PM FA
LG OP
TA [illegible]

We're already over committed for '79
We cannot add this Const. If
County will give letter we will
process PE

RCL:sh
Enclosures

cc Judge Hirai
Harold Brainerd w/attach
P. F. Burnett "
Harlin Gerlach "
Region 5 R/W "

Form 01-734-3050

OREGON STATE HIGHWAY DIVISION

AUTHORITY FOR SURVEY

Section Malheur River (Airport Rd.) Bridge Section

Date June 12, 1978

Highway FAS-C B495

Authorization No. 1

County Malheur

Survey Prefix (Assigned by Salem office)

Description of termini, route, length, etc.:

At the crossing of the Malheur River about 3.6 miles S.W. of Vale, approaches should be surveyed at least 600 feet each side of river to obtain the best vertical control.

Purpose of survey:

Prepare plans, specifications and estimate of costs.

Bridge design at no cost under provisions of ORS 369.210.

Estimate of cost:

To Carstensen
7/6/78

INSTRUCTIONS

Submit four copies to Salem. After approval by the Assistant State Highway Engineer, one copy will be sent to the Regional Engineer and one copy to the Resident Engineer.

This form does not constitute authority for making survey until approved and returned.

Submit separate order for each survey.

Total estimated cost of survey . . . . . . $

Previous authorization . . . .

Additional authorization requested . . . .

Additional authorization approved (Salem) .

Total all authorizations approved (Salem) . .

Requests made by: R C Lang
Field Engineer

Recommended for Approval:
Regional Engineer

Recommended for Approval:
Location Engineer

Approved:
Assistant State Highway Engineer

SP*19760-734

		Requested
Field Survey	*(901)	2500
Citizen Input	*(902)	
Consultant	(904)	
Final Design	(905)	500
Bridge Design	(906)	— N/A
Preliminary Design	(907)	
R/W Descriptions	(909)	
Soils & Geology	*(910)	500
Traffic	*(911)	
Landscape	(912)	
Liaison	*(913)	100
Utility	*(914)	250
Photogrammetry	(916)	
Location Studies	(918)	500
Engr. Graphics	(919)	
Office Engineer	(920)	
Specifications	*(921)	500
Environmental	*(923)	
Planning	(924)	
Foundation Exploration	*(926)	3000
~~Seminars~~ Hist. Inventory	(950)	
Hearings	*(980)	
Equal Opportunity	*(985)	
TOTALS		

FEDERAL AID PROJECT REQUEST

Date June 1, 1978

Applicant Agency Malheur County

Request for: Off-System ____, FAS-C X , FAUS ____ Project

Federal Aid Route No. B 495 Route Name

Project Name Malheur River (Airport Road) Bridge Section

Project Length 800' + (0.15 mile) Project Location (Attach sketch map)

Project Description Construct 3 span reinforced concrete, prestressed slabs, bridge, approaches and guard rail.

Average Daily Traffic 80 Design Speed 55

Complete Applicable Sections:

I. ROADWAY DATA

1. Existing Roadway: (Attach sketch)

Width 26 Travel Lanes 2 (11) Shoulders 2'

Medians none Parking

Sidewalks none

Remarks roadway shows no distortion, oil mat surface

2. Desired Roadway Cross Section: (Attach sketch)

Width 28 Travel Lanes 2 (12) Shoulders 2'

Medians none Parking none

Curbed none Length Curb Radii

Sidewalk/Bikeway none

Remarks Project is in rural setting. Few pedstrians or bicycle riders ever come this way.

II. RIGHT-OF-WAY DATA

1. Existing Right-of-Way:

General Width 60 Minimum ____ Maximum ____

2. Has right-of-way been acquired for this project subsequent to January 2, 1971?
Yes ____ No X

3. Will additional right-of-way be needed? Yes ____ No X
If answer is "yes," will cost of right-of-way be subject to Federal reimbursement? Yes ____ No ____
Remarks

III. TRAFFIC CONTROL DATA

1. Existing Signalization and Location:

none

2. **Proposed Signalization:**

Location none

Type
Phases
Type of Suspension
Interconnected
Remarks

3. **Permanent Signing:**

Include in project or by applicant? no signing required

4. **Permanent Striping:**

Include in project or by applicant? N/A

IV. ILLUMINATION DATA

1. **Existing Illumination and Location:**

none

2. **Proposed Illumination:**

Location none
Type
Remarks

V. STRUCTURE DATA

1. **Existing Structure:**

Location M.P. 3.6, at Malhuer River
Type Combination wood and steel pile, comb. wood and steel stringers, wood deck
Approach Roadway Width 26 Shoulder Width 0
Length 160 Width 13
To remain in place? no

2. **Proposed Structure:**

Location M.P. 3.6, at Malhuer River

Approximate Size: Length 160 Width 28

Are sidewalk/bikeways desired: no. Little, if any,bicycle traffic has been noted. Cost of construction would not be warranted.

Are any utilities to be attached to structure? Yes, telephone conduit.

Are provisions for illumination desired? No

Are there any unusual or complicating conditions? Yes. construction must be prior to August 1 or after October 1

Remarks Construction is requested for 1979 season. Harvest of truck garden crops dictates construction schedule. Road may be closed during construction.

VI. RAILROAD DATA

1. Are there any railroad crossings? Yes______ No X

   Name of Railroad______

   Existing Crossing Protection______

2. Will existing railroad crossing be altered?______

   Remarks______

VII. ACTION PLAN REQUIREMENTS

During project development for Category 1, 2, and 3 projects, the city or county shall perform and document responsibilities as found indexed in the Oregon Action Plan, particularly Citizen Involvement and Participation; Environmental Aspects; and Public Hearing Requirements.

The OSHD Region Engineer will provide assistance, liaison and monitoring for these activities.

Responsible local office and party to be contacted for the following activities:

1. Citizen Involvement County Judge, Roy Hirai
   Office
2. Environmental " " " "
   Office
3. Public Hearing " " " "
   Office

Remarks______

VIII. GENERAL INFORMATION

1. Project preliminary engineering to be performed by:

   Applicant______ State X Consultant______

2. Project construction engineering to be performed by:

Applicant______ State X Consultant______

3. Will applicant perform any work prior to or after award of contract?

Yes X No______

If "yes," describe briefly: County will remove dismanteled bridge from the site. Contractor will not be required to dispose of any materials or will have any claim for these materials.

4. Applicant's estimate of cost for requested project:

Roadway Work	$ 14,500
Right-of-way costs (if participating)	
Traffic control	
Illumination	
Structures	179,200
Railroad	
Other	
Preliminary engineering	7,300
** PROJECT TOTAL	$ 201,000

Remarks Project to be developed under the terms of FAS-C agreement approved 12-21-77. It is noted the hydraulic opening of the present structure appears to be much larger than necessary. The Court requests the structure length be reduced, if possible.

THIS APPLICATION IS AN OFFICIAL REQUEST FROM:

CITY OF ______ and/or Malhuer COUNTY

By______ By Roy [illegible]

By______ By W. C. Hammack

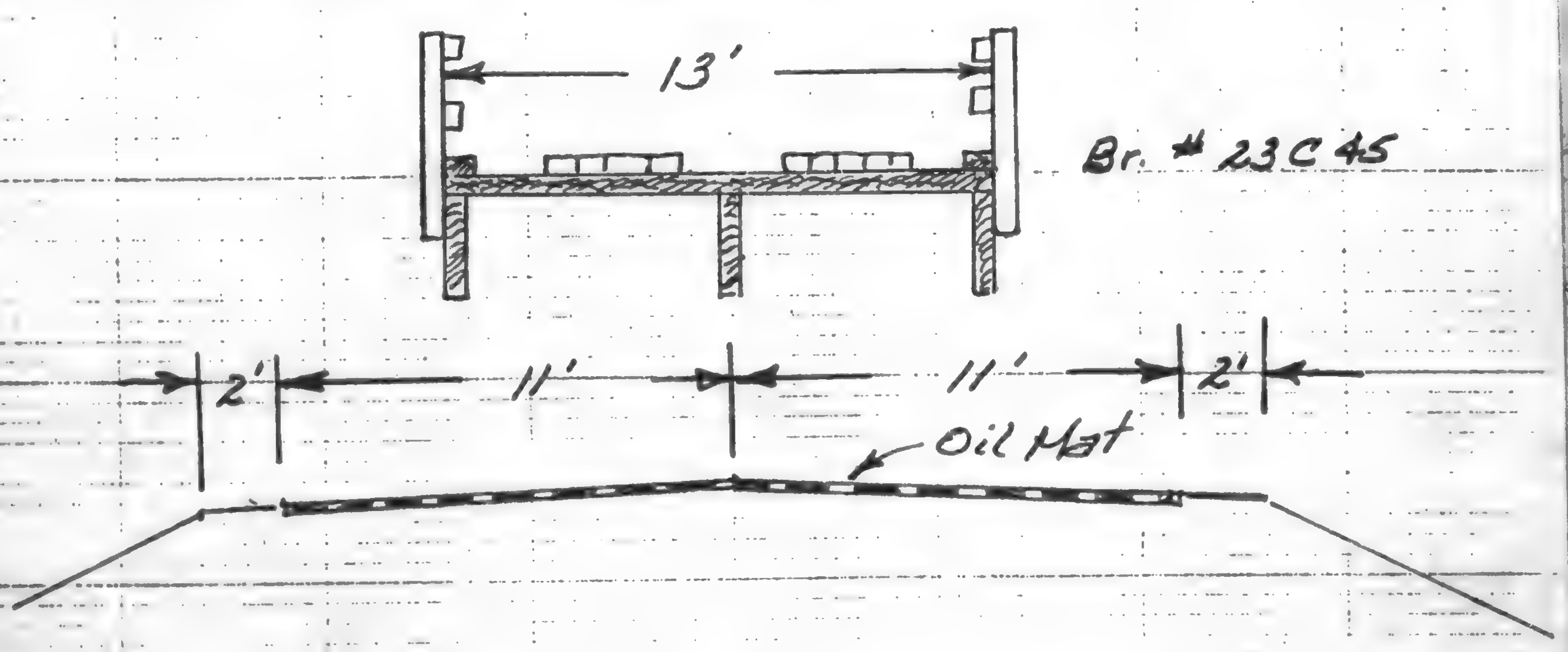
By M A Foote

** Project estimate is based on 160' length, costs should reduce if bridge length can be reduced.

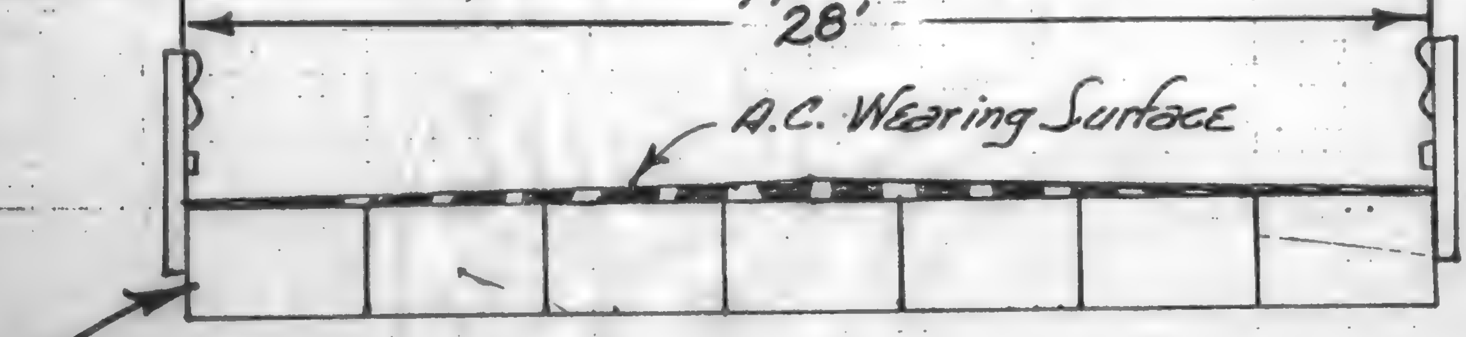
201,000 x 85 = 167,850

(1976)

Existing typical Section


13'
Br. # 23C45
2'
11'
11'
2'
Oil Mat

Proposed typical Section


28'
A.C. Wearing Surface
Reinforced Prestressed Conc. slabs

Note: Widen existing roadway
to meet proposed structure
and overlay with A.C. pavement
to provide Smooth ride.

8908

MALHEUR RIVER (AIRPORT ROAD) BRIDGE
Malheur County Prefix 523-1975

Narrative Report of Survey

Work started on this vicinity survey on September 5, 1978. Field work was completed the end of the following week, September 15, 1978.

Drill crew was on site 9-11 to 9-15-78. Test holes were drilled near both ends of existing bridge.

The existing bridge appears to be in good shape - apperently when the existing was built there were plans to later widen this bridge to two lanes. Cemter line of existing roadway is along the upstream edge of existing bridge. From infomation we can get from county personnel, the present bridge was constructed in 1960 under State supervision. (This date was given by Carl Sperling, Retired County Roadmaster, who was still working at that time.)

It appears that existing bents could be used for half width of proposed structure. The main spans are on H piling with concrete pile caps. Would probably want to replace end bends that are treated timber caps on timber piling. End spans are wood stringers and wood decking and should be replaced also. Deck on existing structure is treated timber supported on steel I beams.

If existing structure or parts of it could be utilized in construction of proposed new bridge, traffic could be maintained on present road rather than either construction of detour or closing existing road during construction of new bridge. (Original project assessment calls for the possible closure of this crossing during construction.) In the event of closure, construction schedule would have to be prior to August 1 and after October 1 to keep road open for traffic during harvest season.

Have discussed this proposed structure hith members of Malheur County Court and they concur that possibility of utilizing the existing structure should be explored.

High water elevation shown on vicinity map is apparent high water at structure. This would probably represent the highest water since construction of present bridge.

The existing structure has rip rap on bridge ends - would recommend placing rip rap on proposed new structure.

Malheur County Court would like to have this bridge replacement contract scheduled during 1979 construction season.

There are no particular problems anticipated on this proposed project. One other structure is the immediate area that might be helpful for hydrological data: Russel Bridge that was constructed in 1976 and is approximately 3 miles upstream from this site. It is a three span slab structure with span length of 47 feet - 9 inches.

Bridge 160± long

Michael J Gardner
for P.F. Burnett,
Resident Engineer

MALHEUR RIVER (AIRPORT ROAD) BRIDGE
Malheur County Prefix 523-1975

Narrative Report of Survey
(Addendum)

In checking further on existing structure with Ted Thompson in Bridge Design Office - no record of State participation and/or engineering of this structure available. Checked with Malheur County and they don't have anything definite on this. They thought that this structure may have been constructed by Army Engineers as they did some channel and dike construction along Malheur River in this area.

If existing structure is used for one lane would recommed encasing existing H piling in concrete.

Existing roadway should be left undisturbed wherever possible. County will probably do the grading and surfacing work to reduce cost. They are to do this portion of work on Bully Creek(Airport Road) Bridge that is presently under contract.

Were unable to locate any property corners in this area. None of the adjacent property owners knew of existing corners. Checked with County Surveyors office but they were not able to give us any information. Existing fences appear to be pretty close to specified 60' R/W line. Tax lot map of this area is being submitted with location data. Present owners pencilled on this map. It doesn't appear that additional R/W will be needed for proposed construction.

P. F. Burnett
Resident Engineer

Job No. .... Sheet ...... of ...... Sheets

OREGON STATE HIGHWAY DIVISION

Calculations for Malheur River (Airport Road) Bridge

Made by ...., 19.... Checked by ...., 19.... Backchecked by ...., 19....

ESTIMATE OF QUANTIES & COST

Item	Unit	Quantity	Unit Price	Cost
Mobilization	Lump Sum	All	$ 18,179.00	$ 18,179.00
Bridge Removal Work	Lump Sum	All	10,000.00	10,000.00
Toe Trench Excavation	Cu. Yd.	60	15.00	900.00
Structure Excavation	Cu. Yd.	40	15.00	600.00
Furnish Pile Driving Equipment	Lump Sum	All	7,500.00	7,500.00
Furnish 16" Prestressed Conc. Piling	Lin. Ft.	462	22.00	10,164.00
Furnish Prestressed Conc. Piling	Lin. Ft.	396	18.00	7,128.00
Drive Prestressed Conc. Piles	Lin. Ft.	780	5.00	3,900.00
Structural Conc. Class 3300	Lump Sum	All	15,000.00	15,000.00
4' X 55'-60' Prestressed Slabs	Each	21	4,000.00	84,000.00
Reinforcement	Lump Sum	All	4,000.00	4,000.00
3 Tube Steel Railing	Lin. Ft.	360	70.00	25,200.00
Guard Rail in Stockpile	Lump Sum	All	5,000.00	5,000.00
Asphalt Membrane	Sq. Yd.	560	15.00	8,400.00
Rip Rap (Class 100)	Cu. Yd.	150	20.00	3,000.00
	Total	Bridge	Items	202,971.00
May be Performed By Others (County)				
Embankment in Place	Cu. Yd.	500	5.00	2,500.00
Aggregate Base	Cu. Yd.	180	8.00	1,440.00
Class "B" A.C. (Commercial Mix) Includes Tack	Cu. Yd.	135	20.00	2,700.00
		Total		209,611.00
		+20% Engr.	& Cont.	41,889.00
		Total Cost		$251,500.00

Note: Above unit prices based on Bully Creek Bridge (Vale) Contract 8816. Adjusted upward for cost escalation by next year.

Bridge 166' long

Form E-106

Job No. ....

Sheet ...... of ...... Sheets

OREGON STATE HIGHWAY DIVISION

Calculations for .... MALHEUR RIVER (AIRPORT ROAD) BRIDGE ....

Made by ...., 19...... Checked by .... 19....... Backchecked by ...., 19.......

ESTIMATE OF COST

Cost of structure based on figure of $33.00/sq. ft. for 60 foot & over span length. This figure recieved from Ted Thompson, Bridge Design office

[160 x 28] x $33.00 = $ 147,840.00
+40% Engrg. Cont. & Unknown 59,160.00

Total Cost of Structure $ 207,000.00

Following Items May Be Performed
By others (County)

Item	Unit	Quantity	Unit Price	Cost
Embankment in Place	Cu. Yd.	500	5.00	2,500.00
Aggregate Base	Cu. Yd.	180	8.00	1,440.00
Class "B" A.C. (Commercial Mix) Includes Tack	Ton	135	20.00	2,700.00
Type 2A Guard Rail	Lin. Ft.	200	20.00	4,000.00
		Total (Unit Items)		$ 10,640.00
		+20% Engr. & Cont.		2,160.00
		Total		$ 12,800.00

Total Estimate of Cost, structure and grading $ 219,800.00

1979 E. Fremont Br. Conn. on 8909
FAU 9910 in Portland
(gr, pave, sign & illum.) #5

C&A 5202 - 4-4-79
C&A 5203 - 1-16-78

8909 6-22-82

HIGHWAY DIVISION INVOICE

INVOICE NUMBER 134570

BILLING REQ. NUMBER CA 9966

DATE 6-22-82

YOUR ORDER NUMBER

SEND REMITTANCE TO:
OREGON STATE HIGHWAY DIVISION
TRANSPORTATION BUILDING
SALEM, OREGON 97310

CODE PØRCYPW

CITY OF PORTLAND
400 SW SIXTH AVENUE
PORTLAND OR 97204

CREDIT DISTRIBUTION

324.02	2,061.50
326-1917-296-00-000	2,061.50
326-1917-295-00-000	(2,061.50)

DESCRIPTION	TOTAL PRICE
Final settlement on Freemont Gridge - Union Ave-Connection (Portland) section, M-9914 (1)	
Total Project Cost	$389,150.84
Less: Federal Funds	304,255.45
State Share of Project Cost	42,433.89
City Of Portland Share of Project Cost	42,461.50
Less City Of Portland Advance Deposit	40,400.00
AMOUNT DUE FROM CITY OF PORTLAND	$ 2,061.50

PORTLACE 001221

110.00 Fianl

IF YOU HAVE QUESTIONS ON THIS INVOICE, PLEASE CONTACT:

GARY ZEHNER PH 1-800-452-7813 Ext 8-6514 FOR CORRECTNESS OF CHARGES

OR Diana Galida PH 1-800-452-7813 Ext 8-5035 PREPARER OF INVOICE

734-1180 (8-81)

OREGON DEPARTMENT OF TRANSPORTATION

8-7-7

HIGHWAY DIVISION

REQUEST FOR OUTSIDE BILLING
(OR ADVANCE DEPOSIT TRANSFER)

DATE 6-16-82	PURCHASE ORDER NUMBER	☐ PARTIAL ☒ FINAL	PRIOR REQUEST NUMBER	BILLING REQUEST NUMBER CA 9967

INVOICE NUMBER

CODE

BILL TO:

City of Portland
400 S.W. 6th Avenue
Portland, Oregon 97204

CREDIT DISTRIBUTION

324.02	1,339.96
326-1012-296-00-000	1,339.96
326-1012-295-00-000	<1,339.96>

DESCRIPTION: (Describe the service rendered, location, etc. Refer to agreements, letters and orders by which payer authorized the service.)

TOTAL

Final Settlement for East Fremont Bridge Connection
Urban Route #9910 Multnomah Co., M-9910(1)

Total Project Cost	$194,509.58
Less: Federal Funds	-171,277.37
Less: State Share of Project	- 11492.26
City of Portland Share of Project	$11,739.95

City of Portland Advance Deposit:	$12,200.00
Less City Share of Project Cost	11,739.96
Refund due City	$ 460.04

IF YOU HAVE QUESTIONS ON THIS INVOICE, PLEASE CONTACT:

Gary Zehner PH: 1-800-452-7813 Ext. 86514 FOR CORRECTNESS OF CHARGES

OR PH: PREPARER OF INVOICE

PORTLAC 002345

Advance Deposit Amount	$12,200.00
Advance Deposit Previously Transferred to Highway Fund	$10,400.00
Balance	$1,800.00
Transfer to Highway Fund	$1,339.96
Refund Due	$460.04

AMOUNT DUE $

SUBMITTED BY

Diane Galido

APPROVED BY

734-1191 (9-81)

5909

HIGHWAY DIVISION

REQUEST FOR OUTSIDE BILLING
(OR ADVANCE DEPOSIT TRANSFER)

INVOICE NUMBER

DATE 6-16-82

PURCHASE ORDER NUMBER

☐ PARTIAL ☒ FINAL

PRIOR REQUEST NUMBER

BILLING REQUEST NUMBER CA 9966

CODE

BILL TO:

City of Portland
400 S.W. Sixth Avenue
Portland, Oregon 97204

CREDIT DISTRIBUTION

324.02	$2,461.50
326-1917-296-00-000	2,461.50
326-1917-295-00-000	<2,461.50>

DESCRIPTION: (Describe the service rendered, location, etc. Refer to agreements, letters and orders by which payer authorized the service.)		TOTAL
Final Settlement on Freemont Bridge - Union Ave - Connection (Portland) Section [redacted]		
Total Project Cost		$389,150.84
Less: Federal Funds		-304,255.45
Less: State Share of Project Cost		-42433.89
City of Portland Share of Project Cost		$42,461.50
City of Portland Share of Project Cost	$42,461.50	
Less City of Portland Advance Deposit	-40,400.00	
Amount Due From City of Portland	$2,461.50	

IF YOU HAVE QUESTIONS ON THIS INVOICE, PLEASE CONTACT:

Gary Zehner PH: 1-800-452-7813 Ext 86514 FOR CORRECTNESS OF CHARGES

OR Diane Galido PH: 1-800-452-7813 Ext 85035 PREPARER OF INVOICE

For TLAC 001221

Advance Deposit Amount	$ 40,400.00
Advance Deposit Previously Transferred to Highway Fund	$ 36,400.00
Balance	$ 4,000.00
Transfer to Highway Fund	$ 4,000.00
Refund Due	$ -0-

AMOUNT DUE $ 2,461.50

SUBMITTED BY Diana Galido

APPROVED BY

734-1191 (9-81)

8909

P

RECEIVED
JUN 10 1982
CONTRACT ACCOUNTING

OREGON STATE HIGHWAY DIVISION

ITEMIZED STATEMENT OF FINAL COSTS **DATE:** 6/10/82

CITY PORTLAND **Contract No.** - - - **Date Completed** - - - -

PROJECT # M-9914(1) **Section** Fremont Br.-Union Ave. Connection

PAYMENTS TO CONTRACTOR

ITEM		TOTAL COST
Preliminary Engineering:		
Resident Engineer		$ 5,759.26
Citizen Involvement		334.76
Payment to City		32,132.95
Consultant Fee		339,985.40
Final Design		3,838.94
Bridge Design		1,112.45
Preliminary Design		471.56
R/W Descriptions		1,028.88
Soils & Geology		68.48
Signing		735.19
R/W Liaison		20.92
Utility Liaison		15.90
Audit Expense		68.45
Project Management		106.50
Specifications		2,501.72
Administrative Services		33.61
Environmental Section		802.48
Training Courses		105.57
Public Hearing		27.82
TOTAL P.E. COST		$389,150.84
Less Federal Funds		304,255.45
BALANCE		$ 84,895.39
Less Non-Participating Costs:		
Resident Engineer	$24.40	
Environmental Section	3.22	$ 27.62
Amount to be Shared by State & City		$ 84,867.77

STATE SHARE: 50% of $84,867.77 = $42,433.89

CITY SHARE: (50% of $84,867.77) + $27.62 = $42,461.50

Less City's Advance Deposit 40,400.00

BALANCE DUE FROM CITY $ 2,061.50

cc: Jon Rose

Reference: Billing Form________

Con. 21-10-1
Emanual
p

OREGON STATE HIGHWAY DIVISION

ITEMIZED STATEMENT OF FINAL COSTS **DATE:** 6/10/82

CITY PORTLAND **Contract No.** - - - **Date Completed** - - - -

PROJECT # M-9914(1) **Section** Fremont Br.-Union Ave. Connection

PAYMENTS TO CONTRACTOR

ITEM		TOTAL COST
Preliminary Engineering:		
Resident Engineer		$ 5,759.26
Citizen Involvement		334.76
Payment to City		32,132.95
Consultant Fee		339,985.40
Final Design		3,838.94
Bridge Design		1,112.45
Preliminary Design		471.56
R/W Descriptions		1,028.88
Soils & Geology		68.48
Signing		735.19
R/W Liaison		20.92
Utility Liaison		15.90
Audit Expense		68.45
Project Management		106.50
Specifications		2,501.72
Administrative Services		33.61
Environmental Section		802.48
Training Courses		105.57
Public Hearing		27.82
TOTAL P.E. COST		$389,150.84
Less Federal Funds		304,255.45
BALANCE		$ 84,895.39
Less Non-Participating Costs:		
Resident Engineer	$21.00	
Environmental Section	3.22	$ 24.22
Amount to be Shared by State & City		$ 84,871.17

STATE SHARE: 50% of $84,871.17 = $42,435.59

CITY SHARE: (50% of $84,871.17) + $24.22 = $42,459.80

Less City's Advance Deposit 40,400.00

BALANCE DUE FROM CITY $ 2,059.80

Reference: Billing Form ________

8909

P

OREGON STATE HIGHWAY DIVISION

ITEMIZED STATEMENT OF FINAL COSTS **DATE:** 6-10-82

CITY PORTLAND **Contract No.** 8909 **Date Completed** 9-7-79

PROJECT # M-9910(1) **Section** Fremont Br.-Union Ave. Connection

PAYMENTS TO CONTRACTOR

ITEM		TOTAL COST
Payment to Contractor		$163,268.32
Credit for Liquidated Damages		(900.00)
Interest on Final Payment		79.06
SFO #1 Adjustment of City Water Facilities		1,604.45
SFO #2 Permanent Striping		2,291.03
SFO #3 Fabricate and Install Signs		181.83
SFO #4 Furnish Pole & Luminaire Unit		499.00
SFO #5 Install Sign & Electrical Wire		1,713.43
Construction Engineering		25,308.41
R/W Descriptions		10.83
Audit Expense		56.28
Project Management		109.39
Specifications		223.64
Administrative Services		4.26
EEO Monitoring		59.65
TOTAL CONSTRUCTION COST		$194,509.58
Less Federal Funds		171,277.37
BALANCE		$ 23,232.21
Less Non-Participating Costs:		
Interest on Final Payment	$ 79.06	
SFO #5 Install Sign	168.64	
Construction Engineering	25.81	$ 273.51
Amount to be Shared by State & City		$ 22,958.70

STATE SHARE: 50% of ($22,958.70 + $25.81) = $11,492.26

CITY SHARE: 50% of $22,958.70 + ($273.51 - $12.90) = $11,739.96
Less City's Advance Deposit 12,200.00

REFUND DUE CITY $ 460.04

cc: Jon Rose

Reference: Billing Form________

(MEMORANDUM)

FORM APPROVED BY
COMPTROLLER GENERAL,
U.S. MAY 12, 1966

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

VOUCHER FOR WORK PERFORMED UNDER PROVISIONS OF THE FEDERAL AID AND FEDERAL HIGHWAY ACTS, AS AMENDED

STATE VOUCHER NO.

FHWA VOUCHER NO.

FHWA SCHEDULE NO.

APPROPRIATION

THE UNITED STATES, DR., TO *(Insert official or depositary named in project agreement)*

Treasurer of the State of Oregon

ADDRESS

Capitol Bldg.
Salem, OR 97310

PAID BY

(For use of Paying Office)

STATE

Oregon

VOUCHER TYPE *(Check Appropriate Block)*

☐ CURRENT BILLING

☐ OTHER PROGRESS

☒ FINAL VOUCHER (*)

VOUCHER PERIOD

FROM 3-21-79

TO 3-3-81

FEDERAL AID PROJECT NO.

M-0910(1)

(*) *Use Form FHWA-1447 for Final Voucher for a project constructed under certification acceptance or secondary road procedures (23 U.S.C. 117).*

TOTAL ACTUAL COST	TOTAL PARTICIPATING COST	PRO-RATA OF PARTICIPATING COST CLAIMED FROM U.S.	TOTAL AMOUNT CLAIMED FROM U.S.	LESS PREVIOUS PAYMENTS	NET AMOUNT CLAIMED
$194,483.77	$194,236.07	88.18%	$171,277.37	$171,277.37	$ 0.00

RECEIVED DIVISION OFFICE
BY Oregon DATE

DIVISION OFFICE REVIEW MADE
BY DATE 7/2/81

PASSED FOR PAYMENT
BY V.E. Shoop, Controller DATE

REMARKS

CONST. - 326-1012

$ 0.00

FORM PR-20A
(Rev. 5-78)

PREVIOUS EDITIONS ARE OBSOLETE

8909

STATEMENT OF COSTS INCURRED UNDER PROJECT AGREEMENT

ITEM NO.	ITEM	QUANTITY	UNIT	PRICE	AMOUNT	NOTATIONS (Payee must not use this column)
	7-23-81					
	East Fremont Bridge Connection Urban Route #9910 Multnomah County					
	Construction					
	Type Code 6203					
	Roadway (Sta. 315+68.62 to Sta. 311+68.62)(Sta. 1+11.38 To Sta 5+38.09)					
	Final Contract Payment Summary		Lump Sum		$130,847.45	
SFO	#2 Permanent Striping (State)		All Required		2,291.03	
SFO	#1 Adjustment of Water facilities (City of Portland)		All Required		1,604.45	
	Total Participating Type Code 6203				$134,742.93	
	Type Code Y002					
	Signing (Throughout Project)					
	Final Contract Payment Summary		Lump Sum		20,420.87	
SFO	#3 Fabricate and install signs (State)		All Required		181.83	
SFO	#5 Install sign and electrical wire (State)		All Required		1,544.79	
	Total Participating Type Code Y002				$ 22,147.49	
	Type Code Y030					
	Illumination (Throughout Project)					
	Final Contract Payment Summary		Lump Sum		12,000.00	
SFO	#4 (State) Furnish pole with arm and luminaire unit		All Required		499.00	
	Total Participating Type Code Y030				$ 12,499.00	
	Total Participating Construction Cost				$169,389.42	
	Construction Engineering					
	State		All Required		25,678.43	
	Liquidated Damages		Lump Sum		(900.00)	
	Total Participating Construction Engineering				$ 24,778.43	
	Type Code 6203 $19,698.86					
	Type Code Y002 3,245.97					
	Type Code Y030 1,833.60					
	Misc. Project Cost					
	Audit Expense		All Required		$ 56.28	
	EEO Monitoring Expense		All Required		11.94	
	Total Participating Misc. Project Cost				$ 68.22	
	Type Code 6203 54.24					
	Type Code Y002 8.94					
	Type Code Y030 5.04					
	Total Participating Cost				$194,236.07	
	Nonparticipating Project Cost					
	Interest on Final Payment		All Required		79.06	
SFO	#5 Install sign (State)		All Required		168.64	
	Total Nonparticipating Cost				$ 247.70	
	Total Project Cost				$194,483.77	

Prepared based on Participating Costs as shown on Federal Billing as of 7/23/81.

AMOUNT CARRIED FORWARD

```
TOTAL TO DATE JOB COST SUMMARY                                              APRIL 1982       PAGE  225

                                                                               FISCAL         GRAND TOTAL     ACTIVE YRS
DESCRIPTION OF JOB OR DEPARTMENT      PREFIX      FUNCTION   GR  CURRENT MONTH    YEAR TO DATE     TO DATE        BEG   END
                                   326  1011     945     00 P 1                        14.61           14.61      82    82
                                   326  1011     946     00 P 1                       183.98          183.98      81    81
                                                 TOT        P1             33.90      587.16       30,749.89
                                                 TOT        N1                         95.33          169.41
                                              ** JOB TOTALS **             33.90  **  682.49  **   30,919.30  **

  E FREMONT BR CONNECTION       CONT NO 8909 * FA PROJ NOS M   910001 100                                 STATE
                                   326  1012     201     00 P 1 Pay Contr.                        163,268.32      79    80
                                   326  1012     203     00 P 1 Cr. Liq. Dam.                         900.00CR    79    80
                                   326  1012     206     00 N 1 Int.                                   79.06      80    80
                                   326  1012     210     04 P 1 SFO #4                                499.00      80    80
                                   326  1012     210     05 P 1                        420.95CR                   80    81
                                   326  1012     270     02 P 1 SFO #2                              2,291.03      79    80
                                   326  1012     270     03 P 1  "  #3                                181.83      79    80
                                   326  1012     270     05 P 1  "  #5                 420.95       1,544.79      80    81
                                   326  1012     270     05 N 1  "  "                                 168.64      80    80
                                   326  1012     285     01 P 1  "  #1                              1,604.45      79    79
                                   326  1012     295     00 N 9 Tr. City                           10,400.00      79    79
                                   326  1012     296     00 N 9  "  St.                155.39CR   181,677.37CR    79    81
                                   326  1012     298     00 N 9  "  Fed.               155.39     171,277.37      79    81
                                   326  1012     900     00 P 1 Const. Engr.                       25,270.66      79    81
                                   326  1012     909     00 P 1 R/W Des.                               10.83      80    80
                                   326  1012     915     00 P 1 Audit                                  56.28      80    80
                                   326  1012     920     00 P 1 Proj. Mant                            109.39      79    79
                                   326  1012     921     00 P 1 Specs.                                223.64      79    80
                                   326  1012     922     00 P 1 Adm. Ser.                               4.26      80    80
                                   326  1012     945     00 P 1 Const. Sec.                            11.94      81    81
                                   326  1012     948     00 N 1 Tot. Const Engr         25.81          25.81      81    81
                                   326  1012     985     00 P 1 EEO Monitoring Ex                      59.65      79    79
                                                 TOT        P1                                    194,236.07
                                                 TOT        N1                          25.81         273.51
                                              ** JOB TOTALS **                    **    25.81  **  194,509.58  **

  L TURN PHASES-10 INTERSEC     CONT NO      * FA PROJ NOS M   00C009 100                                 STATE
                                   326  1013     282     00 P 1                                    20,184.09      79    82
                                   326  1013     294     00 N 1                        510.81       1,192.88CR    80    82
                                   326  1013     296     00 N 9                         31.41CR    18,221.56CR    79    82
                                   326  1013     298     00 N 9                         31.41      18,221.56      79    82
                                   326  1013     900     00 P 1                                       116.78      79    81
                                   326  1013     900     01 P 1                                        77.71      80    80
                                   326  1013     900     10 P 1                                       190.12      79    80
                                   326  1013     915     00 P 1                                        67.80      80    80
                                   326  1013     920     00 P 1                                        13.40      79    79
                                   326  1013     948     00 P 1                         14.15          14.15      81    81
                                                 TOT        P1                          14.15      20,664.05
                                                 TOT        N1                         510.81       1,192.88CR
                                              ** JOB TOTALS **                    **   524.96  **   19,471.17  **
```

2-26-81

#8909 **STATE COPY**

cy: State (H S Coulter)

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

FINAL ACCEPTANCE REPORT

REGION NO. 10	REPORT NO. 2	COUNTY Multnomah	DIVISION Oregon
DATE OF REPORT 2-26-81	REPORT MADE BY C. T. Christianson, Area Engineer		PROJECT NO. M-9910(1)
COMPLETION DATE 9-7-79	ACCEPTANCE DATE BY CONTRACT AGENCY 5-28-80	TIME ELAPSED 110	CONTRACT TIME 110 CD
APPROVED EXTENSIONS 20 CD	LOCATION East connection to Fremont Bridge at I-5/I-405 Intersection, Portland.		

*The PR-47, Statement of Materials and Labor Used by Contractors on Highway Construction Involving Federal Funds, has been submitted.
*A copy of the State's materials certificate is attached to the Division office copy of this report.
There is compliance with section 1.23 of the Regulations pertaining to encroachments on the right-of-way.

REMARKS: *The project has been completed in reasonably close conformity with the approved plans and specifications including authorized changes and extra work.*

EAST FREMONT CONNECTION

The project was completed at a final cost of $185,089 representing a 9 percent underrun.

The curve radius problem mentioned in the Final Inspection Report is scheduled for correction with City funds. Other items have been corrected.

RECEIVED
STATE HWY ENGR
MAR 4 '81
REFER TO
Beasley
Info | Inves. | R/D | D.R. | Sign | Act | File

cy to [illegible]

*NOTE: Not applicable for direct federal projects.

ACCEPTANCE OF PROJECT IS RECOMMENDED	ACCEPTED BY FEDERAL HIGHWAY ADMINISTRATION
SIGNATURE C. T. Christianson C. T. Christianson	SIGNATURE Original Signed By G. K. HOSSNER Field Operations Engineer G. K. Hossner
TITLE Area Engineer — DATE 3-3-81	TITLE Field Operations Engineer — DATE 3-3-81

FORM FHWA-1446 B (12-73) FORMERLY PR-33E

Previous Editions of PR-33E Will Not Be Used.

Form FHWA 121 (1/80)

8909

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

THE OREGON DIVISION - SALEM
UNITED STATES GOVERNMENT

memorandum

Subject: Oregon Project M-9910(1)
East Fremont Connection

NOTED
H. S. COULTER

Date: February 11, 1981

From: Acting Division Administrator

Reply to Attn. of: HFO.6-OR

To: Mr. H. S. Coulter, State Highway Engineer, ODOT

This project was inspected on February 10, 1981, and the signing has been revised as recommended in the February 2, 1980 Final Inspection Report. This satisfies the conditions for final acceptance.

The Final Inspection Report also mentioned the curve radius onto Kerby (WB) as being too tight. At that time trucks were observed as having difficulty keeping all wheels between curbs. Observation at this time shows a deep, water-filled rut approximately three feet wide behind the curb at this location. A significant number of trucks obviously cannot negotiate this curve. The condition is not desirable.

Corrective work in this instance would be considered eligible for Federal funding as a project cost if sufficient funds are available. Such action needs to be taken prior to FHWA final acceptance.

✓ Mr. Keasey's January 30, 1981, request will be held without further action pending your evaluation and decision on a course of action.

G. K. Hessner
for E. J. Valach

cc:
OSHD (C T Keasey, Const)
OSHD (M Craft, Reg 1)
Dave Hill, City of Portland (Sts & Strs)

RECEIVED
STATE HWY ENGR
FEB 12 '81
REFER TO Keasey
FOR

Info	Inves	R/D	D/R	Sign	Act	File

2/17
ey

8909

VICTOR ATIYEH
GOVERNOR

Department of Transportation
METROPOLITAN BRANCH
5821 N.E. GLISAN, PORTLAND, OREGON 97213

February 10, 1981

TKA (Hwy. 61)

DONALD E. BERGSTROM
City Traffic Engineer
Bureau of Traffic Engineering
317 S.W. Alder Street
Portland, Oregon 97204

In your letter of February 2 you requested several responses relative to proposed modifications for the East Fremont Bridge-Kerby Avenue Connection.

No modification in the City-State Agreement is required.

The Federal Highway Administration has advised that federal funds previously spent on this project will not be jeopardized by this action.

Modification of the environmental impact statement is not required.

All of the above responses are made on the assumption that the modifications to the connections being undertaken by the City of Portland at this time are separate actions from that initiated as part of the original project. As long as state or federal funds are not used, there is no state or federal involvement. The intersection of Cook and Gantenbein involves only city streets.

R. N. BOTHMAN
Metropolitan Administrator

RNB:nyr

bc: [redacted]
E. L. Hardt
G. K. Hossner
G. A. Potter

RECEIVED
STATE HWY ENGR
FEB 11 '81
REFER TO

FOR

Info	Inves	R/D	D/R	Sign	Act	File

#8909

June 24, 1980

Fidelity & Deposit Co. of Maryland
900 N. E. Multnomah
Portland, OR 97232

CON 3
#8909

Gentlemen:

A post-final payment for $[illegible] will be made to Columbia West Materials & Constructors, Inc., on Contract No. #[illegible] for work on the East Fremont Bridge Connection Section of FAU 9910 in Multnomah County as soon as the warrant is prepared.

The total amount paid on this contract will be $[illegible].32 including the post-final payment. Of the total $3,767.99 is for force account.

Sincerely,

Robert W. [illegible]
COMMISSION SERVICES

FKN/gnk

cc: Fidelity & Deposit Co. of Maryland
P. O. Box 1227
Baltimore, Maryland 21203

Columbia West Materials & Constructors, Inc.
P. O. Box 10423
Portland, OR 97210

bc: C. T. Kessey
Walt Hart
Ed Hardt

8909

Files

1

REPORT OF ACTION UNDER DELEGATED AUTHORITY BY

ASSISTANT STATE HIGHWAY ENGINEER

6 - 5

On behalf of the Commission and under authority delegated to me to accept contracts completed according to specifications, I accepted the following:

Contractor and Contract No.	Section and County	Acceptance Date
Hertz Electric, Inc. No. 8901	E.Idaho Ave.@ E.Lane (Ontario)	May 12, 1980
Hertz Electric, Inc. No. 8964	Pac. Hwy. E. @ Berg Parkway (Canby)	May 12, 1980
Paul Bros., Inc. No. 8759	Garden Valley Blvd.-Fairgrounds Intchge.	May 16, 1980
Hansen Electric Co. No. 8938	Broadway St. @ 16th St.(North Bend)	May 16, 1980
Hamilton Const. Co. No. 8928	Judkins Point O'Xing.	May 20, 1980
Southern Oregon Rock Co. No. 9078	Port Orford Rock Production	May 27, 1980
Babler Bros., Inc. No. 8934	Crooked River Hwy.-Frederick Butte Rd.	May 27, 1980
Columbia West Matls. & Constructors, Inc. No. 8909	E. Fremont Bridge Connection	May 28, 1980
Hamilton Construction Co. No. 8943	N. Umpqua R. (Winchester) Bridge, N. Bound	May 28, 1980
Columbia Pacific Construction Co. No. 8898	Coast Fk. Willamette R. (Harrison Ave.) Bridge	May 30, 1980
Tice Electric Co. No. 8835	Powell Blvd. @ 162nd & Sandy Blvd. @ 122nd and 162nd	May 30, 1980
J. B. Steel, Inc. No. 8854	Port of Entry (Klamath Falls)	June 3, 1980

June 5, 1980

C. T. Keasey
Asst. State Highway Engineer

8909

June 2, 1980

Fidelity & Deposit Company of Maryland
Suite 1800, Lloyd 500 Building
500 N. E. Multnomah
Portland, OR 97232

GCW 5
#8909

Gentlemen:

Contract No. 8909 awarded to Columbia West Materials & Constructors, Inc., for work on the East Fremont Bridge Connection Section of FAU 9910 in Multnomah County was completed on September 7, 1979, and accepted by the State Highway Division on May 28, 1980.

Final payment in the amount of $7,986.17 will be released to the contractor after June 9, 1980. The total contract amount is $160,368.32 including $3,769.99 for work performed under force account.

No claims for labor or material have been filed with us against the performance bond on this contract.

Sincerely,

Robert W. Gormsen
CONSTRUCTION SERVICES

FKN/gnk

cc: Fidelity & Deposit Co. of Maryland
P. O. Box 1227
Baltimore, Maryland 21203

Columbia West Materials & Constructors, Inc.
P. O. Box 10625
Portland, OR 97210

bc: C. T. Kenney
Walt Hart
V. E. Skoog Attn: Dick Hacek
Ed Hardt

U. S. DEPARTMENT OF TRANSPORTATION - FEDERAL HIGHWAY ADMINISTRATION

8909

LETTER OF APPROVAL AND/OR AUTHORIZATION

5 - 15 - 8

FEDERAL AID PROJECT NO. M-9910(1)

S TE PROJECT NO. See below

L

FROM:
G. L. Green, Division Administrator
FHWA - Oregon Division

PROGRAM NO.

ITEM NO. 90139

COUNTY NAME Multnomah

PROGRAM STAGE (Check) ☐ 1. ☐ 2.

TO:
Mr. H. S. Coulter
State Highway Engineer
State of Oregon
Salem, Oregon

RECEIVED
STATE HWY ENGR
MAY 22 '80
REFER TO. Moehring
FOR
Info | Inves | R/D | D/R | Sign | Act | File

5/22
orig

DATE PS&E APPROVED 3/21/79

DATE AUTHORIZATION EFFECTIVE 4/14/80

FEDERAL ROUTE NUMBER FAU 9910

STATE ROUTE NUMBER City Street

GENERAL LOCATION:

East Fremont Bridge Connection

GENERAL DESCRIPTION OF WORK:

Install "slow" sign and amber flashers

YOU ARE AUTHORIZED TO PROCEED WITH THE WORK CHECKED BELOW

PRELIMINARY ENGINEERING TO DETERMINE
☐ LOCATION ONLY
PRELIMINARY ENGINEERING FOR SURVEY AND PLAN
☐ PREPARATION
☐ OTHER (Specify)

☐ ACQUISITION OF RIGHT-OF-WAY
CONSTRUCTION - ADVERTISE FOR RECEIPT
☐ OF BIDS
☒ CONSTRUCTION - PROCEED ON XXXXXXX XXXXXXXXXX FORCE ACCOUNT BASIS

REMARKS

This will confirm the advance authorization date of 4/14/80, as requested in Mr. Keasey's letter of 5/8/80 as being in the public interest for the use of State Forces to proceed with the above work. State Force Order No. 5 is approved for TEC NTE $2,250 Federal Funds $1,982.

(Above authorization does not require additional obligation of funds)

DATE 5/15/80

SIGNATURE OF APPROVING OFFICIAL G. K. Hessner

TITLE for Division Administrator

FORM PR-1240 (REV. 8-70) EXISTING STOCKS OF FORM PR-1240 (REV. 6-68) WILL BE USED

☆ U. S. GOVERNMENT PRINTING OFFICE: 1975—631-856

8909

REFERRED TO 61 ?
2 Beard WGB Stoudenmeyer
1 Col WEG Mann
Watson
Eriksen Lou
Hager Dorn
[✓ Return] Discuss Do File Copy Due
BY FINAL DESIGN ENGINEER

NARRATIVE REPORT
E. FREMONT BRIDGE CONNECTION
Contract No. 8909

Temporary Protection and Direction of Traffic

Contract provisions for protecting and directing traffic during construction were very good. Contract work required closing existing access for 90 days. The local media was informed of the closure. Local people were vocally unhappy with the inconvenience caused by the construction.

Project Comments

This was an Urban System project with an agreement between the State and City of Portland. The contract, administered by the State, was to provide limited access from N. Kirby Avenue to existing Fremont Bridge. The horizontal alignment leaves a lot to be desired by our standardsbut serves the intended purpose of the limited access requirement.

On the day the project was opened to traffic there was much confusion due to signing which did not allow normal turning movements at the intersection of the newly constructed ramp and Kirby Avenue. A high percentage of drivers did and still are making illegal turns even though they obviously read the signs that prohibits the movement they want to make.

Emanual Hospital now has a good access to and from I-405 freeway. The City of Portland shops also make good use the limited access provided by this contract.

Utilities

Responsibility of utility adjustments or moving of same belonged to the City of Portland. Utilities were moved in a timely fashion and presented no problem on this project.

Construction

The contract was awarded to Columbia West, Inc. on May 1, 1979. Work was started on June 8, 1979 and completed on September 7, 1979. There were 29 excess calendar days used on the project at $100.00/day for a total of $2,900.00 in liquidated damages.

The first item of work was to install all drainage pipe on the project. The contractor then excavated the project to subgrade. We found a large portion of subgrade to be clay with approximately 30% mositure content. We could not attain required compaction under existing condition. Two options were explored. Treating subgrade with lime or subexcavating and aerating soil. Treatment with lime was much to expensive, over $12,000.00 for the area in question. Subgrade was subexcavated and aerated under Extra Work Order for approximately $2,100.00.

Subexcavation and aeration proved effective and allowed us to bridge the wet areas. The soft subgrade problem delayed the project 18 days. We anticipate a time extension request from the contractor for this extra work item.

Contract work then moved to curb construction, inlets, illumination and top soil.

On August 21, 1979 the contractor started paving bituminous base. All initial paving was completed by August 24. The finished paving on the westbound lanes was very poor from rideability standpoint and texture. The contractor was required to overlay 50% of the westbound lanes to correct the problem and remaining 50% of westbound lanes received a seal coat.

Permanent signing shown on the plans was not adequate. The additional required signing was installed prior to contract opening to traffic. After project was open to traffic it became apparent additional signing was still needed to direct drivers to hospital and Kirby Avenue. These signs were furnished and installed by State Forces. During final inspection by FHWA they requested we install a second "slow" sign and place flashers on each slow sign to warn drivers of sharp curve ahead. The additional sign and flashers is being reviewed at the present and if adopted will be installed by State Forces.

Illumination

Under the contract we had to move five existing luminaire poles. The State furnished one new pole assembly under a SFO and the contractor installed it. The existing illumination had never been turned on. With the help of our State electrical crew we got power to the system.

Suggestion

The FHWA request to put flashers ~~and~~ on slow signs presented a problem of getting power to the median area. In this instance it pointed out how critical a good set of "as constructed" drawings are. If we could find a conduit crossing roadbed it would save jacking under road or trenching road. The "as constructed" showed a 3" conduit crossing road with a junction box in the median. The problem involved finding the junction box which was installed in line with conduit 2' below ground surface. Floyd Stuck, Electrical Supervisor, explained to me how much time is wasted looking for items like junction boxes. The junction box should have been flush with the ground surface. If it presents no mowing problem they should also mark with paddle board.

We do not anticipate any claims on this project.

1 Versteeg
Anderson
2 Christensen Don
Olson
Sullivan copy
Terpin
Trout
Wakerlig

RECEIVED
APR 29 1980
ROAD DESIGN
SECTION

Do Not File ☐
Return To
Filing
Action

STATEMENT OF OVERRUNS AND UNDERRUNS

Project:	East Fremont Bridge Connection	Contract No.:	8909
Highway:	FAU 9910	Prefix:	326-1012
County:	Multnomah	F.A. No.:	M 9910(1)

Item No.	Item	Unit	Original	Semifinal	±%
	SUMMARY				
	Bid Items	$	169,634.00	158,165.39	-7
	Anticipated Items	$	9,800.00	4,005.57	-59
	Contingencies	$	8,074.53	5,467.66	-32
	Engineering	$	16,149.06	20,350.00	+26
	Liquidated Damages	$		-2,900.00	
	TOTAL	$	203,657.59	185,088.62	-9

All substantial changes were evaluated and only those listed below meaningfully affected the total project cost.

INDIVIDUAL OVERRUNS AND UNDERRUNS

Item No.	Item	UNIT	Original	Semifinal	±%
10	Furnish and placing top soil	CY	197-	851	-57

Topsoil was placed on areas excavated or disturbed, not on existing undisturbed areas

Versteeg
Anderson
Christensen
Olson
Sullivan
Terpin
Trout
Wakerlig

RECEIVED
APR 29 1980
ROAD DESIGN SECTION

Do Not File ☐
Return To
Bring Up / /
Action

8909

4-[illegible]-80

STATEMENT OF OVERRUNS AND UNDERRUNS

Project: East Fremont Bridge Connection
Highway: FAU 9910
County: Multnomah

Contract No.: 8909
Prefix: 326-1012
F.A. No.: M 9910(1)

Item No.	Item	Unit	Original	Semifinal	±%
	SUMMARY				
	Bid Items	$	169,634.00	158,165.39	-7
	Anticipated Items	$	9,800.00	4,005.57	-59
	Contingencies	$	8,074.53	5,467.66	-32
	Engineering	$	16,149.06	20,350.00	+26
	Liquidated Damages	$		-2,900.00	
	TOTAL	$	203,657.59	185,088.62	-9

All substantial changes were evaluated and only those listed below meaningfully affected the total project cost.

INDIVIDUAL OVERRUNS AND UNDERRUNS

Item No.	Item	UNIT	Original	Semifinal	±%
10	Furnish and placing top soil	CY	197-	851	-57

Topsoil was placed on areas excavated or disturbed, not on existing undisturbed areas

✓ Versteeg ✓
Anderson
ab Christensen copy
Olson
ab Sullivan copy
Terpin
Trout
Wekerlig

RECEIVED
APR 29 1980
ROAD DESIGN SECTION

Do Not File ☐
Return To
Bring
Action

8909

L

FORM [illegible]

OREGON STATE HIGHWAY DEPARTMENT

FIELD ENGINEER'S WEEKLY REPORT

FOR CONSTRUCTION PROJECTS ONLY
CONSTRUCTION AND BRIDGE DIVISIONS

SECTION: East Fremont Bridge Connection

WEEK ENDING: March 29, 1980

SECTION PREFIX: 326-1012

HIGHWAY: FAU 9910

COUNTY: Multnomah

NAME OF JOB: East Fremont Bridge Connection

KIND OF WORK: Grading, Paving, Signing & Illumination

CONTRACTOR: Columbia West Materials & Constructors, Inc.

CONTRACT NUMBER: 8909

FEDERAL AID PROJECT NUMBER: M-9910(1)

DATE OF CONTRACT: May 2, 1979

DATE WORK STARTED: 6-8-79

ESTIMATED COMPLETION DATE: August 9, 1979

AVERAGE FORCE ON PROJECT FOR THE WEEK: MEN 0 SUPERVISION 0

SPECIFIED WORK DAYS

SPECIFIED CALENDAR DAYS 90

SPECIFIED COMPLETION DATE

WORK DAYS USED

CALENDAR DAYS USED 119

PERCENT OF TIME ELAPSED 132

PROJECT AUTHORIZATION: $ 203,657.59

EXCLUSIVE OF ENGINEERING: $ 187,508.53

ESTIMATED COST OF COMPLETED PROJECT, EXCLUSIVE OF ENGINEERING: $ 187,508.33

ESTIMATED PERCENT OVERRUN UNDERRUN: 0 %

ENGINEERING AUTHORIZATION: $ 16,149.06

ENGINEERING COST TO DATE: $ 20,000

PERCENT OF AUTHORIZATION: 127 %

PERCENT OF CONTRACT COMPLETED BASED ON ESTIMATED COST: 100

PERCENT OF CONTRACT COMPLETED BASED ON TOTAL AUTHORIZATION: 100

DATE PROJECT WAS COMPLETED: 9-7-79

ESTIMATED PERCENT COMPLETE (ROADWORK)

CLEARING	DRAINAGE	GRADING	BASE	OIL AND/OR PAVE	MAT'L PROD		

	GRADING	SURFACING	MAINTENANCE MATERIALS	OIL & BITUMINOUS MACADAM	PAVING
MILES IN PROJECT					
MILES PARTIALLY COMPLETED					
MILES COMPLETED					
TOTAL ESTIMATED QUANTITIES (CONTRACT)					
TOTAL QUANTITIES CORRECTED TO DATE					
ESTIMATED QUANTITIES MOVED OR PLACED TO DATE					
AVERAGE DAILY QUANTITIES					
AVERAGE DAILY QUANTITIES NECESSARY TO COMPLETE PROJECT ON TIME					
NUMBER OF SHIFTS PER DAY					
HOURS PER SHIFT					

EQUIPMENT USED DURING THE WEEK:

none

ESTIMATED PERCENT COMPLETE (STRUCTURES)

BRIDGE NO.								
PERCENT								

	WEATHER	WORK DAYS CHARGED	HOURS DELAY	CAUSE OF DELAY
SUNDAY 28	showers	0		
MONDAY 24	scattered	0		
TUESDAY 25	clear	0		
WEDNESDAY 26	rain	0		
THURSDAY 27	scattered	0		
FRIDAY 28	overcast	0		
29	fcst showers	0		

RECEIVED
MAR 31 1980
CONSTRUCTION BRANCH

K

Keesey
Jackmond
Hopkins
Williams
Johnson
Glass
Richards
Berg
Inlow
Widmer
Gebauer
Church

GENERAL DESCRIPTION OF ACTIVITIES FOR THE WEEK

SUNDAY	
MONDAY	
TUESDAY	March 16-29 no activity
WEDNESDAY	
THURSDAY	
FRIDAY	
SATURDAY	

REMARKS

Minor pavement sealing to be completed when weather permits

SIGNED John Howard
JOHN D. HOWARD
LOCATION P. land

8909

(MEMORANDUM)

FORM APPROVED BY
COMPTROLLER GENERAL,
U.S. MAY 12, 1966

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

12-20-79

VOUCHER FOR WORK PERFORMED UNDER PROVISIONS OF THE FEDERAL AID AND FEDERAL HIGHWAY ACTS, AS AMENDED

STATE VOUCHER NO.

FHWA VOUCHER NO.

FHWA SCHEDULE NO.

APPROPRIATION

THE UNITED STATES, DR., TO *(Insert official or depository named in project agreement)*
Treasurer of the State of Oregon

ADDRESS Capitol Building
Salem, Oregon 97310

PAID BY

(For use of Paying Office)

STATE
Oregon

VOUCHER TYPE *(Check Appropriate Block)*
☐ CURRENT BILLING
☐ OTHER PROGRESS
☐ FINAL VOUCHER (*)

VOUCHER PERIOD
FROM 2-20-76
TO 3-16-79

FEDERAL AID PROJECT NO.
PORTLAND
M-9914 (1)

(*) *Use Form FHWA-1447 for Final Voucher for a project constructed under certification acceptance or secondary road procedures (23 U.S.C. 117).*

TOTAL ACTUAL COST	TOTAL PARTICIPATING COST	PRO-RATA OF PARTICIPATING COST CLAIMED FROM U.S.	TOTAL AMOUNT CLAIMED FROM U.S.	LESS PREVIOUS PAYMENTS	NET AMOUNT CLAIMED
$389,144.93	389,123.22	78.19%	304,255.45	304,355.45	0.00

RECEIVED DIVISION OFFICE
BY DATE

DIVISION OFFICE REVIEW MADE
BY DATE

PASSED FOR PAYMENT
BY DATE V. E. Skoog
Controller

REMARKS Oregon

PREFIX: 326-1917

FORM PR-20A
(Rev. 6-78)

PREVIOUS EDITIONS ARE OBSOLETE

STATEMENT OF COSTS INCURRED UNDER PROJECT AGREEMENT

ITEM NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT	NOTATIONS (Payee must not use this column)
	FREEMONT BRIDGE - UNION AVE. - CONNECTION (PORTLAND) SECTION					
	CITY STREETS IN MULTNOMAH COUNTY					
	Preliminary Engineering					
	Type Code P.E.					
	State	All Required			$ 14,492.16	
	City of Portland	All Required			35,408.49	
	Consultant Engineer (CH2-Hill Inc.)	All Required			339,154.12	
	Total Preliminary Engineering				389,054.77	
	Misc Project Cost					
	Audit Expense	All Required			68.45	
	Total Participating Cost				389,123.22	
	Nonparticipating Cost					
	Preliminary Engineering State	All Required			6.62	
	Total Nonparticipating Cost				6.62	
	Total Cost				$389,129.84	

Prepared based on participating costs shown on Federal Billing as of December 20, 1979.

AMOUNT CARRIED FORWARD .

TOTAL TO DATE JOB COST SUMMARY JUNE 1981

DESCRIPTION OF JOB OR DEPARTMENT	PREFIX		FUNCTION		GR		CURRENT MONTH	FISCAL YEAR TO DATE	GRAND TOTAL TO DATE	
	326	1916	906	00	N 1				207.54	
	326	1916	910	00	P 1				280.16	
	326	1916	911	00	P 1				318.77	
	326	1916	913	00	P 1				108.80	
	326	1916	915	00	P 1				299.81	
	326	1916	920	00	P 1				12.14	
	326	1916	922	00	N 1				3.96	
	326	1916	923	00	P 1				1,379.00	
	326	1916	923	00	N 1				16.92	
	326	1916	924	00	P 1				72.48	
	326	1916	980	00	P 1				240.79	
			TOT		P1				233,712.66	
			TOT		N1				252.45	
			** JOB TOTALS **				**	**	233,965.11	**
0016490000063081 CONT NO			FA PROJ NOS M		914001 100					STATE
	326	1917	295	00	N 9	Tr. St.			340,655.45CR	
	326	1917	298	00	N 9	" Fed.			304,255.45	
	326	1917	299	00	N 9	" R/R			36,400.00	
	326	1917	901	00	P 1	Res. Engr.			5,738.26	—
	326	1917	901	00	N 1	" "			21.00	—
	326	1917	902	00	P 1	Citizen Inv.			334.76	—
	326	1917	903	00	P 1	Pay Loc. Gov.			32,132.95	—
	326	1917	904	00	P 1	Consult. Fee			339,985.40	—
	326	1917	905	00	P 1	Fin. Des.			3,838.94	—
	326	1917	906	00	P 1	Br. "			1,112.45	—
	326	1917	907	00	P 1	Pre. "			471.56	—
	326	1917	909	00	P 1	R/W des.			1,028.88	—
	326	1917	910	00	P 1	Soils & Geo.			68.48	—
	326	1917	911	00	P 1	Signing			735.19	—
	326	1917	913	00	P 1	R/W liason			20.92	—
	326	1917	914	00	P 1	Utility liason			15.90	—
	326	1917	915	00	P 1	Audit			68.45	—
	326	1917	920	00	P 1	Proj. Mang.			106.50	—
	326	1917	921	00	P 1	Specs.			2,501.72	—
	326	1917	922	00	P 1	Adm. Serv.			30.21	—
	326	1917	922	00	N 1	" "			3.40	—
	326	1917	923	00	P 1	Env. Sec.			799.26	—
	326	1917	923	00	N 1	" "			3.22	—
	326	1917	950	00	P 1	Training Course			105.57	—
	326	1917	980	00	P 1	Public Hearing			27.82	—
			TOT		P1				389,123.22	
			TOT		N1				27.62	
			** JOB TOTALS **				**	**	389,150.84	**
0016490000063081 CONT NO			FA PROJ NOS X1		765001 100					STATE
	326	1918	295	00	N 9			341.44	341.44	

12-4-79

U. S. DEPARTMENT OF TRANSPORTATION - FEDERAL HIGHWAY ADMINISTRATION

8909

LETTER OF APPROVAL AND/OR AUTHORIZATION

FEDERAL AID PROJECT NO. M-9910(1)

STATE PROJECT NO. See below

2

FROM:
G. L. Green, Division Administrator
Salem, Oregon

PROGRAM NO.

ITEM NO. 90139

COUNTY NAME Multnomah

PROGRAM STAGE (Check) ☐ 1. ☐ 2.

TO:

Mr. H. S. Coulter
State Highway Engineer, ODOT
Salem, Oregon

RECEIVED
STATE HWY ENGR
DEC 10 '79
REFER TO [illegible]
FOR

Info	Inves	R/D	D/R	Sign	Act	File

12-10
orig

DATE PS&E APPROVED 3-21-79

DATE AUTHORIZATION EFFECTIVE 11-15-79

FEDERAL ROUTE NUMBER FAU-9910

STATE ROUTE NUMBER City Street

GENERAL LOCATION:

East Fremont Bridge Connection

GENERAL DESCRIPTION OF WORK:

Furnish one luminaire pole with arm and unit.

YOU ARE AUTHORIZED TO PROCEED WITH THE WORK CHECKED BELOW

PRELIMINARY ENGINEERING TO DETERMINE
☐ LOCATION ONLY

PRELIMINARY ENGINEERING FOR SURVEY AND PLAN
☐ PREPARATION

☐ OTHER (*Specify*)

☐ ACQUISITION OF RIGHT-OF-WAY

CONSTRUCTION - ADVERTISE FOR RECEIPT
☐ OF BIDS

☒ CONSTRUCTION - PROCEED ON XXXXXXXX XXXXXXXXX FORCE ACCOUNT BASIS

REMARKS

This will confirm the advance authorization date of November 15, 1979, as requested in Mr. Keasey's letter of November 16, 1979 as being in the public interest for the use of State Forces to proceed with the above work. State Force Order No. 4 is approved for TEC NTE $445 - Federal Funds $392.

DATE 12-4-79

SIGNATURE OF APPROVING OFFICIAL G. K.

TITLE for Division Administrator

FORM PR-1240 (REV. 8-70) EXISTING STOCKS OF FORM PR-1240 (REV. 6-68) WILL BE USED

☆ U.S. GOVERNMENT PRINTING OFFICE: 1979-721-815

8909

Mult. Co.

Road Design Section 378-6558

John Howard
Resident Engineer

August 27, 1979

ORIGINAL SIGNED
DUANE O. CHRISTENSEN

Duane O. Christensen
Final Design Engineer

Sign Shop Drawing
East Fremont Bridge Connection
FAU 9910
Multnomah County
Contract No. 8909

Enclosed find three sets of approved sign show drawings for the Type "A" and "B" signs on the above named project.

One set should be retained by you for field inspection purposes, one set forwarded to Don Wackerbarth's office for shop inspection of the signs, and one set sent to Traffic Safety Supply Co. for fabrication of the signs.

We were informed that installation of the signs is scheduled for August 26 and, therefore, instructed the sign fabricator of the required corrections by telephone, August 23, in order that fabrication could be started. We also informed Larry Miller of Don Wackerbarth's office on the same date.

WGB:ab
cc: C. T. Keasey
E. L. Hardt
W. G. Beard

8909

STATE COPY OMB No. 04-R2089

J

TO BE COMPLETED BY FHWA MONTHLY TRANSACTION NO.	U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION **FEDERAL-AID PROJECT AGREEMENT** 5-21-79	Oregon County Multnomah Project No. M-9910 (1)

The State, through its Highway Agency, having complied, or hereby agreeing to comply, with the applicable terms and conditions set forth in (1) Title 23, U.S. Code, Highways, (2) the Regulations issued pursuant thereto and, (3) the policies and procedures promulgated by the Federal Highway Administrator relative to the above designated project, and the Federal Highway Administration having authorized certain work to proceed as evidenced by the date entered opposite the specific item of work, Federal funds are obligated for the project not to exceed the amount shown herein, the balance of the estimated total cost being an obligation of the State. Such obligation of Federal funds extends only to project costs incurred by the State after the Federal Highway Administration authorization to proceed with the project involving such costs.

PROJECT TERMINI

City St. E Fremont Br. Conn. (Portland)

PROJECT CLASSIFICATION OR PHASE OF WORK	EFFECTIVE DATE OF AUTHORIZATION	APPROXIMATE LENGTH (Miles)
HIGHWAY PLANNING AND RESEARCH (HP & R)		
PRELIMINARY ENGINEERING		
RIGHTS-OF-WAY		
CONSTRUCTION	5-21-79	0.001
OTHER *(Specify)*		

FUNDS Pro Rata 88.1 %

ESTIMATED TOTAL COST OF PROJECT	FEDERAL FUNDS
$ 194,463.00	$ 171,221.00

The State further stipulates that as a condition to payment of the Federal funds obligated, it accepts and will comply with the applicable provisions set forth on the reverse hereof.

OREGON STATE HIGHWAY DIVISION
(Official name of Highway Agency)
By E S Hunter
Asst. Highway Engineer
(Title)
For: H. S. Coulter
State Highway Engineer
(Title)
By
(Title)

U. S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
By
(Division Administrator)
For: G. L. Green
Date executed by Division Administrator MAY 21 1979

Form PR-2 (Rev. 10-78) PREVIOUS EDITIONS ARE OBSOLETE

AGREEMENT PROVISIONS

1. RESPONSIBILITY FOR WORK

a. Except for projects constructed under Certification Acceptance procedures, the State highway agency will perform the work, or cause it to be performed, in compliance with the approved plans and specifications or project proposal which, by reference, are made a part hereof.

b. With regard to projects performed under Certification Acceptance procedures, the State highway agency will perform the work, or cause it to be performed, in accordance with the terms of its approved Certification, or exceptions thereto as may have been approved by the Federal Highway Administration.

2. HIGHWAY PLANNING AND RESEARCH (HP&R) PROJECT. The State highway agency will (a) conduct or cause to be conducted, under its direct control, engineering and economic investigations of projects for future construction, together with highway research necessary in connection therewith, pursuant to the work program approved by the Federal Highway Administration and (b) prepare reports suitable for publication of the result of such investigations and research, but no report will be published without the prior approval of the Federal Highway Administration.

3. PROJECT FOR ADVANCE ACQUISITION OF RIGHTS-OF-WAY. In the event that actual construction of a road on this right-of-way is not undertaken by the close of the tenth fiscal year following the fiscal year in which this agreement is executed, the State highway agency will repay to the Federal Highway Administration the sum or sums of Federal funds paid to the highway agency under the terms of this agreement.

4. PRELIMINARY ENGINEERING PROJECT FOR PREPARATION OF RIGHT-OF-WAY PLANS OR FOR PREPARATION OF CONSTRUCTION PLANS, SPECIFICATIONS AND ESTIMATES. In the event that right-of-way acquisition for, or actual construction of the road for which this preliminary engineering is undertaken is not started by the close of the fifth fiscal year following the fiscal year in which this agreement is executed, the State highway agency will repay to the Federal Highway Administration the sum or sums of Federal funds paid to the highway agency under the terms of this agreement.

5. INTERSTATE SYSTEM PROJECT. (a) The State highway agency will not add or permit to be added, without the prior approval of the Federal Highway Administration any points of access to, or exit from, the project in addition to those approved in the plans and specifications for the project. (b) The State highway agency will not permit automotive service stations, or other commercial establishments for serving motor vehicle users, to be constructed or located on the right-of-way of the interstate system. (c) The State highway agency will not after June 30, 1968, permit the construction of any portion of the Interstate Route on which this project is located, including spurs and loops, as a toll road without the written concurrence of the Secretary of Transportation or his officially designated representative. The term 'toll road' does not include toll bridges or toll tunnels.

6. PROJECT FOR CONSTRUCTION IN ADVANCE OF APPORTIONMENT. (a) This project authorized pursuant to 23 U.S.C. 115 as amended, will be subject to all procedures and requirements, and conform to the standards applicable to projects on the system on which located, financed with the aid of Federal funds. (b) No obligation of previously apportioned Federal funds is created by this agreement, its purpose and intent being to provide that, upon application by the State highway agency, and approval thereof by the Federal Highway Administration, any Federal-aid funds of the class designated by the project number prefix, apportioned to the State under 23 U.S.C. 104 subsequent to the date of this agreement, may be used to reimburse the State for the Federal share of the cost of work done on the project.

7. STAGE CONSTRUCTION. The State highway agency agrees that all stages of construction necessary to provide the initially planned complete facility, within the limits of this project, will conform to at least the minimum values set by approved AASHTO design standards applicable to this class of highways, even though such additional work is financed without Federal-aid participation..

8. BOND ISSUE PROJECT. Construction, inspection and maintenance of the project will be accomplished in the same manner as for regular Federal-aid projects. No present or immediate obligation is created by this Agreement against Federal funds, its purpose and intent being to provide aid to the State, as authorized by 23 U.S.C. 122, for retiring maturities of the principal indebtednesss of the bonds referred to below. When the State requests Federal reimbursement to aid in the retirement of such bonds, the request will be supported by the appropriate certification required by 23 CFR Part 140, Subpart F, and Volume 1, Chapter 4, Section 8 of the Federal-Aid Highway Program Manual or the alternative State procedure set forth in the State's Certificate, and payment of the authorized Federal share will be made from appropriate funds available. If in any year there is no unobligated balance of any apportioned Federal funds available from which payments hereunder may be made, there will be no obligation on the part of the Federal Government on account of bond maturities for that year. Funds available to the highway agency for this project are the proceeds of bonds issued by the governmental unit indicated on the attached tabulation, pursuant to the authority and in the amounts by date of issue and beginning date of maturities set forth therein.

9. SPECIAL HIGHWAY PLANNING AND RESEARCH PROJECT. The State Highway agency hereby authorizes the Federal Highway Administration to charge the State's pro rata share of costs incurred against funds apportioned to the State under 23 U.S.C. 307 (c), as amended. In the event a project is financed with both Federal-aid funds and State matching funds, the State agrees to advance to The Federal Highway Administration the State matching funds for its share of the estimated cost. For a National Pooled Fund study, the State hereby assigns its responsibility for the work to the Federal Highway Administration. For an Intra-Regional Cooperative Study, the State hereby assigns its responsibility for the work to the lead State for the study.

10. PARKING REGULATION AND TRAFFIC CONTROL. The State highway agency will not permit any changes to be made in the provisions for parking regulations and traffic control as contained in the agreement between the State and the local unit of Government referred to in the paragraph on "Additional Provisions," without the prior approval of the Federal Highway Administration, unless the State determines, and the Division Administrator concurs, that the local unit of Government has a functioning traffic engineering unit with the demonstrated ability to apply and maintain sound traffic operations and control.

Oregon State Highway Division
Salem, Oregon, May 8, 1979

Federal Aid Project
No. M-9910(1)

EAST FREMONT BRIDGE CONNECTION
URBAN ROUTE # 9910
MULTNOMAH COUNTY

Project Agreement Estimate.

Type Code 6203
Roadway (Sta. 315+68.62 to Sta. 311+68.62) (Sta. 1+11.38 to Sta. 5+38.09)

Mobilization	All Required		$ 15,000.00
Temporary Protection and Direction of Traffic	All Required		1,583.00
Temporary Signs	126 Sq.Ft.	10.00	1,260.00
Temporary Barricades	30 Each	95.00	2,850.00
Flagmen	80 Hour	18.00	1,440.00
Removal of Structures and Obstructions	All Required		2,500.00
General Excavation	2,750 Cu.Yd.	6.40	17,600.00
Trench Excavation	120 Cu.Yd.	15.00	1,800.00
Finishing Roadbed and Slopes	All Required		1,000.00
Furnishing and Placing Topsoil	1,970 Cu.Yd.	10.00	19,700.00
Bituminous Base	1,040 Ton	20.70	21,528.00
1 1/2"-0 Aggregate Base	50 Cu.Yd.	12.00	600.00
Class "B" or Class"C" Asphalt Concrete	410 Ton	23.00	9,430.00
12-inch Sewer Pipe	215 Lin.Ft.	15.00	3,225.00
Concrete Inlets, Type P	8 Each	290.00	2,320.00
CL-6 Chain Link Fence	870 Lin.Ft.	6.00	5,220.00
Concrete Walks, Curbs and Islands	110 Cu.Yd.	130.00	14,300.00
Concrete Curb Ramps	2 Each	150.00	300.00
Doweled Curb	540 Lin.Ft.	7.00	3,780.00
Concrete Barrier	430 Lin.Ft.	32.00	13,760.00
			$ 139,196.00
Anticipated Items			
Permanent Pavement Striping	All Required		$ 1,200.00
Remove Pavement Striping (Exist. & Temp.)	All Required		500.00
			$ 1,700.00
	Subtotal		$ 140,896.00
	Engineering		19,020.00
	Total		$ 159,916.00

Type Code Y002
Signing (Throughout project)

Removal of Existing Sign Installations	All Required		$ 5,600.00
Wood Sign Posts	All Required		1,000.00
Sign Support Footings	All Required		350.00
Single Post Slip Base Sign Support	All Required		600.00
Sign and Luminaire Supports	All Required		2,000.00
Type "A" and "B" Signs in Place	174 Sq.Ft.	18.00	3,132.00
Type "C" and "D" Signs in Place	66 Sq.Ft.	11.00	726.00
Type "H" Signs in Place	13 Sq.Ft.	9.00	117.00
Type "M" Sign in Place	9 Sq.Ft.	8.00	72.00
Type "EE" Signs in Place	37 Sq.Ft.	10.00	370.00
Type "V" Signs in Place	7 Sq.Ft.	13.00	91.00
Move, Modify and Reinstall Existing Signs	All Required		3,500.00
Sign Illumination Equipment	All Required		880.00
	Subtotal		$ 18,438.00
	Engineering		2,489.00
	Total		$ 20,927.00

Type Code Y030
Illumination (Throughout project)

Roadway Illumination Installation, Complete	All Required	$ 12,000.00
	Subtotal	$ 12,000.00
	Engineering	1,620.00
	Total	$ 13,620.00

Length of Roadway - - - - - - - - - - - - 0.081
Cost of Roadway Per Mile - - - - - - - - - $ 1,295,319.60

Work Retained in Program Status
(not included in amounts below)

Work by Bureau of Water	All Required	$ 5000.00
Seeding and Mulching	All Required	1,500.00
Adjust Sprinkler System	All Required	1,000.00

Oregon State Highway Division
Salem, Oregon, May 8, 1979

Federal Aid Project
No. M-9910(1)

SUMMARY OF FUNDS (88.1%)

Description	Total Cost	Federal Funds	State Funds	City Funds
Roadway	$ 159,916	$ 140,886	$ 9,515	$ 9,515
Signing	20,927	18,435	1,246	1,246
Illumination	13,620	12,000	810	810
Total	$ 194,463	$ 171,321	$ 11,571	$ 11,571

Group 1 100%
Contract No. 8909
Prefix 326-1012

Oregon State Highway Division
Salem, Oregon, May 8, 1979

Federal Aid Project
No. M-9910(1)

EAST FREMONT BRIDGE CONNECTION
Nonparticipating-State Work

City Furnished Luminaire Pole & Arm	All Required	$ 600.00

8909

April 12, 1979

City of Portland
400 S.W. 6th Avenue
Portland, Oregon 97204

Attn: Mr. John Lang
Highway Coordinator

Gentlemen:

On April 12, 1979, a satisfactory bid was received from Columbia West Materials and Constructors, Inc., P.O. Box 10425, Portland, Oregon 97210 for construction on The East Fremont Bridge Connection, FAU 9910. The advance deposit based on the anticipated construction cost of their bid is as follows:

Bid Items	$169,634.00
Permanent Pavement Striping	1,200.00
Remove Pavement Striping (Exist. & Temp.)	500.00
State Furnished Luminaire Pole & Arm	600.00
Bureau of Water	5,000.00
Seeding & Mulching	1,500.00
Adjust Sprinkler System	1,000.00
4½% Contingencies	8,074.53
9% Engineering	16,149.06
ESTIMATED TOTAL COST	$203,657.59

City's Advance Deposit:
6% of $203,657.59 = $12,219.46 or say $12,200.00

This project will be awarded upon receipt of your advance deposit, which should be in this office no later than May 6, 1979.

Recieved check
5-1-79
Project Awarded
Rose Notified
H

Please make your check for $12,200.00, payable to the Oregon State Highway Division. Send the check to Highway Accounting, Room 434, Transportation Building, Salem, Oregon 97310.

Very truly yours,

Gerald Wimer

Gerald Wimer
Local Government Engineer

FH:pf

bcc w/AD # 617: Region M Federal Aid Specialist
Vern Skoog - Please return completed AD # 617 when check is received.

8909

April 4, 1979

City of Portland
1220 S.W. Fifth Avenue
Portland, OR 97204

Attention: George Yerkovich
Auditor of the City of Portland

MISC. CONTRACTS and
AGREEMENTS No. 5202

Gentlemen:

Attached for your files are two fully executed copies of an agreement concerning the Fremont Bridge-Kerby Avenue Connection.

We are retaining a fully executed copy of this agreement for the Transportation Commission's files.

Sincerely,

C. W. Head
COMMISSION SERVICES

khr

Enclosure

bc: Gerald Wimer (agreement attached)

8909 U.S. DEPARTMENT OF TRANSPORTATION · FEDERAL HIGHWAY ADMINISTRATION

9

LETTER OF APPROVAL AN OR AUTHORIZATION

3-27-79

FEDERAL AID PROJECT NO.	M-9910(1)
STATE ECT NO.	See below
COUNTY NAME	Multnomah
PROGRAM STAGE (Check)	☐ 1. ☐ 2.

FROM:
G. L. Green, Division Administrator
Salem, Oregon

PROGRAM NO.

ITEM NO. 90139

TO:

Mr. H. S. Coulter
State Highway Engineer, ODOT
Salem, Oregon

RECEIVED
STATE HWY ENGR
MAR 30 '79
REFER TO,
Mrclusacy
FOR

DATE PS & E APPROVED	
DATE AUTHORIZATION EFFECTIVE	3-21-79
FEDERAL ROUTE NUMBER	FAU 9910
STATE ROUTE NUMBER	City Street

GENERAL LOCATION:

East Fremont Bridge Connection

GENERAL DESCRIPTION OF WORK:

Utility Adjustment

YOU ARE AUTHORIZED TO PROCEED WITH THE WORK CHECKED BELOW

PRELIMINARY ENGINEERING TO DETERMINE
☐ LOCATION ONLY
PRELIMINARY ENGINEERING FOR SURVEY AND PLAN
☐ PREPARATION
☒ OTHER (Specify) Utility Adjustment
☐ ACQUISITION OF RIGHT-OF-WAY
CONSTRUCTION - ADVERTISE FOR RECEIPT
☐ OF BIDS
☐ CONSTRUCTION - PROCEED ON AN AGREED PRICE AND/OR FORCE ACCOUNT BASIS

REMARKS

As requested in Mr. Swan's letter of March 19, 1979, you are now authorized to proceed with the actual adjustments for City of Portland, Bureau of Water Works water facilities. Reimbursement on an actual cost basis at a TEC NTE $3,341. I approve the Agreement with the City of Portland Bureau of Water Works.

Approval and participation for the portion of work authorized above is subject to the provisions of the Federal-aid Program Manual.

DATE	SIGNATURE OF APPROVING OFFICIAL	TITLE
3-27-79		for Division Administrator

FORM PR-1240 (REV. 6-79) EXISTING STOCKS OF FORM PR-1240 (REV. 6-68) WILL BE USED

★ U.S. GOVERNMENT PRINTING OFFICE: 1978—626-787

8904 U.S. DEPARTMENT OF TRANSPORTATION - FEDERAL HIGHWAY ADMINISTRATION

LETTER OF APPROVAL AND/OR AUTHORIZATION

3-21-79

FEDERAL AID PROJECT NO.	M-9910(1)
STATE PROJECT NO.	See below
COUNTY NAME	Multnomah
PROGRAM STAGE (Check)	☐ 1.
PROGRAM NO.	
ITEM NO.	90139

FROM:

G. L. Green, Division Administrator
Salem, Oregon

TO:

Mr. H. S. Coulter
State Highway Engineer, ODOT
Salem, Oregon

3/28.
orig
to

RECEIVED
STATE HWY ENGR
MAR 27 '79
REFER TO
Moehring
FOR

Info	Inves	R/D	D/R	Sign	Act	File

DATE PS & E APPROVED	3-21-79
DATE AUTHORIZATION EFFECTIVE	3-21-79
FEDERAL ROUTE NUMBER	FAU 9910
STATE ROUTE NUMBER	City Street

GENERAL LOCATION:

East Fremont Bridge Connection

GENERAL DESCRIPTION OF WORK:

Grading, Paving, Signing, and Illumination

YOU ARE AUTHORIZED TO PROCEED WITH THE WORK CHECKED BELOW

PRELIMINARY ENGINEERING TO DETERMINE
☐ LOCATION ONLY
PRELIMINARY ENGINEERING FOR SURVEY AND PLAN
☐ PREPARATION
☒ OTHER (Specify) Permanent Pavement Striping (S.F.) $1,200
Remove Existing and Temporary Striping (S.F.) $ 500

☐ ACQUISITION OF RIGHT-OF-WAY
CONSTRUCTION - ADVERTISE FOR RECEIPT
☒ OF BIDS
☐ CONSTRUCTION - PROCEED ON AN AGREED PRICE AND/OR FORCE ACCOUNT BASIS

REMARKS

After concurrence in award you are authorized to proceed with those items listed above as shown in your Estimate.

Mr. Swan's March 19, 1979 request and certifying statements are accepted.

PS&E documents for the subject project have been reviewed and are approved at a total estimated cost of $233,655 - Federal Funds $205,849.

A signed copy of the Title Sheet is returned herewith.

DATE	3-21-79
SIGNATURE OF APPROVING OFFICIAL	C J Valach
TITLE	for Division Administrator

FORM PR-1240 (REV. 8-70) EXISTING STOCKS OF FORM PR-1240 (REV. 6-68) WILL BE USED

☆ U.S. GOVERNMENT PRINTING OFFICE: 1978—620-787

8909

NOTE: Additional R/W required for this project was acquired by the State from Emanuel Hospital. Emanuel Hospital waived their right to be compensated for the property and donated it to the State of Oregon.

OREGON STATE HIGHWAY DIVISION
117 DOT Building
Salem, Oregon 97310

Attention: Right-of-Way Section 3-12-79

Subject: Federal Aid Project No. FAU 9910 726
Project Name East Freemont Bridge Conn.

Regarding the above referred to federal aid project, we hereby certify that to the best of our knowledge and belief:

A. Existing Right-of-Way

☐ 1. All construction can be accomplished completely within the existing right-of-way. This existing right-of-way was acquired prior to January 2, 1971.

B. New Right-of-Way

☒ 1. This project required additional right-of-way purchased after January 2, 1971. Right-of-way, easements, or rights-of-entry required for this project have been secured in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, ~~and all incidental charges related to the transfer of property has been or will be paid by the city in accordance with said Act.~~ (See above)

☐ a. There has been no displacement of persons from residences, farms or businesses.

OR

☐ b. There has been displacement of persons from either residences, farms or businesses and in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, displaced persons, businesses, or farm operations have been provided relocation payments, if eligible, and relocation assistance. Displaced individuals or families have been relocated to decent, safe and sanitary housing or have been offered decent, safe, sanitary and fair housing immediately available on the open market.

C. Utilities

☐ 1. The occupancy and/or adjustment of existing utilities within the right-of-way of the above referred to federal aid project have been authorized by permit, franchise, or other approved procedure.

CC DE Swan
CT Keasey
R. Trigstad
Sent-3-12-79

Signed at ______________, Oregon, this _____ day of __________, 19__

City of Portland

____

______________________ Mayor

______________________ City Recorder

Certified By:

Regional Right-of-Way Supervisor
Date Mar 1, 1979

Instructions: Complete A or B and C.

8909

ROBERT W. STRAUB
GOVERNOR

Department of Transportation

TRANSPORTATION BUILDING, SALEM, OREGON 97310

March 5, 1979

TO G. L. Green, Division Administrator
Federal Highway Administration

FROM D. E. Swan
Federal Aid Manager

SUBJECT Project Data Submission
Item No. 90139
Project No. M-9910(1)
E. Fremont Br. Connection
Multnomah County

Attached support data consists of PR-1 forms and project maps.

It is the Oregon State Highway Division's present intention to receive bids for this project on April 12, 1979.

A copy of the State Clearinghouse A-95 review letter of approval was forwarded previously.

JLG:dmc
Attachments
cc: R. N. Bothman, Metro
Max Klotz, Metro
Jon Rose, Metro
Ed Hardt, Region 1
[redacted]

Budget Bureau No. 41-R20

MONTHLY TRANSACTION NO.	FORM PR-1 (REV. 4-61)
DATE SUBMITTED TO W.O.	March 5, 1979

FEDERAL-AID PROGRAM DATA

(PPM 21-1)

CARD	REPORT NUMBER (19) (20)	PROJECT LOCATION (45 typewriter spaces) 21 … 65		PRESENT	FUTURE (66) (70)	YEAR (71) (72)	REGION	STATE NAME
2		City St., E. Fremont Br. Conn. (Portland)	ADT	14,000	---	--	10	Oregon

CARD	CHARACTER OF PROPOSED WORK (35 typewriter spaces) 28 … 62	NATL. FOREST (63) (65)	FH ROUTE NO. (66)	SUPV AGCY (68)	DA CLASSIF. (70)	DA AREA (71)	EMERG. YR. (72) (73)	PL. AUTH YR (74) (75)	PROJECT NUMBER PREFIX LETTER(S) 14 23	NUMBER 7
3	Gr., Dr., H.T. Pave								M-	9910

CARD	CLASS OF FEDERAL FUNDS	COUNTY NAME
	Urban System	Multnomah

NAME OF URBAN AREA 17-31	ROUTE NO.	FEDERAL-AID (32)	STATE (36) (37)	U.S.
Portland	U	9910	Street	---

CARD	LINE NO.	CHANGE CODE	PROJECT CODE	CLASS	WORK TYPE	WORK STEP	TERMINI (Full description)	MILES	TOTAL ESTIMATED COST	FEDERAL FUNDS 88.1%	STATE FUNDS	OTHER FUNDS (Portland)
5	(14-15)	(16)	41	42	43 … 46	53		(54) (58)	(59) (66)	(67) (76)		
5					**PE**							
5					**ROW**							
5					**CONST** (CODE) TOPICS 6203		"E. Fremont Br. Connection"	0.157	242,800	213,900	14,450	14,450

CARD	CODE	PREPARED BY	PROJECT TOTALS	MILES	TOTAL	FEDERAL	STATE	OTHER
1	1	JLG		0.157	242,800	213,900	14,450	14,450
1	14	PROGRAM APPROVAL DATES 10-18-78			(16) (23)	(24) (33)		

REMARKS

Additional Data: Item N
M-9914(1).

over

Budget Bureau No. 41-R2067; Approval Expires February 28, 1966

FORM PR-1
(REV. 4-61)

March 5, 1979

FEDERAL-AID PROGRAM DATA
(PPM 21-1)

U.S. DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS

ECT LOCATION (45 t writer spaces)
St., E. Fremont Br. Conn. (Portland) 65

ADT
PRESENT 14,000
FUTURE --- (66) (70)
YEAR -- (71) (72)

REGION 10
STATE NAME Oregon
STATE CODE 41 (2) (3)
APPN CODE W36 (4) (6)
ITEM NO. 90139 (14) (18)

WORK (35 typewriter
Pave 62
NATL. FOREST (63) (65)
FH ROUTE NO. (66) (68)
SUPV AGCY (69)
DA CLASSIF. (70)
DA AREA (71)
EMERG. YR. (72) (73)
PL. AUTH YR (74) (75)

PROJECT NUMBER
PREFIX LETTER(S) 14 M- 23
NUMBER 7 9910
SEQ. NO. (1) 13
I. Projects Only
POST MI. (24)
DESIG. (26) 27

COUNTY NAME Multnomah
CODE 051 (14) (16)

ROUTE NO. U
FEDERAL-AID 9910 (32)
STATE Street (36) (37)
U.S. --- (41)

PROGRAM STAGE ☐ 1 OR ☐ 2

ESTIMATED PROJECT COST BY PHASES

ORK TYPE	STEP	TERMINI (Full description)	MILES	TOTAL ESTIMATED COST	FEDERAL FUNDS 88.1%	STATE FUNDS	OTHER FUNDS (Portland)	CHARACTER OF PROPOSED WORK (Full description)
46	53		(54) (58)	(59) (66)	(67) (76)			
								Util. adj. as required
W								
NST E) ICS 3		"E. Fremont Br. Connection"	0.157	242,800	213,900	14,450	14,450	ROW-70' min.; Access Control-partial; Parking Restrictions- Partial
	JLG	PROJECT TOTALS	0.157	242,800	213,900	14,450	14,450	
				(16) (23)	(24) (33)			

AL DATES
10-18-78

REMARKS
Additional Data: Item No. 21; Project No. M-9914(1).

over

USCOMM DUSCOMM-DC 49905-P61

E. Fremont Br. Connection
Project No. M-9910(1)

Project Data: The work consists of grade, drain and high-type pave a variable width curbed section (36.5' min.) to change configuration of E. Fremont Br. Connection to city streets. Relocate illumination, remove existing pavement not required and perform incidental work common to this type of project. Adjust utilities as required.

FHPM 7-7-2 Requirements: Final Negative Declaration concurred in by FHWA on August 24, 1977. (Project M-9914(1)).

Note: 1) This project is in Congressional District No. 3.
2) Included in CRAG FY '79 TIP/AE on page 39 line 33 and MSD Resolution.

8909

STATE OF OREGON **INTEROFFICE MEMO**

ODOT - METRO
DEPT.

238-8226
TELEPHONE

TO: Gerald Wimer
Manager, Local Government Section

DATE: January 22, 1979

FROM: James D. McClure
Project Development Engineer

SUBJECT: Agreement Revision
East Fremont Bridge Ramps

Attn: Maynard Holmes

Our staff has made several revisions to the subject agreement based on the following jurisdictional changes:

1. State to perform construction engineering of the project.
2. State to have jurisdiction, maintenance and control of the ramps after construction.
3. Change in the right-of-way to be transferred to the City of Portland.

Please review the attached agreements, with the revisions shown in red, for adequacy and prepare a new agreement for submittal to the City of Portland. I will review the revised agreement with city staff and will advise if there are any further changes to be made.

JDM/PE

Attachment

Fremont Bridge - Cook Avenue Connection

cc: D.R. Adams
M.J. Klotz
J.R. Rose
C.T. Pietrok

To typist 1-30

8709 61

STATE OF OREGON **INTEROFFICE MEMO**

ODOT - Traffic
DEPT.

378-6537
TELEPHONE

TO: D. O. Christensen
Final Design Engineer

DATE: October 30, 1978

FROM: L. E. George
Traffic Engineer Supervisor

SUBJECT: "HOSPITAL" Signing
East Fremont Bridge Connection
Stadium Freeway
Multnomah County

The City of Portland has requested additional "HOSPITAL" signing on the East Fremont Bridge Connection project.

Please add a "HOSPITAL" symbol sign to the right of the "KERBY AVENUE" sign at Station 336+29. The attached print shows the sign details.

L. E. George
Traffic Engineer Supervisor

ELS:ds
Attachment

cc: R. N. Bothman w/attachment
E. L. Hardt w/attachment
Vic Rhodes w/attachment

REFERRED TO
✓ Beard KUGB Staudenmeyer
Cole Semple
Erikson Watson
Hagen Dorn Lee
Return Discuss [✓ Do] File Copy Due
BY FINAL DESIGN ENGINEER

Versteeg
✓ Christensen Dee
George
Olson
Terpin
Sullivan
Scott
Anderson

RECEIVED
OCT 31 1978
ENGINEERING SECTION

Trout
Do Not File ☐
Return To
Bring Up __/__/__
Action

81-125-1367

8909

Form 81-734-3010

OREGON STATE HIGHWAY DIVISION
INTER-OFFICE CORRESPONDENCE
Salem, Oregon
10-20-78

FILE:

FROM: FINAL DESIGN

SUBJECT: Project Name Change

TO: MEMO TO THE FILES

It has been necessary to change the name of this project

FROM Fremont Br. - Union Ave. Connection (Portland)

TO East Fremont Bridge Connection

FAU 9910
Multnomah County

cc: Region
Environment
Project Management
Structures
Right-of-Way
Engineering
Traffic
Location

Versteeg
Christensen
George
Olsen
Turpin
Sullivan
Scott
Anderson

RECEIVED
OCT 20 1978
ENGINEERING SECTION

Trout
Do Not File ☐
Return To
Bring Up __/__/__
Action

8909

326-1917
(160)

8

Emanuel Hospital
eh
2801 north gantenbein avenue • portland, oregon 97227

*To call writer direct phone (503) 280-*4010

October 13, 1978

Mr. Robert N. Bothman
Administrator, Highway Division
Department of Transportation
5821 N. E. Glisan Street
Portland, Oregon 97213

Dear Mr. Bothman:

Thank you very much for the time you took discussing the Fremont Bridge access. We very much appreciate your assistance in expediting both the design review phase and the preparation of specs, advertising and awarding of the contract.

As I mentioned to you, access to our campus is a critical issue, and we are currently facing many decisions which would be directly affected by the completion of the Fremont Bridge ramp access. Per your suggestion, I will be back in touch with you in mid November to check on the progress of the project.

Again, thank you very much for your time.

Very truly yours,

John B. Grotting

John B. Grotting
Vice President
Administration

JBG:gk

cc: Roger Larson

NOTED
F. B. KLABOE

MA [illegible] PDE TSE SPC
ODOT - METRO
OCT 18 1978

AM PPS [illegible] FILE T/A

RECEIVED
DOT OPERATIONS
OCT 2[illegible] '78
REFER TO

FOR

Info	Invest	R/U	D/R	Sign	Act	File

cc ~~[illegible]~~ LANG
10-20-78
LE

[illegible]

8709

THE CITY OF
PORTLAND
OREGON

BUREAU OF
FINANCIAL AFFAIRS

ACCOUNTING DIVISION
MARINO B. BUAL
ACCOUNTING MANAGER

1220 S.W. FIFTH AVENUE
PORTLAND, OREGON 97204

September 5, 1978

Oregon State Dept. of Transportation
Hiway Division
Transportation Building
Salem, Oregon 97310

Gentlemen:

In connection with the examination of our financial statements please confirm to our auditors, Touche Ross & Co., One S. W. Columbia, Suite 1500, Portland, Oregon 97258, the following information concerning contracts payable to you as of June 30, 1978.

Contract # 14493
Nature of Contract - Freemont Bridge to Union Avenue Study

Original Contract Amount	$ 327,300.13
Contract Amendments to 6/30/78	$ ---
Payments Made to You thru 6/30/78	$ ---
Contract Balance at 6/30/78	$ 327,300.13

Your prompt attention to this request will be appreciated. An addressed envelope is enclosed for your reply.

Sincerely,

Marino B. Bual
Accounting Manager

NOTED
F. D. KLABOE

MB/me

Confirmation: The amount of the contracts payable to us is correct as shown, except as follows:

Ref'd To coulter to TAA

Date ____________________ By ____________________

8909

June 23, 1978

MR. DAVE MOEHRING
Project Management Section
Oregon Department of Transportation
Salem, OR 97310

Attention: Gerald Wimer

Your office requested that I clarify the intent of CRAG resolution BD780505 for the purpose of amending the Federal Aid System and the Interim Transportation Plan. Apparently there was some concern about connecting the Federal Aid Interstate System by the Fremont Bridge ramps to North Cook Street which is classified as a collector.

The intent of the resolution is to assure that the Fremont Bridge ramps are connected to the rest of the Federal Aid System. Additionally, the objective is to assure that North Cook Street be classified as a collector. The difficulty is the unnamed link between the interstate ramps and North Cook Street. This link should be idenified as a minor arterial and not a collector. If this small section were classified as a minor arterial and North Cook Street and North Kirby Avenues classified as collector routes, it would meet the intent of both the city of Portland and the Columbia Region Association of Governments. This would directly link the bridge ramps to the other Federal Aid designated routes and be consistent with federal regulations which require route continuity.

I hope that this clarifies the intent of the May 25 Board resolution. If you have further questions, please contact Mr. Bill Ockert of my staff, Mr. Glen Pierce, city of Portland or Mr. Ted Spence of the ODOT Metro Section.

Sincerely,

DENTON KENT
Executive Director

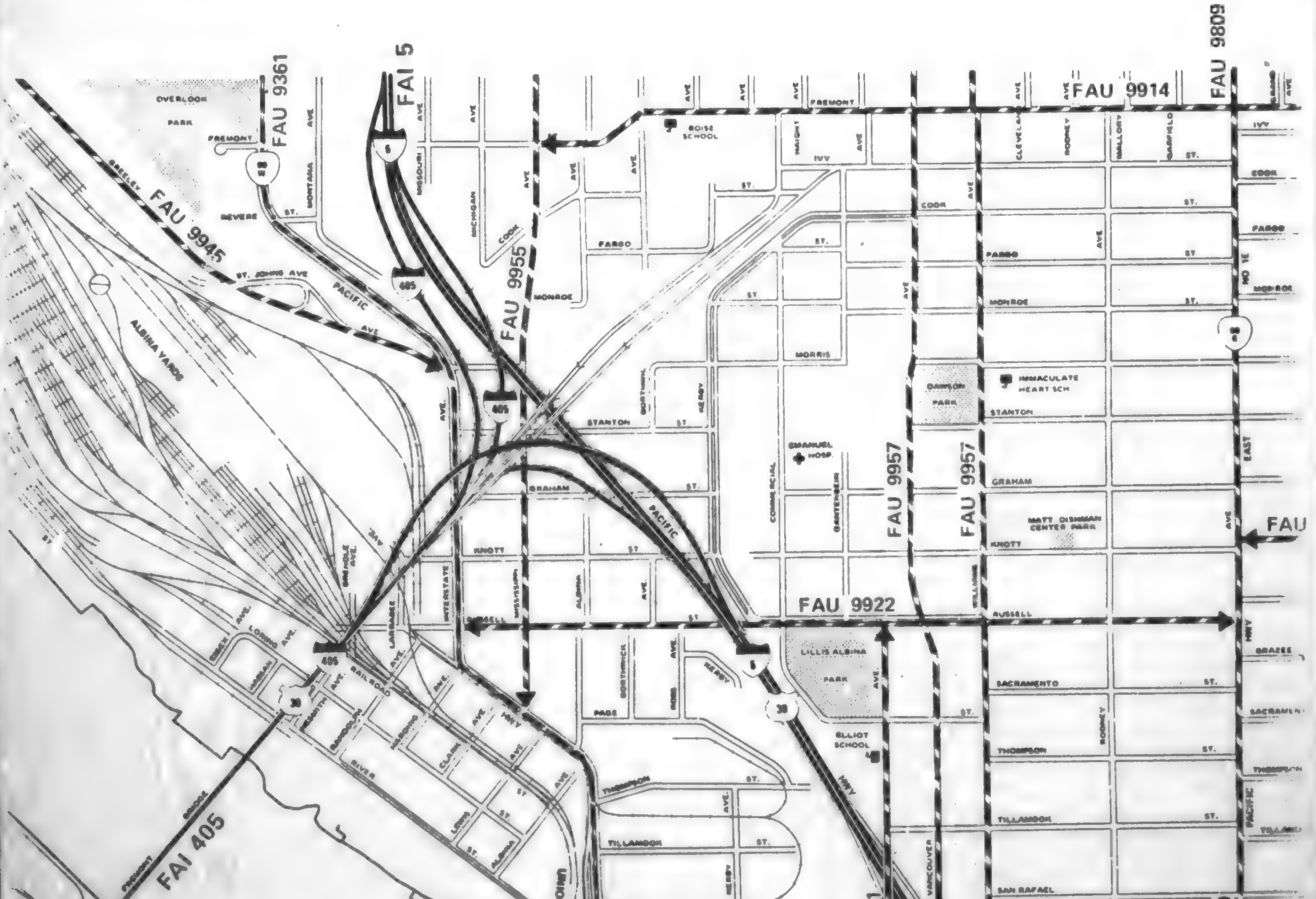
lh

cc Bill Ockert
Glen Pierce
Ted Spence

PROJECT MANAGEMENT
PME ☐ CCE ☐ OM ☐
LCE ☐ FAE ☐ OPE ☐
JUN 26 1978
File: PM FA
LG OP
TAA Zehner

Arne Severson is handling thru Ted Spence & Dick Arenz.

This is a draft. Conform it to my (Severson's) recent letter. If it meets criteria, have Spence arrange formal issuance


FAI 5
FAU 9361
FAU 9945
FAU 9955
FAU 9914
FAU 9809
FAU 9957
FAU 9922
FAU 9921
FAI 405
FAU 9361
FAU 9318
FAU 9300
FAU 9901
FAU 9903
FAU 9022
AU 9318
U 9305
FAU
WILLAMETTE
OVERLOOK PARK
ALBINA YARDS
BOISE SCHOOL
DAWSON PARK
IMMACULATE HEART SCH
EMANUEL HOSP.
MATT DISHMAN CENTER PARK
LILLIS ALBINA PARK
ELLIOT SCHOOL
MEMORIAL COLISEUM
HOLLADAY PARK HOSP.
FREMONT
IVY
COOK
FARGO
MONROE
MORRIS
STANTON
GRAHAM
KNOTT
RUSSELL
SACRAMENTO
THOMPSON
TILLAMOOK
SAN RAFAEL
HANCOCK
SCHUYLER
BROADWAY
WEIDLER
HALSEY
CLACKAMAS
WASCO
MULTNOMAH
HOLLADAY
PACIFIC
OREGON
IRVING
LOVEJOY
JOHNSON
GREELEY
REVERE
ST. JOHNS AVE
PACIFIC HWY
INTERSTATE
MISSISSIPPI
ALBINA
VANCOUVER
WILLIAMS
UNION
GRAND
EAST
NO 1E
NO 1W
FREMONT BRIDGE
BROADWAY BRIDGE
NORTHERN
FRONT
RAILROAD
RIVER
THUNDERBIRD WAY
R.R.

CRAG TIP

CRAG RESOLUTION

BD 780505

FOR THE PURPOSE OF AMENDING THE FEDERAL AID SYSTEM AND THE INTERIM TRANSPORTATION PLAN

WHEREAS, the CRAG Board of Directors in resolution BD 750602 adopted an Interim Transportation Plan (ITP) for the Portland-Vancouver Metropolitan Area; and

WHEREAS, the CRAG Board of Directors in resolution BD 760503 adopted a Functional Classification System and a Federal Aid System for the Urban part of the Portland-Vancouver Metropolitan Area; and

WHEREAS, the highway and street network described in the Interim Transportation Plan must be consistent with the Federal Aid Classification Systems, as set forth in Federal Regulations; and

WHEREAS, the Portland City Council selected an alternative for the Fremont Bridge Ramps link with North Cook Street; and

WHEREAS, North Cook Street is not designated as a federal aid route and as such creates a break in route continuity, thereby inconsistent with federal regulations; and

WHEREAS, the City, in order to comply with Federal Regulations is requesting the following amendment described in Exhibit "A," attached hereto and incorporated herein:

> "Designation of the Fremont Bridge Ramps from the point where their Interstate Designation terminates, and designation of N. Cook Street and N. Kirby Avenue between N. Russell Street and N. Vancouver Avenue as Federal Aid Urban System and functionally classified as collector routes"; and

WHEREAS, the Transportation Improvement Program Subcommittee and the Transportation Technical Advisory Committee have screened this request and recommended its incorporation;

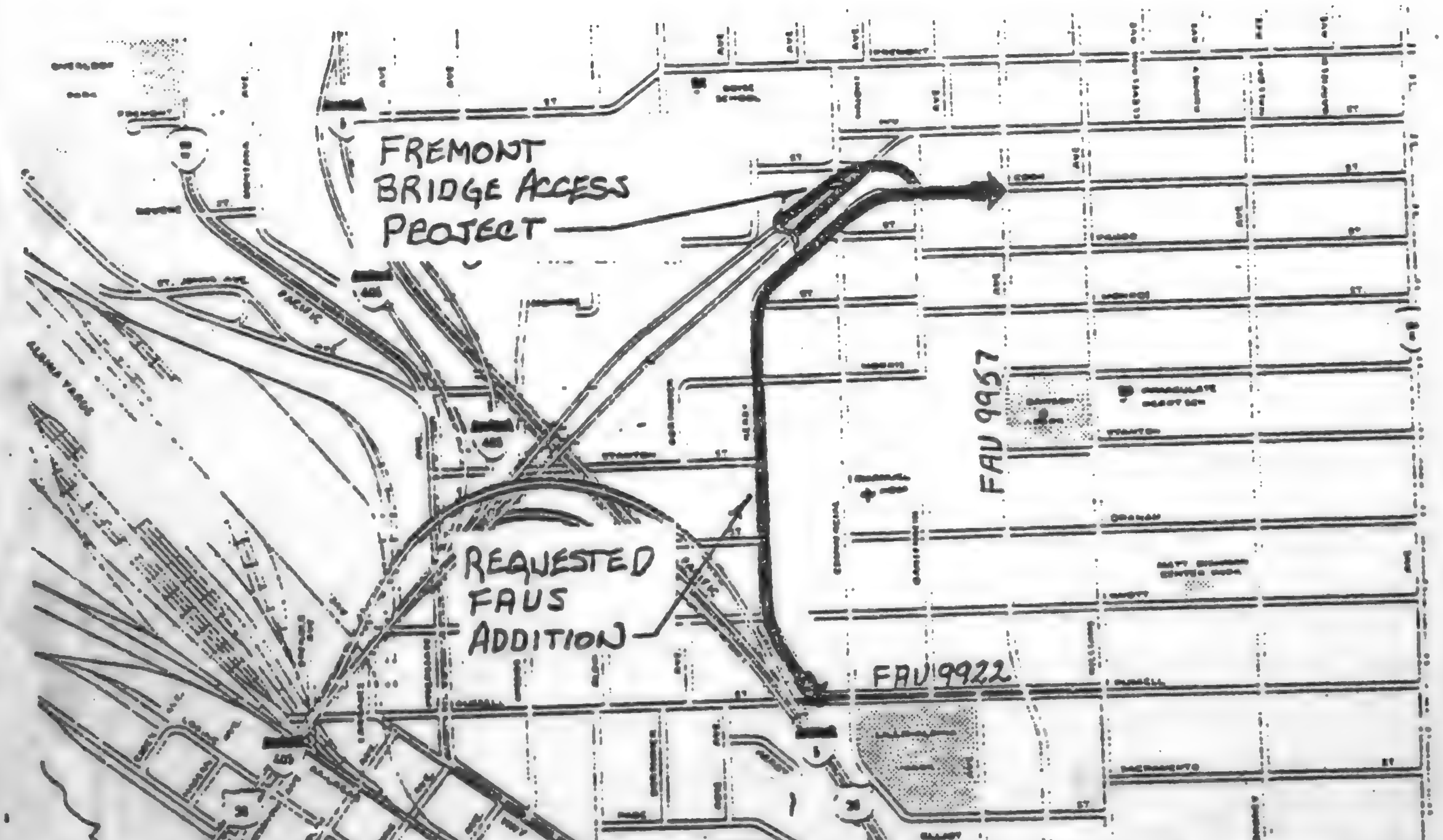
NOW THEREFORE BE IT RESOLVED, That the Board of Directors finds the requested change set forth in Exhibit "A" is in accordance with the region's continuing cooperative and comprehensive planning process; is incorporated in the Functional Classification System, the Federal Aid Urban System, and the Interim Transportation Plan; and

BE IT FURTHER RESOLVED, That the Board of Directors directs and authorizes the Executive Director to submit this change to the Federal Highway Administration for consideration through the Oregon Department of Transportation and to take other action as necessary to carry out the purpose of this resolution.

ADOPTED, by the CRAG Board of Directors this 25th day of May, 1978.

By Denton U. Kent
Denton U. Kent, Executive Director

EXHIBIT A


FREMONT
BRIDGE ACCESS
PROJECT
REQUESTED
FAUS
ADDITION
FAU 9957
FAU 9922
WILLAMETTE
PACIFIC
NORTHERN

8909

8

May 9, 1978

MEMO TO THE FILE

From: Donald R. Adams
Project Development Manager

Subject: Project Staff Meeting Minutes
May 2, 1978

17. E. Fremont Connection, East End Fremont Bridge - The City is doing preliminary design. It was submitted to the State in February, 1978. At the State's request, the City is redesigning the connection to comply with the EIS. Bid opening to follow in June, 1978. CRAG has approved construction and right-of-way financing on the project in February, 1978. Use State Force Order to do the signing due to the six month delay at Salem Traffic Design. The City will do the construction engineering. The City has advised they will challenge our recommended design. There may be a right-of-way question on this project and status will be determined. The City is to provide the right-of-way.

8909 Portland

Salem, Oregon
May 3, 1978

ADOlson
A. D. Olson
Preliminary Design Engineer

East Fremont Connection
City of Portland

R. N. Bothman, Administrator
Metropolitan Branch

Attention: Jim McClure

Enclosed are four versions of striping plans for the lower deck of the Fremont Bridge to allow the connection to Gantenbein and Kerby Streets. Plan No. 1 shows the approximate existing stripes.

Plan No. 1 shows a two lane off-ramp for what should be a minor move. This would not require that a lane be dropped prior to the south bound off-ramp to I-5.

Plan No. 2 drops the left lane prior to the first off-ramp and gives a short escape ramp.

Plan No. 3 pulls the off-ramp back to give more room between consecutive off-ramps.

Of the three, Plan No. 3 would seem preferable from the standpoint of driver expectancy, distance between ramps and playing down the new connection in prospective with the anticipated traffic.

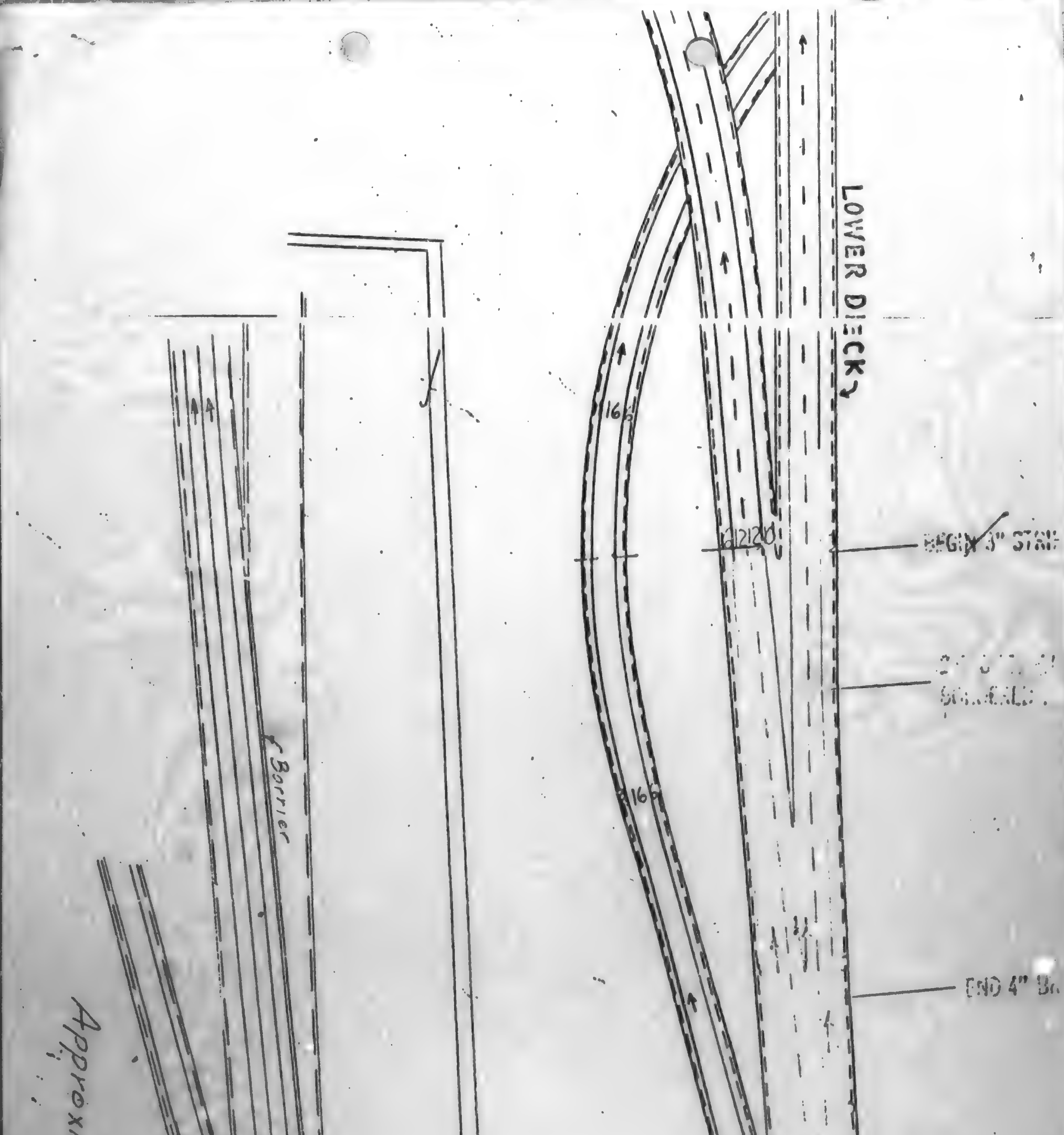
Your review, suggestions and comments are requested.

ADO:jh
Enclosures

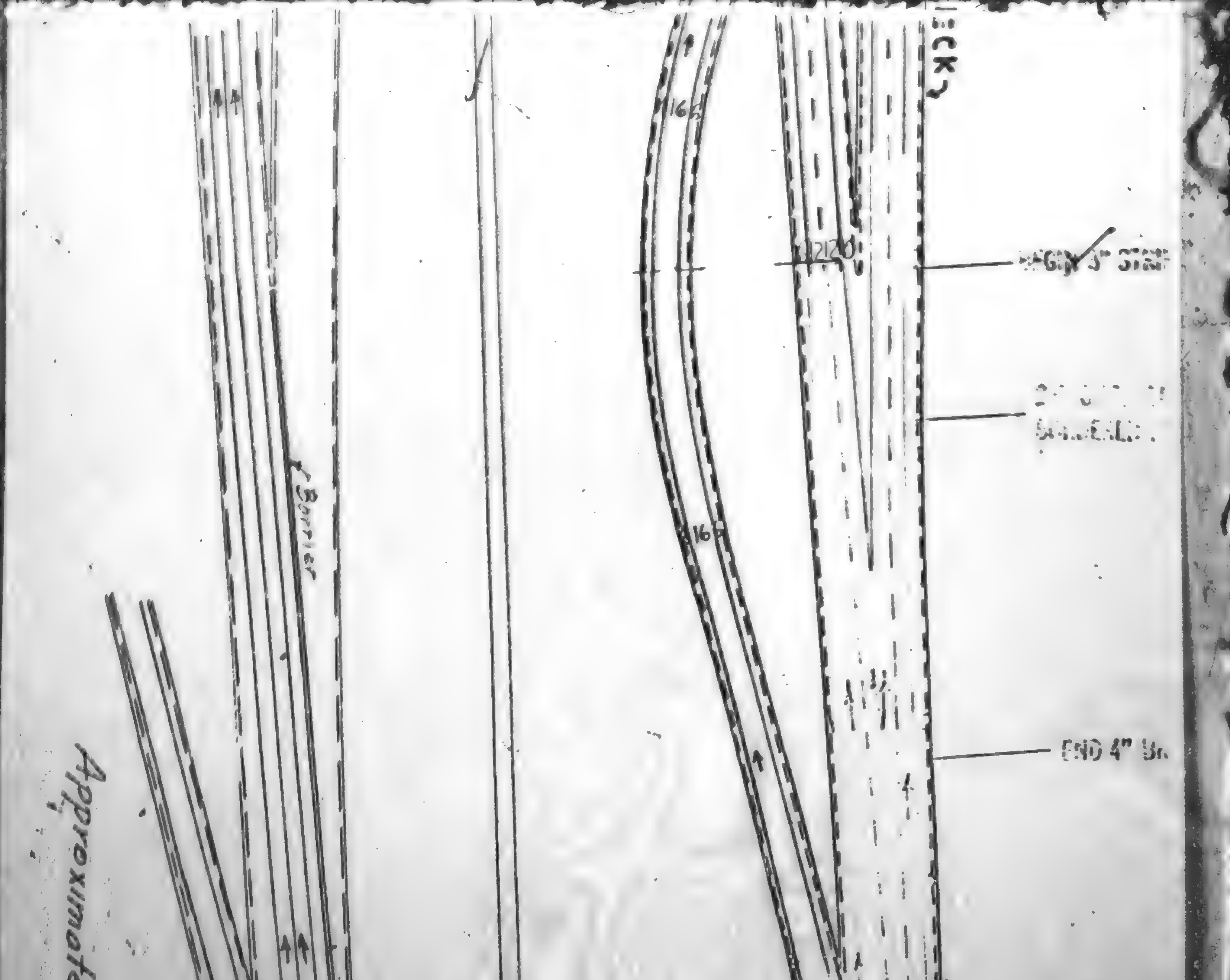
✓ Versteeg ✓
Christensen ✓
George
Olson
Terpin
Sullivan
Scott
Savage

RECEIVED
MAY 0 3 1978
ENGINEERING SECTION

Trout
Do Not File ☐
Return To
Bring Up __/__/__
Action

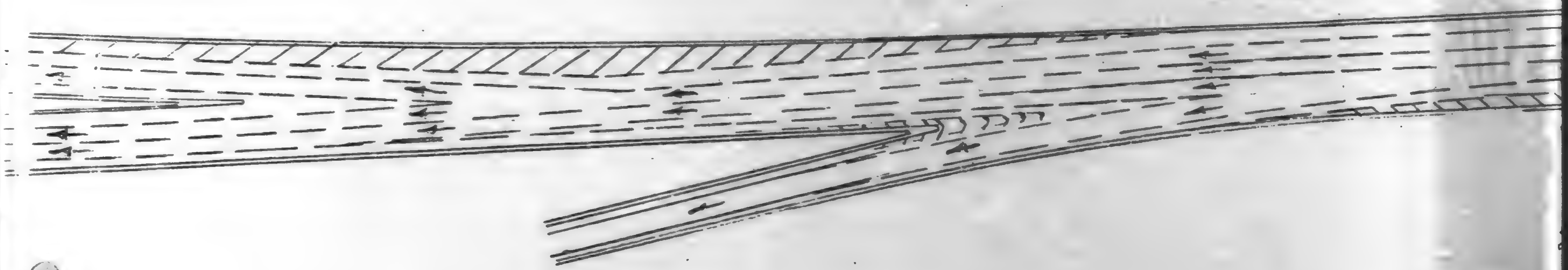

LOWER DECK
16
166
212120
BEGIN 3" STRI
END 4" B
℄ Barrier

Approximate Configurat

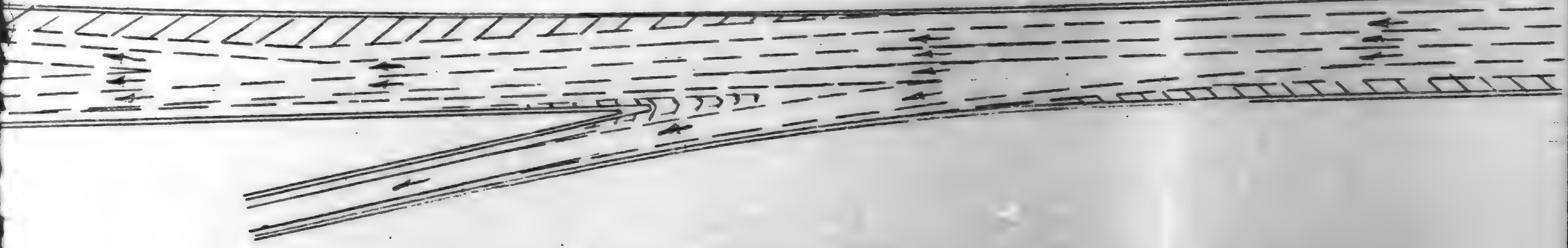

ECK
BEGIN 3" STRIP
END 4" Br.
Barrier
16
12120
END OF PROJEC
STA "F63"
LOWE

Plan 1

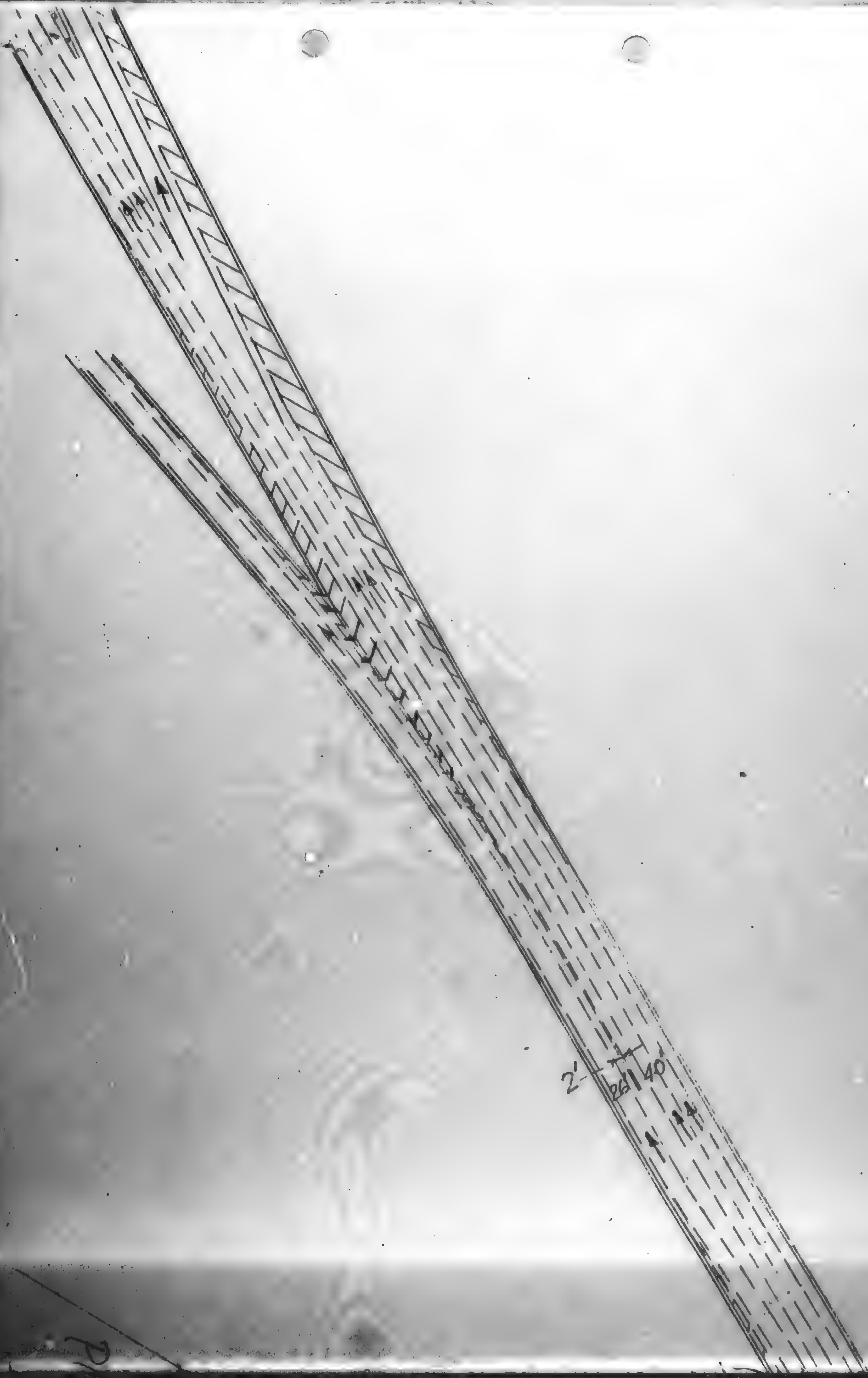
Approximate Configuration of Existin

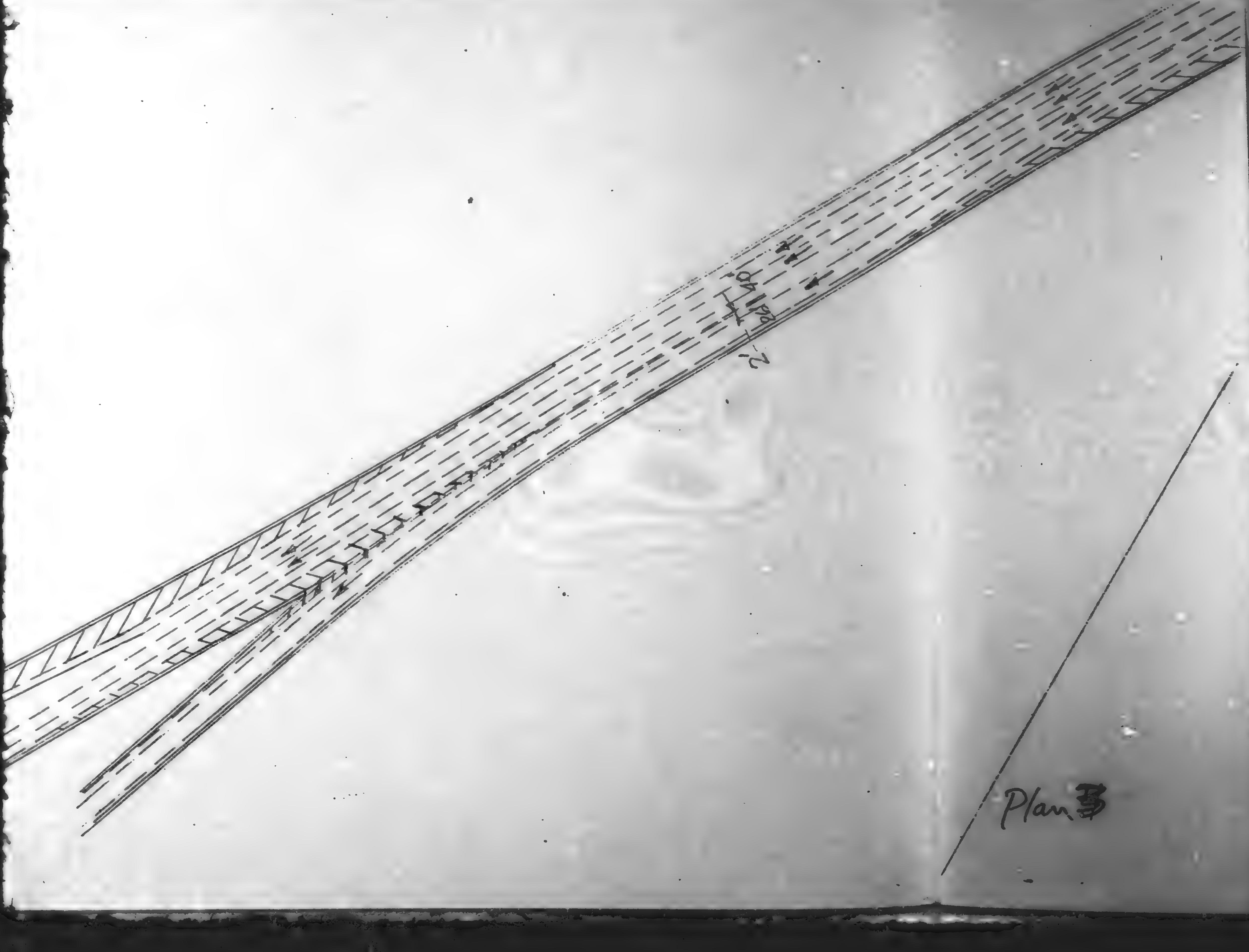


Plan 2



Plan 2





Plan B

8909

April 13, 1978

TO OREGON TRANSPORTATION COMMISSION

FROM H. S. Coulter
State Highway Engineer

SUBJECT Federal Aid Urban System Project Requests

On the Consent Calendar for the April 25 meeting will be six requests from the City of Portland for approval of Urban System projects.

One is for a $358,500 project to signalize six intersections on Columbia Boulevard.

Another is for a $123,000 project to connect North Gantenbein Street to existing ramps of the Fremont Bridge.

A $776,000 project is being requested to reconstruct the intersection of Burnside Street, Sandy Boulevard, and 12th Avenue.

A "Turn-Key" project to replace signal equipment at 21 intersections in the Central Business District is a $600,000 request.

Another request is for a $3,532,000 project to widen Holgate Boulevard and replace the existing bridge over the Southern Pacific right-of-way.

A $45,000 project is being requested to signalize the intersection of S.W. Capital Highway and S.W. Huber Street.

Federal Urban System funds for these projects are estimated at $4,673,670 with the State providing approximately $380,415 in match funds and a like amount being contributed by the City of Portland.

These projects have been investigated and are eligible for funding under the Federal Aid Urban System Program. I recommend your approval and request authorization to sign the project agreements for and on your behalf.

Att.

bc: R. A. Burco
F. B. Klaboe
C. W. Head
E. S. Hunter
D. H. Moehring
R. N. Bothman
V. E. Skoog
J. H. Versteeg
E. L. Hardt
D. N. Harwell
George Bell

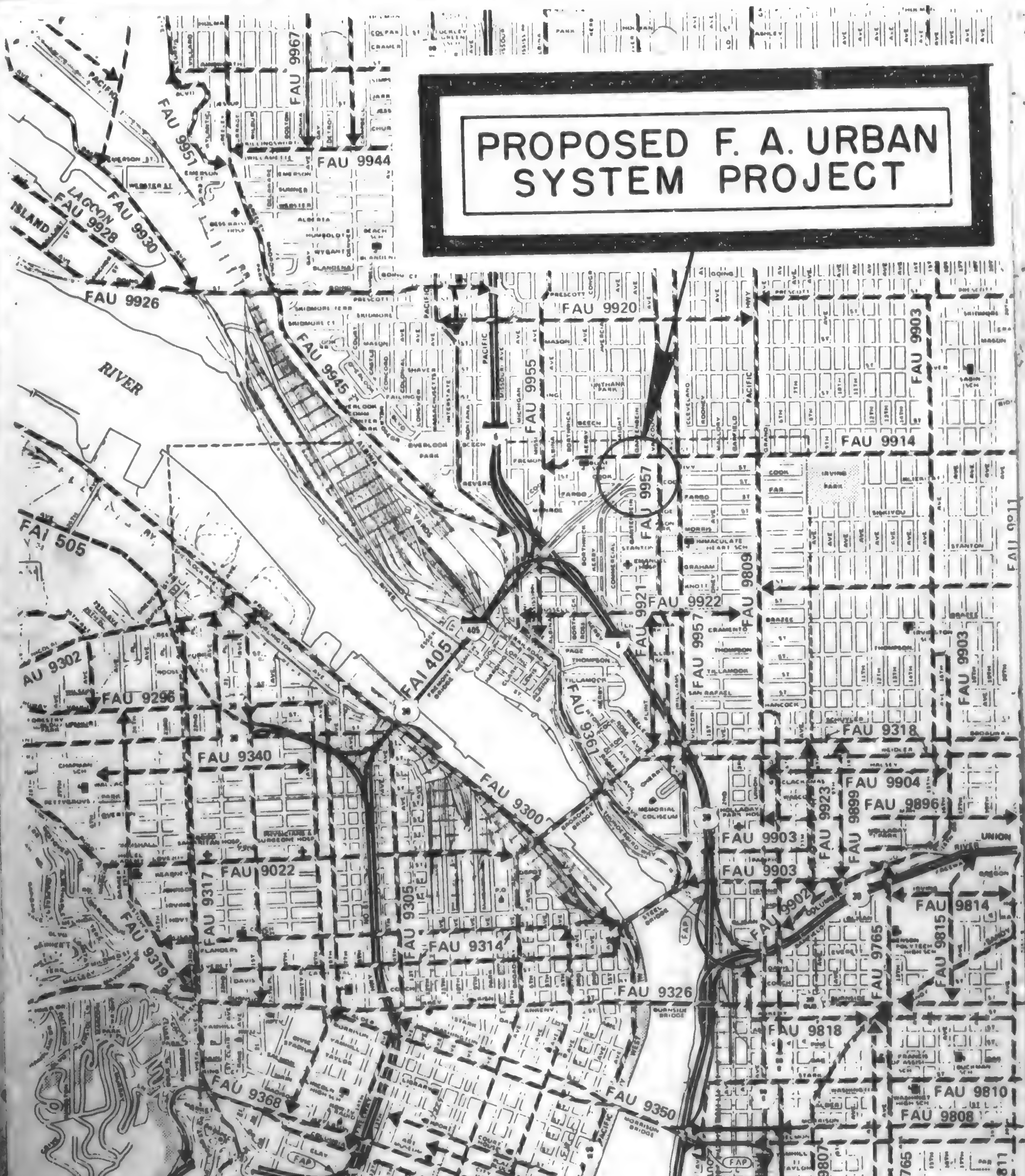
CITY OF PORTLAND
Proposed Urban System Project

Fremont Bridge-Union Avenue Connection
Grade, Pave, Sign and Stripe
0.11 miles
$123,000

This project entails all the work and costs to provide limited access from North Gantenbein Street to existing ramps of the Fremont Bridge. This request is for the right-of-way and construction phases, preliminary engineering was previously approved on August 29, 1974.

City will perform the construction engineering.

78-d
4-11-78


PROPOSED F. A. URBAN SYSTEM PROJECT
FAU 9967
FAU 9944
FAU 9951
FAU 9930
FAU 9928
LAGOON
ISLAND
FAU 9926
RIVER
FAU 9945
FAU 9920
FAU 9955
FAU 9903
FAU 9914
FAU 9957
FAI 505
FAI 405
FAU 9921
FAU 9922
FAU 9809
FAU 9302
FAU 9296
FAU 9361
FAU 9318
FAU 9340
FAU 9300
FAU 9904
FAU 9896
FAU 9923
FAU 9899
UNION
FAU 9022
FAU 9317
FAU 9305
FAU 9902
FAI
FAU 9814
FAU 9319
FAU 9314
FAU 9765
FAU 9815
FAU 9326
FAU 9818
FAU 9368
FAU 9350
FAU 9810
FAU 9808
FAP
FAU 9807
FAU 9811
FAU 9366
FAU 9341
FAU 9361
PACIFIC
FAU 9911
MEMORIAL COLISEUM
IMMACULATE HEART SCH
IRVING PARK
PITMAN PARK
BURNSIDE BRIDGE
MORRISON BRIDGE
HAWTHORNE BRIDGE
BROADWAY BRIDGE
STEEL BRIDGE

8909

STATE OF OREG N

INTERC CE MEMO

61

DATE: March 14, 1978

TO: DUANE O. CHRISTENSEN
Final Design Engineer

Chuck Pietrok

FROM: CHUCK PIETROK
Project Coordinator

~~Tom copy~~
O.b.

SUBJECT: ~~East Fremont Connection~~
Construction Signing State Force
Order

Victor Rhodes, City of Portland Design Engineer, submitted preliminary plans to the State Signing Section at Salem in February, 1978, to prepare sign plans for the East Fremont Connection project. At that time, Elmer Scofield indicated to Mr. Rhodes that it would take six months to complete signing plans for the project.

Mr. Rhodes asked if we could install the project signing under a State Force Order and include funds for it in the project authorization. I contacted Edward Hardt, Region Engineer. Mr. Hardt said it would be acceptable to do it this way since the project has a June, 1978, letting date.

I am sending you a copy of a letter to L. E. George dated March 2, 1978, from Victor Rhodes asking that the signing be done under a State Force Order if Mr. Scofield cannot meet the deadline mentioned in the letter.

CP/ldo

Attachment

cc: E. L. Hardt
J. D. McClure

Ck cy to Olson
George

REFERRED TO
1 Board WGB Dorn
Cole Semple
Eriksen 2 Watson SW
Hager Lou
Return Discuss Do File Copy Due
BY FINAL DESIGN ENGINEER

1 Vantoeg ✓
2 Christensen DOC
George
Olson
Turpin
3 Sullivan JWS
Scott.
Savag.

RECEIVED
MAR 15 1978
ENGINEERING SECTION

Trout
Do Not File ☐
Return To
Bring Up / /
Action

81-125-1307

PIETROK/OSHD

THE CITY OF
PORTLAND
OREGON

DEPARTMENT OF
PUBLIC WORKS
CONNIE McCREADY
COMMISSIONER

OFFICE OF
PUBLIC WORKS
ADMINISTRATOR

400 S.W. SIXTH AVE.
PORTLAND, OR. 97204

March 2, 1978

L. E. George
State Traffic Engineer
Transportation Building
Salem, Oregon 97310

Attention: Elmer Scofield

RE: East Fremont Connection

Gentlemen:

Enclosed for your review are the preliminary plans and Final Negative Declaration for the subject project. The City of Portland is performing design and construction engineering with the exception of permanent traffic and directional signing. Since the project involves a connection to the Interstate System your office is being requested to perform this design work.

A June 1978 letting is planned for the project. Our schedule calls for Final Design to be complete and submitted to ODOT by mid-April 1978. If the design of signing cannot be completed in time for inclusion in the contract, we would suggest including it in the Project Authorization as an Anticipated Item and installing the signs under State Force Order.

If you have any questions regarding the project, please call me at 248-4645. Thank you for your assistance.

Sincerely,

Victor F. Rhodes, P.E.
Project Engineer

VFR:jt

Enclosure

8909 Portland

FORM 81-734-3030

OREGON STATE HIGHWAY DIVISION FILE:

INTER-OFFICE CORRESPONDENCE
Salem, Oregon
March 14, 1978

A. D. Olson

FROM: A. D. Olson
Preliminary Design Engineer

SUBJECT: East Fremont Connection
City of Portland
FAU 9914 (formerly 2029)

TO: MEMO TO THE FILES

A copy of the City of Portland's plans and supporting data was received in Engineering for review and comment on March 1.

After a cursory inspection I called Metro and advised them that the plan bore little resemblance to that shown in the approved Negative Declaration and that the alignment at the ramp terminal would not allow truck movements to Stanton Yard or for "some large trucks from nearby storage and transfer companies" as set out in the Negative Declaration.

Since then I have received calls from City of Portland personnel explaining that this was done to avoid cutting into the existing street connecting Cook and Ivy and asking what standards I wanted. I advised them of some of our "rule of thumb" radius for various trucks, but suggested that they needed to determine what type of traffic could be expected to use the facility and then work with their designers and Metro to develop a plan that will be acceptable to all concerned.

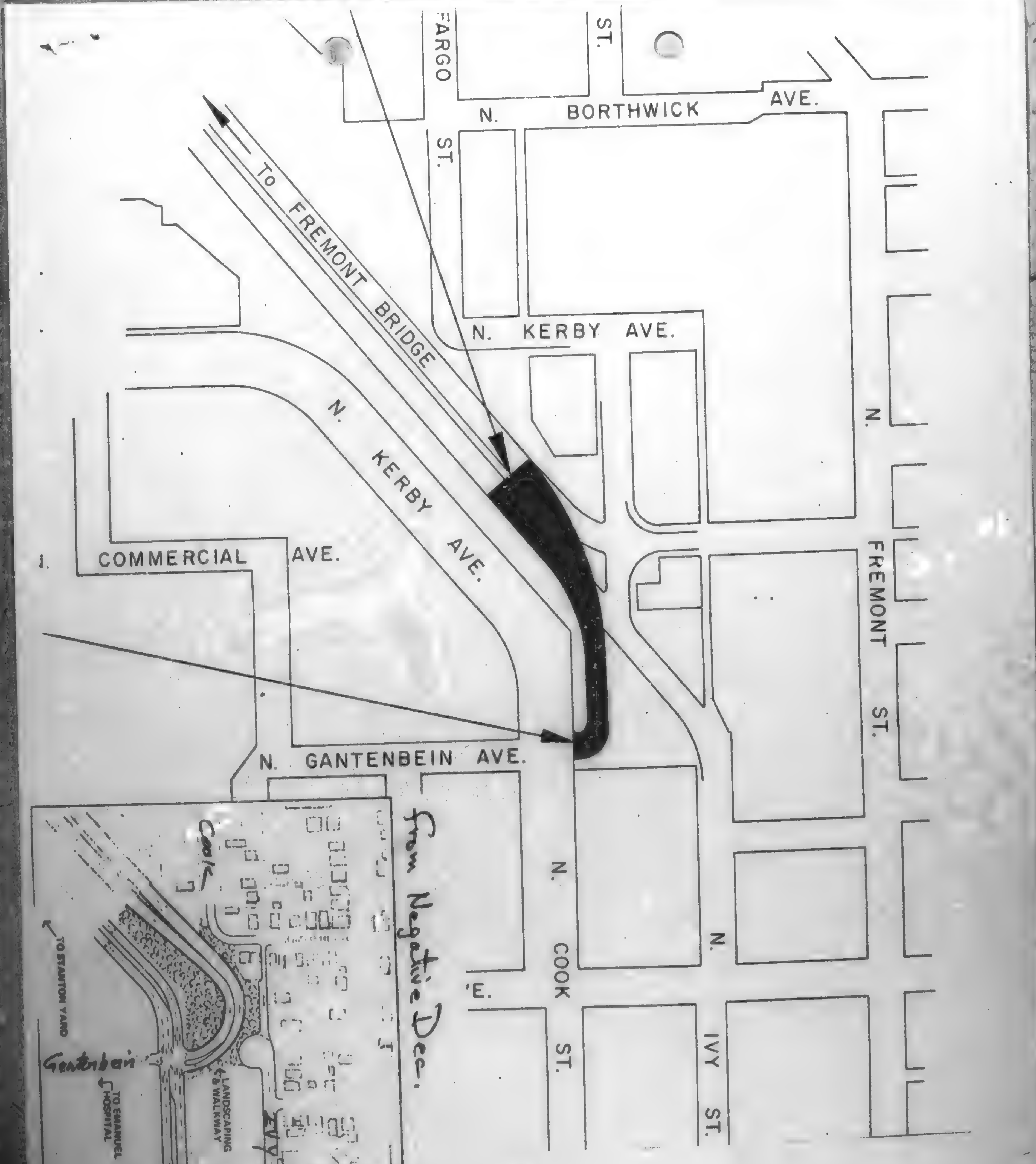
Unless the ramps are signed for automobiles only, prohibiting all trucks, the current plan will need to be revised.

ADO:ab
cc: R. N. Bothman
K. D. Limbocker

✓ Versteeg ✓
Christensen
George
Olson
Terpin
Sullivan
Scott
Savage

RECEIVED
MAR 14 1978
ENGINEERING
SECTION

Trout
Do Not File ☐
Return To
Bring Up ___/___/___
Action


FARGO ST.
N. BORTHWICK AVE.
To FREMONT BRIDGE
N. KERBY AVE.
N. KERBY AVE.
COMMERCIAL AVE.
N. GANTENBEIN AVE.
N. FREMONT ST.
N. COOK ST.
N. IVY ST.
E.
Cook
TO STANTON YARD
Gantenbein
TO EMANUEL HOSPITAL
LANDSCAPING & WALKWAY
IVY

from Negative Dec.

8909

STATE OF OREG INTERO CE MEMO

TO: D.H. Moehring
Project Management

DATE: March 13, 1978

FROM: Max J. Klotz
Technical Services Engineer

SUBJECT: SE 17 - SE 28th Ave. Section
(Holgate Blvd.)
[redacted]
12th/Sandy/Burnside Intersection
City of Portland projects

Attached are Federal Aid Project Requests and CRAG resolutions for the subject city of Portland FAU projects.

The city is completing the Preliminary Engineering and will be ready to commence the next phases soon. The State will purchase the necessary R/W, the City will perform the Construction Engineering with the State monitoring.

Please initiate programming for the R/W phase on the SE 17th - SE 28th Ave. Section and the 12th/Sandy/Burnside Intersection projects, and programming for both R/W and Construction on the Fremont Bridge - Union Ave. Connection

js

cc: Chuck Pietrok

Zehner TAA

81-129-1367

January 16, 1978

City of Portland
City Hall
Portland, OR 97204

Attention: George Yerkovich
City Auditor

MISC. CONTRACTS and
AGREEMENTS No. 5203

Gentlemen:

Attached for your records are two fully executed copies of a Letter of Understanding extending the contract time and providing for an increase in the contract cost for the Fremont Bridge to Union Avenue Study.

We are sending a fully executed original to CH2M-Hill and we have retained the same for the Transportation Commission's files.

Very truly yours,

G. W. Head
COMMISSION SERVICES

Hma

Att.

cc Bob Bothman (corres. att.)
Don Harwell "
V. E. Shoag "

DATE: December 12, 1977

TO: Oregon Transportation Commission

FROM:
H. S. Coulter
State Highway Engineer

SUBJECT: Fremont Bridge to Union Avenue Study
FAU Project No. M-2029(1)
Letter of Understanding

On the Consent Calendar for your consideration at the December 13 meeting will be a letter of understanding between the Department, the City of Portland and CH2M-Hill extending the contract time and providing for an increase in the contract cost for the Fremont Bridge to Union Avenue study.

The letter of understanding provides that the contract be amended to grant an extension of contract time retroactive to August 24, 1976 through August 15, 1977 for the completion of the consultant's work. The letter of understanding also provides that the contract be amended to increase the contract by $11,853.99 to a new total of $339,154.12. The Portland City Council has adopted a similar ordinance approving its amended participation.

Your approval and authority for me to sign for and on your behalf is requested.

HSC:is

bc: R. A. Burco
C. W. Head
F. B. Klaboe
R. N. Bothman
V. E. Skoog
L. W. Rulien
E. S. Hunter
D. H. Moehring
George Ball
Walt Hart

8909

U.S. DEPARTMENT OF TRANSPORTATION - FEDERAL HIGHWAY ADMINISTRATION

LETTER OF APPROVAL AND/OR AUTHORIZATION

1-11-78

FEDERAL AID PROJECT NO. 9914(1)

STATE PROJECT NO. See below

COUNTY NAME Multnomah

PROGRAM STAGE (Check) ☐ 1. ☐ 2.

PROGRAM NO.

ITEM NO. M-21

FROM:

G. L. Green, Division Administrator
Salem, Oregon

TO:

Mr. F. B. Klaboe
Chief of Operations, ODOT
State of Oregon
Salem, Oregon

Copy to
C. Head
H. [illegible]

PROJECT MANAGEMENT
PME ☐ CCE ☐ OM ☐
LGE ☐ [✓ FAE ☐] OPE ☐
JAN 13 1978
File: PM FA
TAA ____ LG OP

DATE PS & E APPROVED	DATE AUTHORIZATION EFFECTIVE 1-11-78	FEDERAL ROUTE NUMBER FAU 9914	STATE ROUTE NUMBER City Street

GENERAL LOCATION:

"Fremont Bridge - Union Ave. Connection (Portland) Section "

GENERAL DESCRIPTION OF WORK:

Consultant Agreement (Letter of Understanding)

YOU ARE AUTHORIZED TO PROCEED WITH THE WORK CHECKED BELOW

PRELIMINARY ENGINEERING TO DETERMINE
☐ LOCATION ONLY
PRELIMINARY ENGINEERING FOR SURVEY AND PLAN
☐ PREPARATION
☒ OTHER (Specify)
Consultant Agreement

☐ ACQUISITION OF RIGHT-OF-WAY
CONTRUCTION - ADVERTISE FOR RECEIPT
☐ OF BIDS
☐ CONSTRUCTION - PROCEED ON AN AGREED PRICE AND/OR FORCE ACCOUNT BASIS

REMARKS

As requested in Mr. Swan's letter of 12-30-77 I approve the Letter of Understanding with the Consultant Engineering Firm of CH2M Hill with a resultant increase of total estimated cost in amount of $11,853.99 - Federal Funds $9,269. Three copies of the approved Letter of Understanding are returned herewith.

NOTED
C. W. HEAD

DATE 1-11-78

SIGNATURE OF APPROVING OFFICIAL G. K. Hossner

TITLE for Division Administrator

FORM PR-1240 (REV. 8-70) EXISTING STOCKS OF FORM PR-1240 (REV. 6-68) WILL BE USED

☆ U.S. GOVERNMENT PRINTING OFFICE: 1976—626-787

8909

(326-1917
Fremont Br - Union Ave)

FEDERAL AID PROJECT REQUEST

Date January 10, 1978

Applicant Agency City of Portland

Request for: Off-System ____, FAS-C ____, FAUS X Project

Federal Aid Route No. 2029 Route Name Fremont

Project Name E. Fremont Connection Right-of-Way and Construction.

Project Length 600 feet Project Location (Attach sketch map) ⇦

Project Description Construction of limited access from N. Gantenbein Street to existing ramps to the Fremont Bridge with curbs, drainage, signing, hard surface pavement, and right-of-way.

Average Daily Traffic Exist - 100 approx. Design Speed 20 MPH
Ramps projected - 3,200 (1990)

Complete Applicable Sections:

I. ROADWAY DATA

1. Existing Roadway: (Attach sketch) ⇦

Width 24 feet Travel Lanes Two Shoulders None
Medians None Parking None
Sidewalks None
Remarks On-ramp only exists.

2. Desired Roadway Cross Section: (Attach sketch) ⇦

Width 36 feet min. (Varies) Travel Lanes Two Shoulders None
Medians Varies Parking None
Curbed Yes Length Curb Radii 15 feet minimum
Sidewalk/Bikeway None
Remarks

II. RIGHT-OF-WAY DATA

1. Existing Right-of-Way:

General Width ____ Minimum ____ Maximum ____

2. Has right-of-way been acquired for this project subsequent to January 2, 1971?
Yes X No ____

3. Will additional right-of-way be needed? Yes X No ____
If answer is "yes," will cost of right-of-way be subject to Federal reimbursement? Yes X No ____
Remarks Owned by PDC

III. TRAFFIC CONTROL DATA

1. Existing Signalization and Location:

None

2. **Proposed Signalization:**

Location None

Type
Phases
Type of Suspension
Interconnected
Remarks

3. **Permanent Signing:**

Include in project or by applicant? Include in project.

4. **Permanent Striping:**

Include in project or by applicant? Include in project.

IV. ILLUMINATION DATA

1. **Existing Illumination and Location:**

Two existing street lights to be relocated to new curb line.

2. **Proposed Illumination:**

Location None
Type
Remarks

V. STRUCTURE DATA

1. **Existing Structure:** None

Location
Type
Approach Roadway Width Shoulder Width
Length Width
To remain in place?

2. **Proposed Structure:** None

Location

Approximate Size: Length Width

Are sidewalk/bikeways desired:

Are any utilities to be attached to structure?

Are provisions for illumination desired?

Are there any unusual or complicating conditions?

Remarks

VI. RAILROAD DATA

1. Are there any railroad crossings? Yes ____ No X

Name of Railroad

Existing Crossing Protection

2. Will existing railroad crossing be altered?

Remarks

VII. ACTION PLAN REQUIREMENTS

During project development for Category 1, 2, and 3 projects, the city or county shall perform and document responsibilities as found indexed in the Oregon Action Plan, particularly Citizen Involvement and Participation; Environmental Aspects; and Public Hearing Requirements.

The OSHD Region Engineer will provide assistance, liaison and monitoring for these activities.

Responsible local office and party to be contacted for the following activities:

1. Citizen Involvement — Vic Rhodes, City of Portland - Dept. of Public Works
Office
2. Environmental — 400 SW 6th Avenue, Room 442
Office
3. Public Hearing — Portland, Oregon 97204 (Phone No. 248-4645)
Office

Remarks

VIII. GENERAL INFORMATION

1. Project preliminary engineering to be performed by:

Applicant X State ____ Consultant ____

We are doing PE design. Consultant did EIS.

2. Project construction engineering to be performed by:

Applicant X State________ Consultant________

3. Will applicant perform any work prior to or after award of contract?
Yes X No________
If "yes," describe briefly: Construction Engineering

4. Applicant's estimate of cost for requested project: N/A

Roadway Work	$ 83,000
Right-of-way costs (if participating)	27,500
Traffic control	
Illumination	
Structures	
Railroad	
Other Construction Engineering	12,500
Preliminary engineering	

PROJECT TOTAL $ 123,000

Remarks________

THIS APPLICATION IS AN OFFICIAL REQUEST FROM:

CITY OF PORTLAND and/or ________ COUNTY
By John M Lang By________
By________ By________
By________

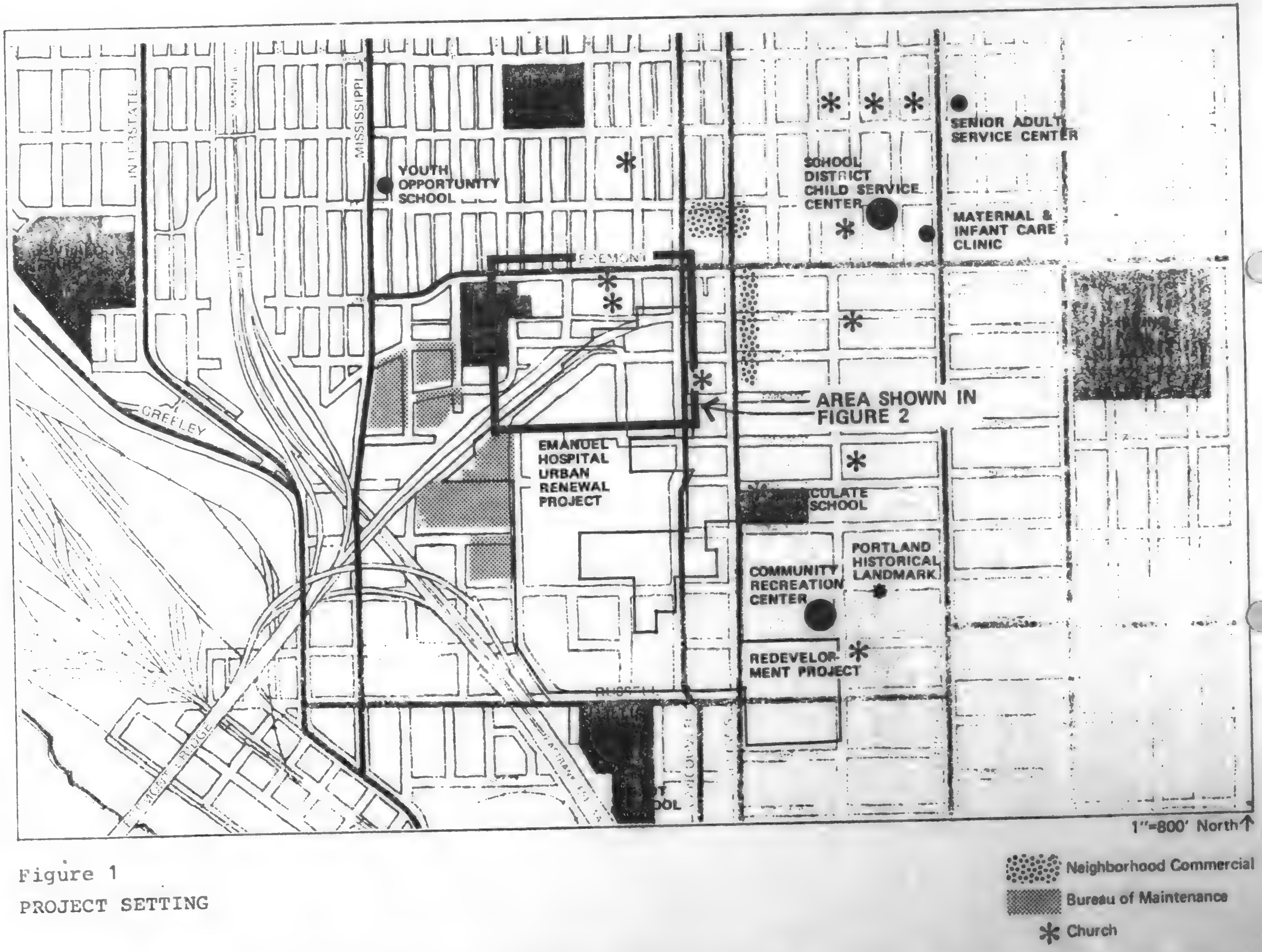

INTERSTATE
GREELEY
MISSISSIPPI
FREMONT
RUSSELL
YOUTH OPPORTUNITY SCHOOL
SENIOR ADULT SERVICE CENTER
SCHOOL DISTRICT CHILD SERVICE CENTER
MATERNAL & INFANT CARE CLINIC
AREA SHOWN IN FIGURE 2
EMANUEL HOSPITAL URBAN RENEWAL PROJECT
CULATE SCHOOL
PORTLAND HISTORICAL LANDMARK
COMMUNITY RECREATION CENTER
REDEVELOPMENT PROJECT
SCHOOL
1"=800' North↑
Neighborhood Commercial
Bureau of Maintenance
Church

Figure 1

PROJECT SETTING

ALTERNATIVES CONSIDERED

The proposed project was labeled "Hospital and Stanton Yard Only" and was considered a variation of the no build alternative in the DEIS. The DEIS also addressed three other variations of the no build alternative and three build alternatives. These were labeled and described as follows:

Ramp Removal Variation. The portion of the east-end ramps built on ground fill would be removed and the land made available for other uses.

Permanent Closure Variation. The ramps would be permanently closed to traffic.

Limited Bridge Access. The on ramp would be left open as it is today and as it would be opened under the proposed project. It could be used by traffic coming from Kerby Boulevard and Gantenbein Avenue from the south, but not from Cook Street from the east. The off ramp would remain closed.

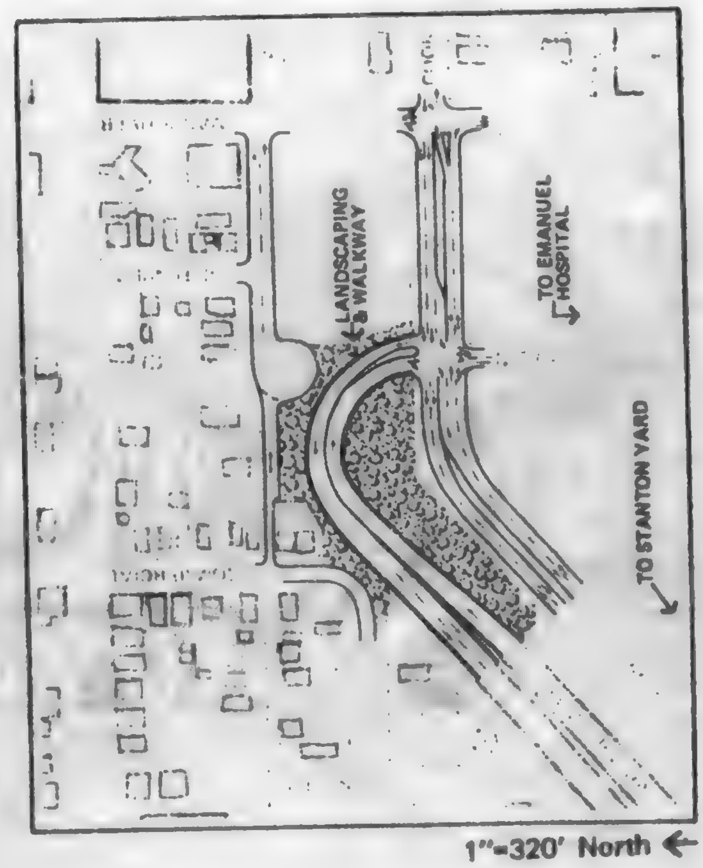


Figure 2 - PROPOSED PROJECT

AGENDA ITEM 3.3

CRAG RESOLUTION

BD 780201

FOR THE PURPOSE OF ADOPTING REVISIONS TO THE TRANSPORTATION IMPROVEMENT PROGRAM (TIP) AND ITS ANNUAL ELEMENT

WHEREAS, CRAG by Resolution BD 770902 adopted a Transportation Improvement Program (TIP) having an Annual Element for the period of October 1, 1977 to September 30, 1978; and

WHEREAS, the Transportation Technical Advisory Committee (TTAC) and staff have reviewed all the revisions included in Exhibit "A" attached hereto and incorporated herein and has recommended approval.

NOW, THEREFORE, IT IS HEREBY

RESOLVED, that the FY 1978 TIP be amended to incorporate the revisions described in Exhibit "A" and that these revisions be added to and made an integral part of the TIP and Annual Element and each such revision hereby receives an affirmative A-95 review.

ADOPTED by the Board of Directors this 23rd day of February, 1978.

By Denton U. Kent
Denton U. Kent, Executive Director

AGENDA ITEM 3.3

EXHIBIT A

TIP REVISIONS

PROJECTS INVOLVING BOTH SCHEDULE DELAYS AND INCREASED COSTS

Sellwood Bridge--West Approaches: Obligation of construction funds delayed to FY 1978. Total cost under FAUS funds increased by ~~71.8~~ percent or ~~$145,000~~ as a result of PE estimate.
18.5 $52,000

Clackamas County

82nd Drive--Hwy 212 to I-205: Obligation of construction funds delayed to FY 1978. Cost estimate increased by 58.5 percent or $145,000 as a result of PE estimate.

River Road--McLoughlin to McLoughlin Construction: Obligation of construction funds delayed to FY 1978. Cost estimate increased by 28.8 percent or $222,000 as a result of PE estimate.

Oregon State Highway Division

Progress Interchange Off-Ramp to Scholls Ferry Road: Obligation of construction funds delayed to FY 1979. Total projects costs increased by .03 percent or $9,000.

PROJECTS INVOLVING SCHEDULE DELAYS ONLY

Clackamas County

Sunnyside Road Realignment: Obligation of construction funds delayed from FY 1978 to FY 1979.

Washington County

SW Greenburg Road to Oak: Obligation of PE and R/W acquisition funds delayed to FY 1978. Construction fund obligation delayed to FY 1979.

Allen Blvd PE--Alice to Murray Blvd: Obligation of PE funds delayed to FY 1978.

PROJECTS INVOLVING BOTH SCHEDULE ADVANCES AND COST CHANGES

City of Portland

Holgate Bridge--R/W and Construction: Obligation of R/W acquisition funds advanced to FY 1978. R/W and construction costs increased by 32.7 percent or $748,000. Two projects established--one for PE and one for R/W and construction.

Multnomah County

Burnside St.--SE 223rd to SE Powell Blvd: Obligation of R/W acquisition funds advanced to FY 1978. Total cost of this segment decreased by 12.9 percent or $186,000.

Burnside St.--Stark St. to 223rd Ave: Obligation of R/W acquisition and construction funds advanced to FY 1978 and FY 1979 respectively. Total cost of this segment increased to $1,243,000 (from $378,000) as a result of a more current estimate from PE.

Washington County

SW 65th/Nyberg Road--I-5 to Sagert: R/W acquisition and bridge structure advanced to FY 1978 and FY 1979, respectively. Total cost of this project increased to $1,107,000 (from $753,000).

Category III--Interstate Transfer

Basin Ave--Going St. Interchange--R/W and Construction: R/W acquisition advanced to FY 1978. R/W and construction monies deleted from FAUS.

N. Greeley to I-5--R/W and Construction: R/W acquisition advanced to FY 1978. R/W and construction monies deleted from FAUS.

PROJECTS INVOLVING COST INCREASES

City of Portland

New Traffic Signals: Estimated costs increased in FY 1978 by 19.2 percent or $43,000 to reflect current PE estimates. This would increase total project costs by 3.4 percent.

Traffic Signal Replacement: Estimated costs increased in FY 1978 by 4.3 percent or $18,000 to reflect current PE estimates. This would increase total project costs by .06 percent.

E. Burnside/Sandy--R/W and Construction: R/W and construction estimates increased in FY 1978 and FY 1979, respectively. Total cost of these two phases increase by 51.9 percent or $228,000 as a result of current PE estimates.

PROJECTS INVOLVING COST DECREASES

City of Portland

Fremont Bridge Access--R/W and Construction: Construction costs decreased by 59 percent or $62,000 as a result of PE.

NEW PROJECTS

City of Portland

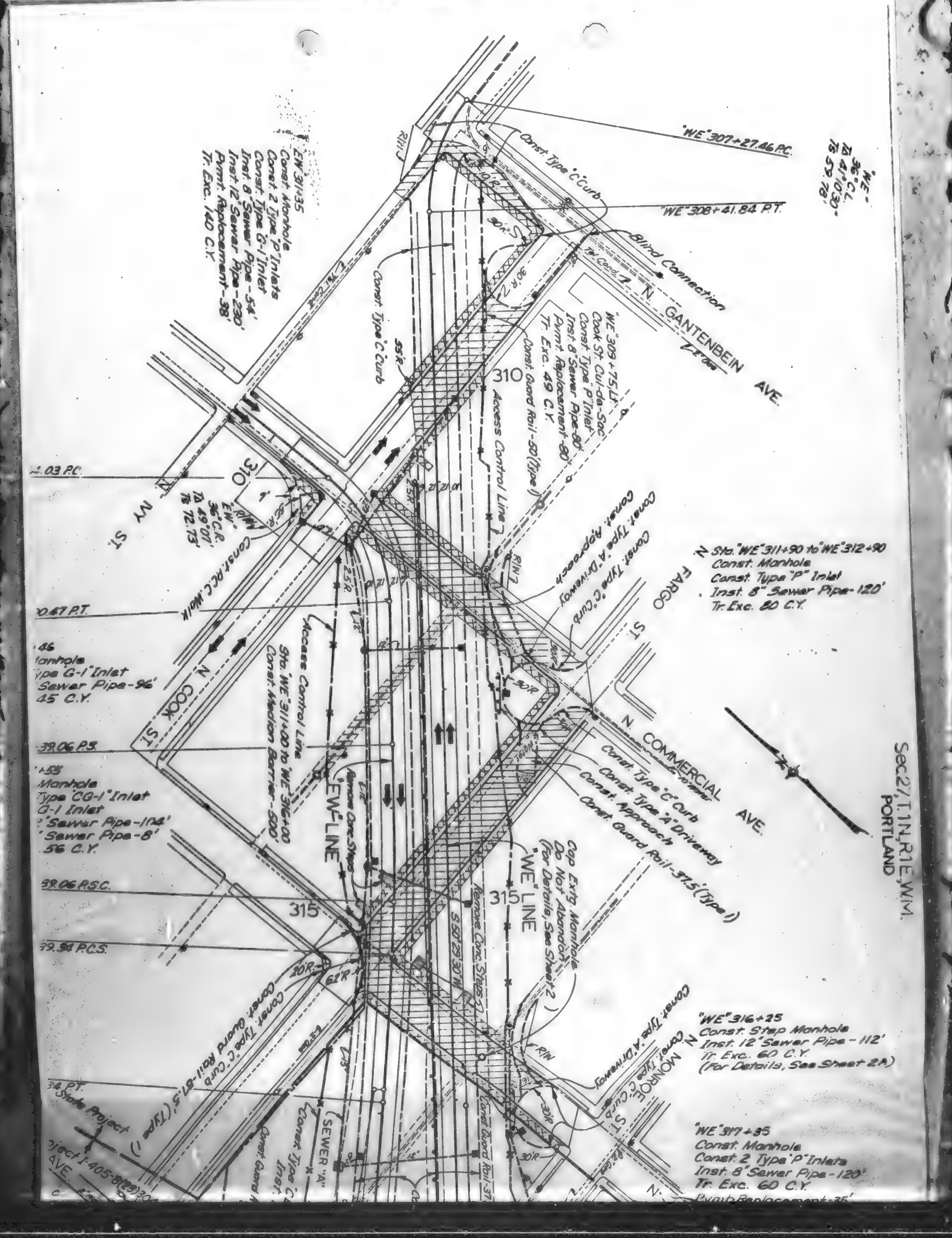
Alternative to I-505 Project Development Program: This project would be added to the FY 1978 Annual Element in the amount of $17,000 (FAUS funds). This project will examine alternative designs to the Long Yeon I-505 freeway segment design.

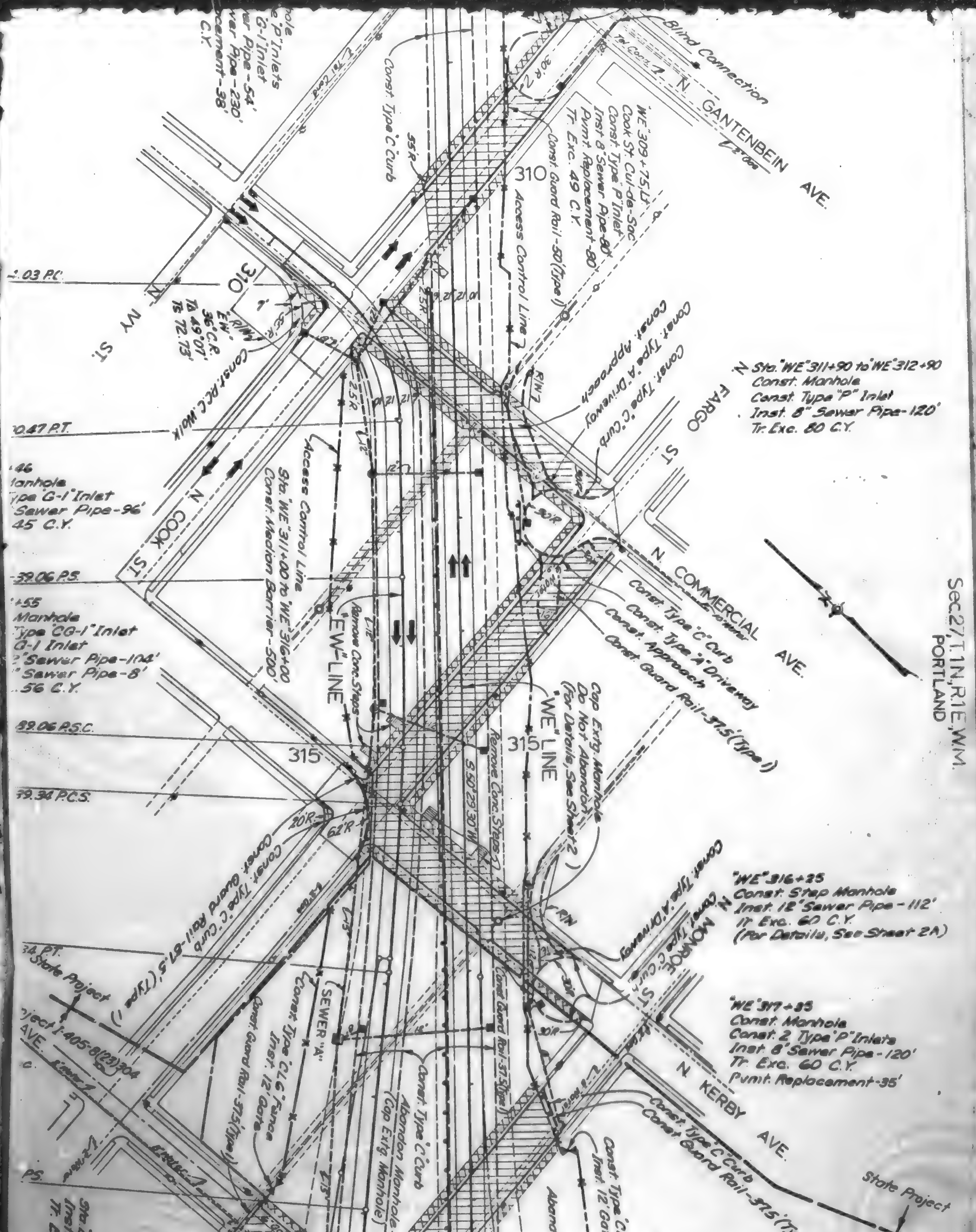
Projects Cont.

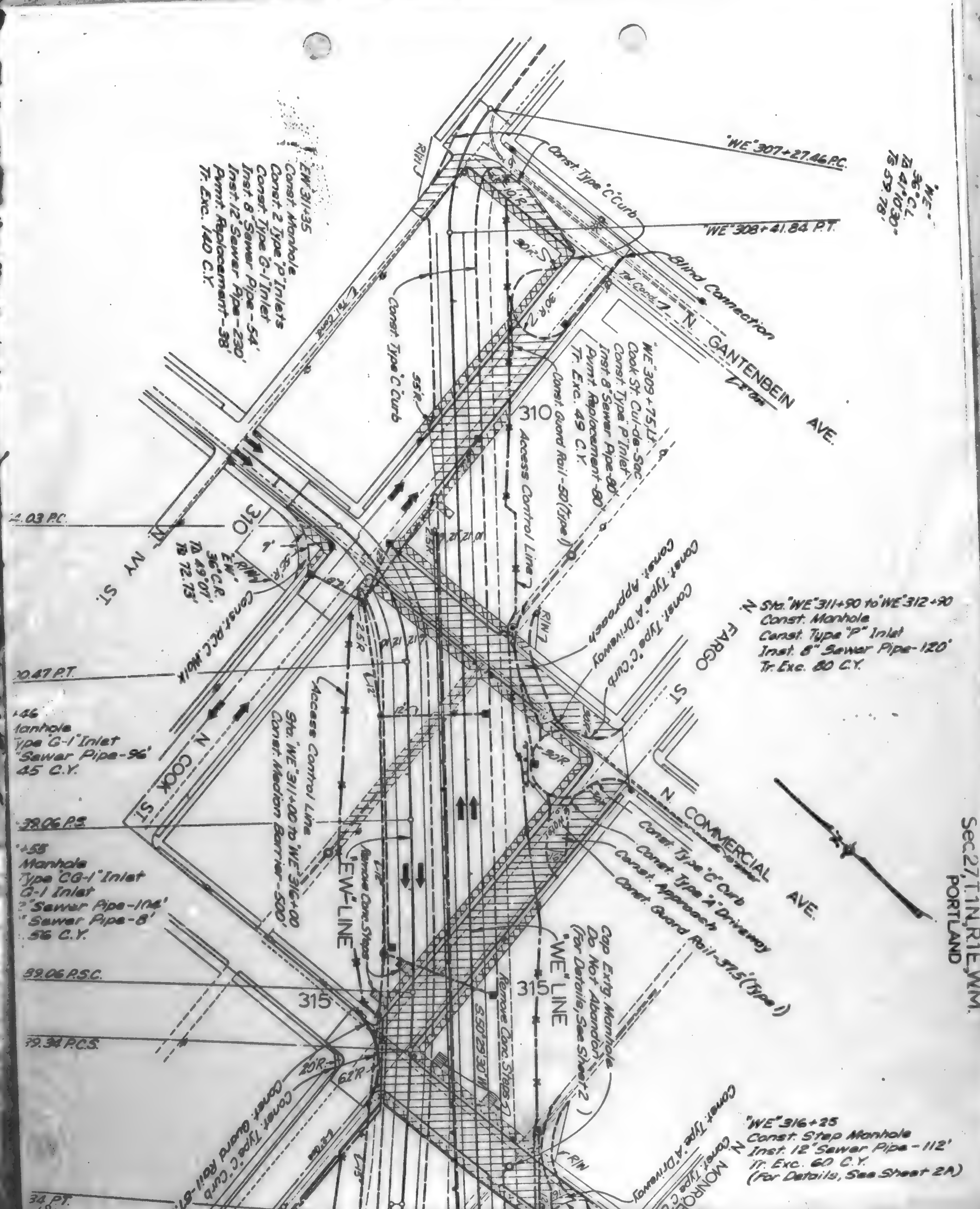
Oregon State Highway Division

Signal--Powell Blvd at SE 162nd Ave: This project would be added to the FY 1978 Annual Element using State Transitional Quarter funds (TQF) in the amount of $40,000. This project would be deleted from FAUS funding originally scheduled for FY 1979.

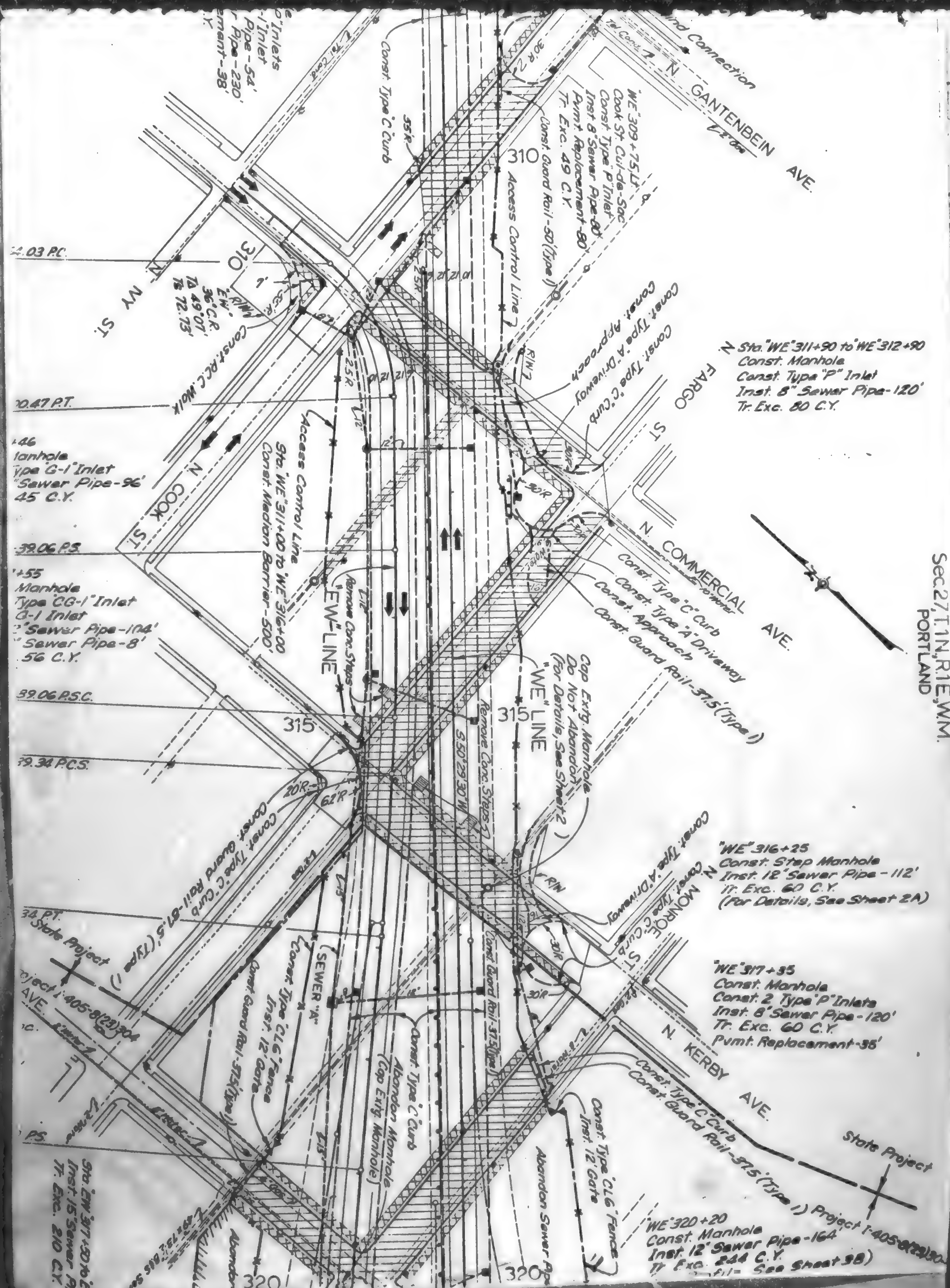
Signal--Beaverton Hillsdale Hwy at SW 91st Ave: This project would be added to the FY 1978 Annual Element using State Transitional Quarter Fund (TQF) in the amount of $40,000.


"WE" 307+27.46 P.C.
"WE" 308+41.84 P.T.
"WE" 36°C.L. Δ 41°10'30" T 59.78'
Const. Type "C" Curb
Blind Connection
Tel. Cond.
N. GANTENBEIN AVE.
"WE" 309+75 Lt.
Cook St. Cul-de-Sac
Const. Type "P" Inlet
Inst. 8" Sewer Pipe-80'
Pvmt. Replacement-80'
Tr. Exc. 49 C.Y.
Const. Guard Rail-50'(Type 1)
Access Control Line
"EW" 311+35
Const. Manhole
Const. 2 Type "P" Inlets
Const. Type "G-1" Inlet
Inst. 8" Sewer Pipe-54'
Inst. 12" Sewer Pipe-230'
Pvmt. Replacement-38'
Tr. Exc. 140 C.Y.
Const. Type "C" Curb
30'R.
35'R.
10'R.
R/W
310
310
"EW" 36°C.R. Δ 49°07' T 72.73'
N. IVY ST.
Const. P.C.C. Walk
.03 P.C.
0.47 P.T.
.46
Manhole
Type "G-1" Inlet
Sewer Pipe-96'
45 C.Y.
39.06 P.S.
+55
Manhole
Type "CG-1" Inlet
G-1 Inlet
Sewer Pipe-104'
Sewer Pipe-8'
56 C.Y.
39.06 P.S.C.
39.34 P.C.S.
N. COOK ST.
Access Control Line
Sta. "WE" 311+00 to "WE" 316+00
Const. Median Barrier-500'
2.5'R.
"EW" LINE
Remove Conc. Steps
315
315
"WE" LINE
S 50°29'30" W
Remove Conc. Steps
Const. Type "A" Driveway
Const. Type "C" Curb
Const. Approach
N. FARGO ST.
Sta. "WE" 311+90 to "WE" 312+90
Const. Manhole
Const. Type "P" Inlet
Inst. 8" Sewer Pipe-120'
Tr. Exc. 80 C.Y.
N. COMMERCIAL AVE.
Const. Type "C" Curb
Const. Type "A" Driveway
Const. Approach
Const. Guard Rail-37.5'(Type 1)
Cap Extg. Manhole
Do Not Abandon
(For Details, See Sheet 2)
Sec. 27, T.1N., R.1E., W.M.
PORTLAND
20'R.
62'R.
Const. Guard Rail-81.5'(Type 1)
Const. Type "C" Curb
.34 P.T.
State Project
Project I-405-8(23)
AVE.
Const. Guard
Const. Type "C"
Inst.
SEWER "A"
Const. Guard Rail-37
30'R.
R/W
N. MONROE ST.
Const. Type "C" Curb
Const. Type "A" Driveway
"WE" 316+25
Const. Step Manhole
Inst. 12" Sewer Pipe-112'
Tr. Exc. 60 C.Y.
(For Details, See Sheet 2A)
"WE" 317+35
Const. Manhole
Const. 2 Type "P" Inlets
Inst. 8" Sewer Pipe-120'
Tr. Exc. 60 C.Y.
Pvmt. Replacement-35'

Blind Connection
N. GANTENBEIN AVE.
'WE' 309+75 Lt.
Cook St. Cul-de-Sac
Const. Type 'P' Inlet
Inst. 8" Sewer Pipe-80'
Pvmt. Replacement-80
Tr. Exc. 49 C.Y.
Const. Type 'C' Curb
Const. Guard Rail-50' (Type I)
Access Control Line
310
N. IVY ST.
Const. P.C.C. Walk
03 P.C.
0.47 P.T.
N. COOK ST.
39.06 P.S.
39.06 P.S.C.
39.34 P.C.S.
34 P.T.
Manhole
Type 'G-1' Inlet
Sewer Pipe-96'
45 C.Y.
Manhole
Type 'CG-1' Inlet
G-1 Inlet
Sewer Pipe-104'
Sewer Pipe-8'
56 C.Y.
Access Control Line
Sta. 'WE' 311+00 to 'WE' 316+00
Const. Median Barrier-500'
Remove Conc. Steps
'EW' LINE
'WE' LINE
315
N. FARGO ST.
Const. Approach
Const. Type 'A' Driveway
Const. Type 'C' Curb
N. Sta. 'WE' 311+90 to 'WE' 312+90
Const. Manhole
Const. Type "P" Inlet
Inst. 8" Sewer Pipe-120'
Tr. Exc. 80 C.Y.
N. COMMERCIAL AVE.
Const. Type 'C' Curb
Const. Type 'A' Driveway
Const. Approach
Const. Guard Rail-37.5' (Type I)
Cap Exist. Manhole
Do Not Abandon
(For Details, See Sheet 2)
Remove Conc. Steps
S 50°29'30" W
Sec. 27, T.1N., R.1E., W.M.
PORTLAND
'WE' 316+25
Const. Step Manhole
Inst. 12" Sewer Pipe-112'
Tr. Exc. 60 C.Y.
(For Details, See Sheet 2A)
N. MONROE ST.
Const. Type 'A' Driveway
Const. Type 'C' Curb
Const. Guard Rail-87.5' (Type I)
Const. Type 'C' Curb
State Project
Project I-405-8(23)304
AVE.
SEWER "A"
Const. Type 'CLC' Fence
Inst. 12' Gate
Const. Guard Rail-37.5' (Type I)
Const. Type 'C' Curb
Abandon Manhole
(Cap Exist. Manhole)
Const. Guard Rail-37.5' (Type I)
'WE' 317+35
Const. Manhole
Const. 2 Type 'P' Inlets
Inst. 8" Sewer Pipe-120'
Tr. Exc. 60 C.Y.
Pvmt. Replacement-35'
N. KERBY AVE.
Const. Type 'C' Curb
Const. Guard Rail-37.5' (Type I)
State Project
Project I-405-8(23)
Const. Type 'CLC' Fence
Inst. 12' Gate
Abandon Sewer
'WE' 320+20
Const. Manhole
Inst. 12" Sewer Pipe-164'
Tr. Exc. 2 C.Y.
See Sheet 3B)
Sta. 'EW' 317+20 to
Inst. 15" Sewer Pi
Tr. Exc. 210 C.Y.
320
320



"WE" 307+27.46 P.C.
"WE" 36° C.L. Δ 41°10'30" Ts 59.78'
"WE" 308+41.84 P.T.
Const. Type 'C' Curb
Blind Connection
N. GANTENBEIN AVE.
"EW" 311+35
Const. Manhole
Const. 2 Type 'P' Inlets
Const. Type 'G-1' Inlet
Inst. 8" Sewer Pipe - 54'
Inst. 12" Sewer Pipe - 230'
Pvmt. Replacement - 38'
Tr. Exc. 140 C.Y.
"WE" 309+75 Lt.
Cook St. Cul-de-Sac
Const. Type 'P' Inlet
Inst. 8" Sewer Pipe - 80'
Pvmt. Replacement - 80'
Tr. Exc. 49 C.Y.
Const. Type 'C' Curb
Const. Guard Rail - 50' (Type 1)
Access Control Line
310
N. IVY ST.
"EW" 36° C.R. Δ 49°07' Ts 72.73'
Const. P.C.C. Walk
.03 P.C.
.47 P.T.
N. COOK ST.
Const. Approach
Const. Type 'A' Driveway
Const. Type 'C' Curb
N. FARGO ST.
N. Sta. "WE" 311+90 to "WE" 312+90
Const. Manhole
Const. Type "P" Inlet
Inst. 8" Sewer Pipe - 120'
Tr. Exc. 80 C.Y.
+46
Manhole
Type 'G-1' Inlet
Sewer Pipe - 96'
45 C.Y.
Access Control Line
Sta. "WE" 311+00 to "WE" 316+00
Const. Median Barrier - 500'
.06 P.S.
+55
Manhole
Type 'CG-1' Inlet
G-1 Inlet
Sewer Pipe - 104'
Sewer Pipe - 8'
.56 C.Y.
"EW" LINE
"WE" LINE
Remove Conc. Steps
N. COMMERCIAL AVE.
Const. Type 'C' Curb
Const. Type 'A' Driveway
Const. Approach
Const. Guard Rail - 37.5' (Type 1)
Cap Extg. Manhole
Do Not Abandon
(For Details, See Sheet 2)
315
.06 P.S.C.
.34 P.C.S.
Const. Guard Rail - 87.5' (Type 1)
Const. Type 'C' Curb
Const. Type 'A' Driveway
N. MONROE ST.
"WE" 316+25
Const. Step Manhole
Inst. 12" Sewer Pipe - 112'
Tr. Exc. 60 C.Y.
(For Details, See Sheet 2A)
.34 P.T.
State Project
Project I-405-8(23)304
SEWER "A"
Const. Type 'C'
Const. Guard Rail - 31.5'
"WE" 317+35
Const. Manhole
Const. 2 Type "P" Inlets
Inst. 8" Sewer Pipe - 120'
Tr. Exc. 60 C.Y.
Pvmt. Replacement - 35'
Sec. 27, T.1N., R.1E., W.M.
PORTLAND


N. GANTENBEIN AVE.
Connection
"WE" 309+75 Lt.
Cook St. Cul-de-Sac
Const. Type "P" Inlet
Inst. 8" Sewer Pipe-80'
Pvmt. Replacement-80'
Tr. Exc. 49 C.Y.
Const. Guard Rail-50' (Type 1)
Access Control Line
Const. Type "C" Curb
35' R
30' R
310
Inlets
Inlet
Pipe-54'
Pipe-230'
ement-38'
.Y.
.03 P.C.
N. IVY ST.
"EW" 36° C.R.
Δ 49°07'
T 72.73'
R/W
Const. P.C.C. Walk
0.47 P.T.
+46
Manhole
Type "G-1" Inlet
"Sewer Pipe-96'
45 C.Y.
N. COOK ST.
39.06 P.S.
+55
Manhole
Type "CG-1" Inlet
G-1 Inlet
"Sewer Pipe-104'
"Sewer Pipe-8'
.56 C.Y.
39.06 P.S.C.
39.34 P.C.S.
Access Control Line
Sta. "WE" 311+00 to "WE" 316+00
Const. Median Barrier-500'
"EW" LINE
Remove Conc. Steps
N. FARGO ST.
Const. Approach
Const. Type "A" Driveway
Const. Type "C" Curb
R/W
30' R
N. Sta. "WE" 311+90 to "WE" 312+90
Const. Manhole
Const. Type "P" Inlet
Inst. 8" Sewer Pipe-120'
Tr. Exc. 80 C.Y.
N. COMMERCIAL AVE.
Const. Type "C" Curb
Const. Type "A" Driveway
Const. Approach
Const. Guard Rail-37.5' (Type 1)
Sec. 27, T.1N., R.1E., W.M.
PORTLAND
N
Cap Extg. Manhole
Do Not Abandon
(For Details, See Sheet 2)
"WE" LINE
315
315
Remove Conc. Steps
20' R
62' R
Const. Type "C" Curb
Const. Guard Rail-87.5' (Type 1)
N. MONROE ST.
Const. Type "A" Driveway
Const. Type "C" Curb
"WE" 316+25
Const. Step Manhole
Inst. 12" Sewer Pipe-112'
Tr. Exc. 60 C.Y.
(For Details, See Sheet 2A)
30' R
30' R
34 P.T.
State Project
Project I-405-8(23)304
AVE.
P.S.
SEWER "A"
Const. Type "CL6" Fence
Inst. 12' Gate
Const. Guard Rail-37.5' (Type 1)
Const. Guard Rail-37.5' (Type 1)
Const. Type "C" Curb
Abandon Manhole
(Cap Extg. Manhole)
"WE" 317+35
Const. Manhole
Const. 2 Type "P" Inlets
Inst. 8" Sewer Pipe-120'
Tr. Exc. 60 C.Y.
Pvmt. Replacement-35'
N. KERBY AVE.
Const. Type "C" Curb
Const. Guard Rail-37.5' (Type 1) Project I-405-8(23)30
State Project
Const. Type "CL6" Fence
Inst. 12' Gate
Abandon Sewer Pi
Sta. "EW" 317+30 to "E
Inst. 15" Sewer Pi
Tr. Exc. 210 C.Y.
Abandon
320
320
"WE" 320+20
Const. Manhole
Inst. 12" Sewer Pipe-164'
Tr. Exc. 244 C.Y.
fill- See Sheet 3B)

8909

THE CITY OF
PORTLAND
OREGON

OFFICE OF
CITY AUDITOR
GEORGE YERKOVICH
CITY AUDITOR

1220 S.W. FIFTH AVE.
PORTLAND, OR. 97204

November 10, 1977

Mr. R. N. Bothman, Metropolitan Engineer
Oregon State Highway Division
5821 N. E. Glisan
Portland, Oregon 97213

Attention: Jon Rose, Regional Federal Aid Engineer

Dear Mr. Bothman:

Enclosed are triplicate copies of Letter of Understanding amending Project Agreement No. 14493, Fremont Bridge to Union Avenue Study, as authorized by Ordinance No. 144662.

Will you kindly have the proper persons sign all three copies of the amendment which have already been executed by the City and CH2M-Hill, Inc., and return two copies to the Auditor, Room 202, City Hall, Portland, 97204.

Your prompt attention to this matter will be appreciated.

Yours very truly,

George Yerkovich

Auditor of the City of Portland

dh

MS:dlh
Encls.

MA PDM PDE TSE SPC
ODOT - METRO
NOV 16 1977
AM PPS FILE T/A

THE CITY OF
PORTLAND
OREGON

DEPARTMENT OF
PUBLIC WORKS
CONNIE McCREADY
COMMISSIONER

OFFICE OF
PUBLIC WORKS
ADMINISTRATOR

400 S.W. SIXTH AVE.
PORTLAND, OR. 97204

August 11, 1977

MA PDM PDL TSE SPC
ODOT - METRO
NOV 16 1977
AM PPS FILE T/A

CH2M-Hill
200 SW Market Street
Portland, Oregon 97201

ATTENTION: William F. Johnson

RE: Letter of Understanding
FAU Project No. M-2029(1)
Fremont Bridge to Union Avenue

Dear Mr. Johnson:

The purpose of this letter is to confirm an understanding regarding (1) an extension of contract time, and (2) an increase in the contract maximum for the Fremont Bridge to Union Avenue Study. Written acceptance of the provisions of this letter by the City, Oregon Department of Transportation, and your firm, with the concurrence of the Federal Highway Administration, will constitute a contract amendment.

Extension of Contract Time

The three-party agreement between the City, Oregon Department of Transportation and CH2M-Hill, Inc. calls for completion of the consultant's work by August 24, 1976. Project reviews and other project-related decisions beyond the control of the consultant have resulted in delays to the project schedule. Therefore, it is agreed that the contract be amended to grant an extension of contract time retroactive to August 24, 1976 through August 15, 1977 for the completion of the consultant's work.

Increase in Contract Maximum

The following items have been identified and documented by the consultant as cost increases related to schedule changes:

1. Added Earth Metrics Costs Due to Delay. Due to delays in the project schedule, much of the work performed by the sub-consultant for air quality and noise analysis was done later than originally scheduled. The sub-consultant experienced increased wage and overhead rates since the period in which the work was originally scheduled. The resultant increased cost amounts to $2,046.42.

2. Increased Cost Due to Inflation. Delays in the project schedule have caused the consultant to perform certain work elements later than planned. The consultant has experienced increased wage rates since the period in which the work was originally scheduled. The resultant cost increase amounts to $5,267.04.

3. Anticipated Overhead Adjustment. The project agreement specifies provisional direct and indirect overhead rates for the consultant for 1975 salary charges. Actual overhead rates for 1976 are higher than those stated in the agreement. The resultant increased cost amounts to $4,540.53.

The project agreement provides for increasing the contract maximum for the items discussed above. Therefore, it is agreed that the contract be amended to increase the contract maximum by $11,853.99 to a new total of $339,154.12. A final upward or downward adjustment of the maximum will be made as appropriate following a post-contract audit of overhead rates by the Oregon Department of Transportation or Federal Highway Administration. The new contract maximum, subject to audit adjustment, establishes the final compensation to the consultant for this project. It is agreed that acceptance of this letter of understanding by the consultant constitutes the consultant's waiver of all claims for additional compensation for this project other than as provided for above.

Please review this letter and if acceptable, sign and return the original to this office for processing through the City Council and Oregon Department of Transportation. Any questions about this matter should be referred to Glen Pierce at 248-4643.

Sincerely,

COWLES MALLORY, P.E.
Public Works Administrator

GRP:dmc

The provisions of this letter of understanding have been reviewed and are hereby agreed to:

City of Portland — Pub. Works Adm. (Title) — 12/9/77 (Date)

Oregon Department of Transportation - Approved 12-15-77 — Mgr., Technical Services (Title) — 12-9-77 (Date)

William P. Johnson
CH2M-Hill, Inc. — Div. Mgr. (Title) — 17 Aug. 1977 (Date)

The provisions of this letter of understanding have been reviewed and are hereby concurred in:

Federal Highway Administration — Div. Adm. (Title) — 1-11-78 (Date)

This letter of understanding was approved by the Oregon Transportation Commission on December 15, 1977, at which time the State Highway Engineer was authorized and directed to sign said letter for and on behalf of the Commission. Said authority is set forth in Volume 5 Minute Book of the Oregon Transportation Commission.

144662

State Highway Engineer

ORDINANCE NO. 144662

An Ordinance authorizing the Public Works Administrator to sign on behalf of the City a letter of understanding between the City, Oregon Department of Transportation and CH2M Hill, Inc. amending Project Agreement No. 14493, Fremont Bridge to Union Avenue Study, to grant an extension of contract time retroactive to August 24, 1976 through August 15, 1977 and to increase the maximum compensation to the consultant by $11,853.99.

The City of Portland ordains:

Section 1. The Council finds:

1. That Agreement No. 14493 between the City, Oregon Department of Transportation and CH2M Hill, Inc. established on August 24, 1976 completion date for the consultant's work;

2. That necessary project reviews and project related decisions by the City and other agencies resulted in delays to the project schedule beyond the control of the consultant;

3. That Agreement No. 14493 between the City, Oregon Department of Transportation and CH2M Hill, Inc. established $327,300.13 as the maximum compensation to the consultant;

4. That delays in the project schedule resulted in the consultant incurring unanticipated wage rate and overhead cost increases amounting to $11.853.99;

5. That an $11,853.99 increase in the maximum compensation to the consultant does not increase the total project authorization due to a reduction in City and State project expenses.

ORDINANCE No.

NOW, THEREFORE, the Council directs:

a. That by this Ordinance the Public Works Administrator is authorized to sign on behalf of the City a letter of understanding between the City, Oregon Department of Transportation and CH2M Hill, Inc. amending Project Agreement No. 14493, Fremont Bridge to Union Avenue Study, to grant an extension of contract time retroactive to August 24, 1976 through August 15, 1977 and to increase the maximum compensation to the consultant by $11,853.99, such letter of understanding to be in the form of the letter attached to the original of this Ordinance, marked Exhibit 1 and by this reference made a part hereof.

Passed by the Council, NOV - 2 1977 .

Mayor of the City of Portland

COMMISSIONER McCREADY
October 20, 1977
G. R. Pierce/mmc

Attest George Yerkovich

Auditor of the City of Portland

8909

Form FHWA 121 (Rev. 5-73)

UNITED STATES GOVERNMENT

Memorandum

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

DATE: August 26, 1977

In reply refer to: HEC.3

SUBJECT: Oregon Project M-9914(1)
Final Negative Declaration
Fremont Bridge (I-405) to Union Ave.

FROM : G. L. Green, Division Administrator

TO : Mr. H. S. Coulter, State Highway Engineer
Salem, Oregon

Attached is a copy of the subject Declaration in which I have concurred effective August 24, 1977. Please make copies of this particular Final Negative Statement available as provided by FHPM 7-7-2. The original has been forwarded directly to Mr. Gary Potter in your Environmental Section.

William A.
G. L. Green

Attachment

cc:
Potter
Laun

NOTED
J. H. VERSTEEG

RECEIVED
TECHNICAL SERVICES
AUG 29 '77
REFER TO
FOR
Info | Invest | R/D | D/R | Sign | Act | File

RECEIVED
STATE HWY ENGR
AUG 29 '77
REFER TO
Hunter
FOR
Info | Invest | R/D | D/R | Sign | Act | File

FORM 81-734-3030

OREGON STATE HIGHWAY DIVISION
INTER-OFFICE CORRESPONDENCE
July 27, 1977
Salem, OR 97310

FILE:

FROM: Gary A. Potter, Manager GAP
Environmental Section

TO: E. S. Hunter
Technical Services Engineer

SUBJECT: Final Negative Declaration
Fremont Bridge (I-405) to Union Ave.
City of Portland
Multnomah County, Oregon

NOTED
E. S. HUNTER

The subject statement in the form of a final negative declaration has been reviewed by the Environmental Study Committee and determined to adequately cover the natural and social environmental impacts of the project.

If you agree, please sign all copies and return the original plus four copies to this office for submission to the Federal Highway Administration for concurrence.

GAP:ss

Attachments

cc: J. H. Versteeg
F. E. Terpin
D. H. Moehring
R. N. Bothman

RECEIVED
STATE HWY ENGR
JUL 27 '77

FOR

Info	Invst.	R/D	D/R	Sign	Act

22 July 1977

FINAL NEGATIVE DECLARATION
FREMONT BRIDGE (I-405) TO UNION AVENUE
CITY OF PORTLAND,
MULTNOMAH COUNTY, OREGON

INTRODUCTION

A draft environmental statement was prepared in accordance with Section 102(2)(c) of the National Environmental Policy Act, and the Federal and Highway Program Manual, Volume 7, Chapter 7, Section 2. The National Environmental Policy Act requires that anticipated impacts of any federally-funded project that is considered a major action be examined and reviewed by the public before the responsible agency decides to proceed with the project. The statement included a discussion of the physical characteristics of three build alternatives and four variations of a no build alternative and the anticipated impacts of each alternative on the physical, social and economic environment of the study area and surrounding community.

The DEIS was available to the public for 30 days prior to the public hearing for the project, allowing time for thorough review by all public agencies and interested private citizens. Testimony and comments received at the hearing and during a ten-day period following the hearing were assembled in a hearing record. Upon review of the record, a decision was made by the City of Portland to proceed with the development of one of the variations of the no build alternative which involves limited access improvements to the east-end ramps of the Fremont Bridge.

The alternatives studied and presented in the DEIS ranged from a four-lane thoroughfare connecting to a major arterial, causing significant environmental impacts in a residential neighborhood, to removal of the ramps. The selected alternative will not have a major impact on the community or the environment. As a result, it has been determined that the proposed action does not require the preparation of a Final Environmental Impact Statement and a Final Negative Declaration has been prepared in consultation with the Oregon Division of Highways and the FHWA. This action is in accordance with the regulations in Federal Aid Highway Program Manual, Volume 7, Chapter 7, Section 2.

LOCATION AND HISTORY OF PROJECT

The Fremont Bridge crosses the Willamette River in the City of Portland, Multnomah County, Oregon. The bridge is part of Interstate-405 and was opened in November, 1973. The east-end ramps were built along with the bridge to eventually connect with a new freeway planned through Northeast Portland. This freeway was removed from the regional transportation plan in June, 1975. The ramps have remained closed except for limited access to the on-ramp. A Draft Environmental Impact Statement on connecting the east-end ramps to the local street system was circulated for review in November, 1976. The DEIS examined three alternatives for connecting the ramps to local collector or arterial streets and four "no build variations," ranging from removal of the ramps to a limited opening to allow use by traffic in the immediate vicinity.

DESCRIPTION AND PURPOSE OF PROJECT

Figure 1 shows the setting of the proposed project. Figure 2 shows how the east-end ramps will be opened. Both the on and off ramps will be opened to traffic on Kerby Boulevard and Gantenbein Avenue to the south of the ramps. The right turn to the on-ramp from Cook Street and the left turn from the off-ramp to Cook Street will be prohibited. This will allow use of the ramps by traffic going to and from the Emanuel Hospital Urban Renewal Project and other generators in the immediate vicinity of the ramps, but will discourage an influx of traffic through the neighborhood to the east. The project will include traffic controls as appropriate within the urban renewal project, including Kerby Boulevard, to discourage use of the ramps by traffic from outside the immediate vicinity.

The selection of the proposed project was based on the determination that the benefits afforded by the alternatives that would connect the east-end ramps to either local collectors or arterials would not justify their cost and the impact they would have on the local community. The proposed project will provide a return in public benefits on the existing investment in the ramps and will avoid the adverse effects of increased traffic through the neighborhoods. The project will improve regional access to Emanuel Hospital as well as to other existing and future medical facilities at the Emanuel Hospital Urban Renewal Project. It will also provide improved access to the City of Portland's Bureau of Maintenance yards on Kerby Boulevard.

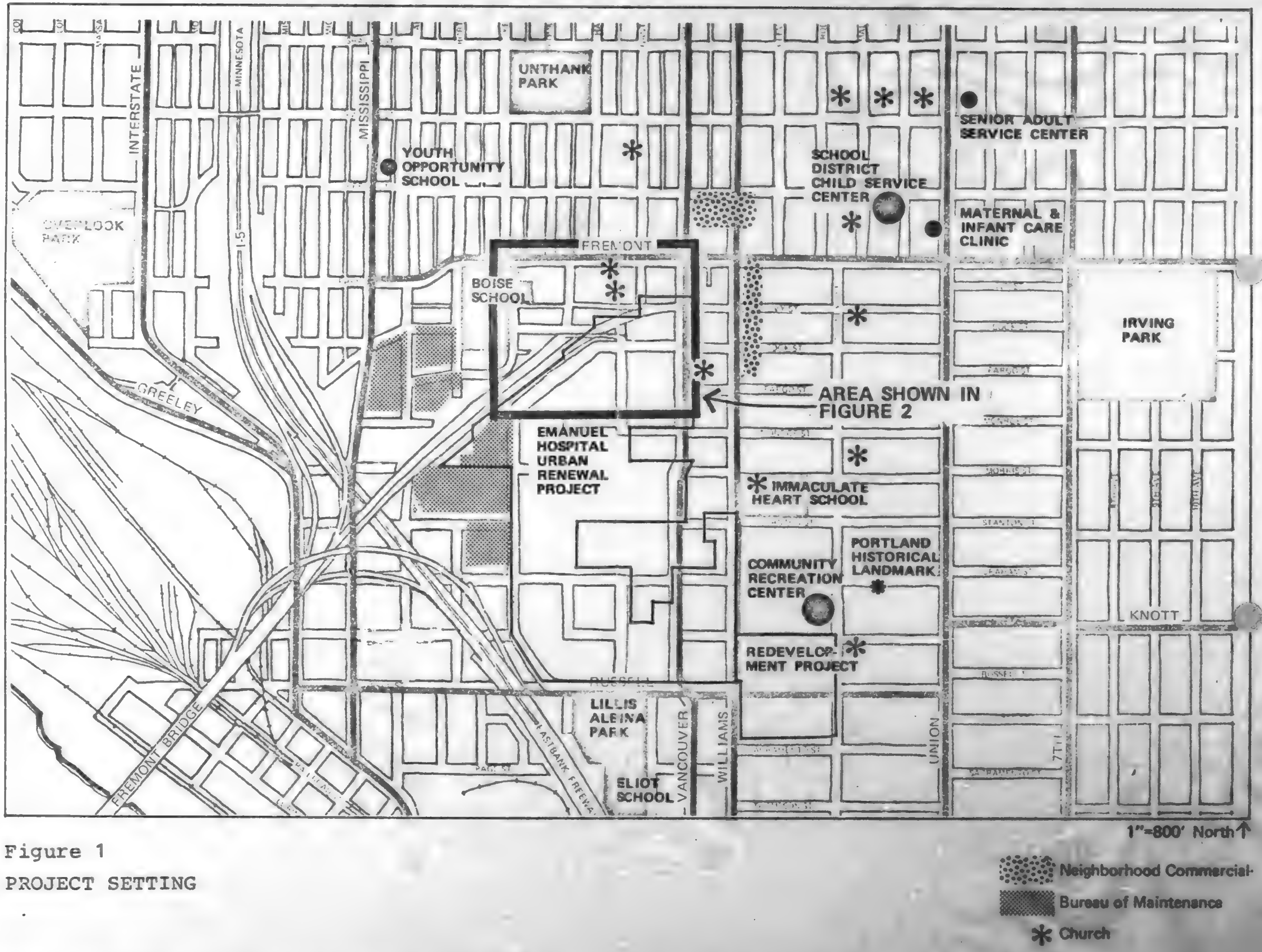

INTERSTATE
MINNESOTA
I-5
MISSISSIPPI
UNTHANK PARK
YOUTH OPPORTUNITY SCHOOL
OVERLOOK PARK
GREELEY
FREMONT
BOISE SCHOOL
EMANUEL HOSPITAL URBAN RENEWAL PROJECT
AREA SHOWN IN FIGURE 2
SCHOOL DISTRICT CHILD SERVICE CENTER
SENIOR ADULT SERVICE CENTER
MATERNAL & INFANT CARE CLINIC
IRVING PARK
IMMACULATE HEART SCHOOL
PORTLAND HISTORICAL LANDMARK
COMMUNITY RECREATION CENTER
REDEVELOPMENT PROJECT
KNOTT
RUSSELL
LILLIS ALBINA PARK
ELIOT SCHOOL
VANCOUVER
WILLIAMS
UNION
7TH
FREMONT BRIDGE
EASTBANK FREEWAY
1"=800' North↑
Neighborhood Commercial
Bureau of Maintenance
Church

Figure 1

PROJECT SETTING

ALTERNATIVES CONSIDERED

The proposed project was labeled "Hospital and Stanton Yard Only" and was considered a variation of the no build alternative in the DEIS. The DEIS also addressed three other variations of the no build alternative and three build alternatives. These were labeled and described as follows:

Ramp Removal Variation. The portion of the east-end ramps built on ground fill would be removed and the land made available for other uses.

Permanent Closure Variation. The ramps would be permanently closed to traffic.

Limited Bridge Access. The on ramp would be left open as it is today and as it would be opened under the proposed project. It could be used by traffic coming from Kerby Boulevard and Gantenbein Avenue from the south, but not from Cook Street from the east. The off ramp would remain closed.

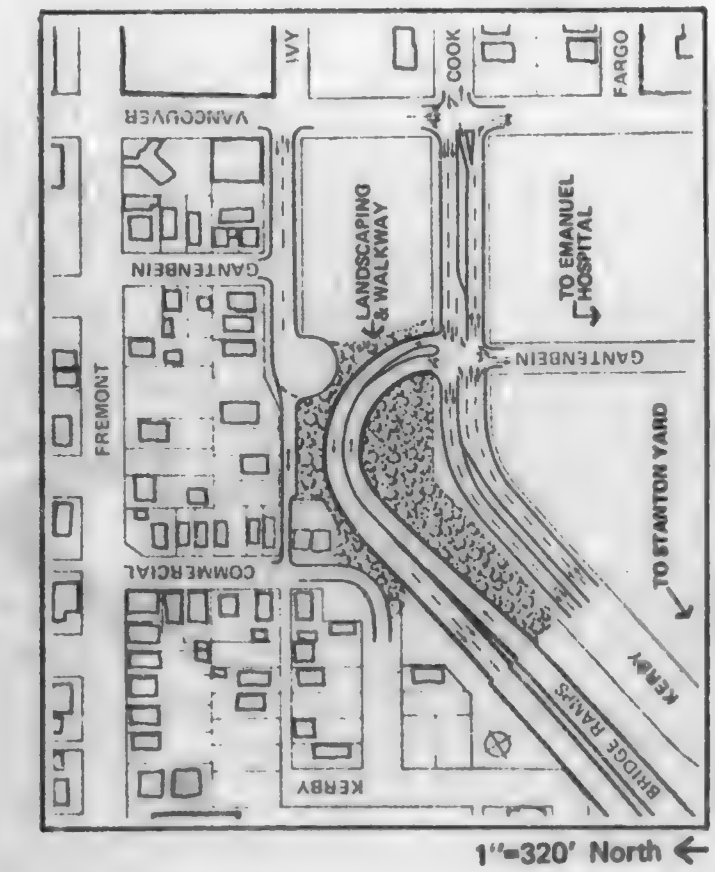

IVY
COOK
FARGO
VANCOUVER
GANTENBEIN
LANDSCAPING & WALKWAY
TO EMANUEL HOSPITAL
GANTENBEIN
FREMONT
COMMERCIAL
TO STANTON YARD
KERBY
BRIDGE RAMPS
KERBY
1"=320' North

Figure 2 - PROPOSED PROJECT

Short Cook Alternative. The ramps would be connected to Williams and Vancouver Avenues for general traffic use. Direct access between the ramps and Fremont Street to the east would not allowed.

Cook-Fremont Alternative. The ramps would be connected to Union Avenue via the Williams-Vancouver couplet and Fremont Street. Total traffic using the ramps would be limited by metering at the ramps and at the intersection of Fremont Street and Union Avenue.

Fremont Boulevard. The ramps would be connected to Union Avenue by way of Fremont Street. A direct link to Fremont would be constructed and Fremont widened to Union Avenue. Metering would encourage traffic to use Union Avenue rather than local collector streets.

ENVIRONMENTAL SETTING

Emanuel Hospital is the third largest of the general acute care hospitals in the metropolitan area. It has a capacity of about 500 beds, about 1,500 employees, and an active medical staff of 300 doctors. Other facilities at the Emanuel Hospital Urban Renewal Project include a medical office building, the Portland Orthopedic Clinic, and an extended care facility. A large amount of undeveloped land remains within the project. The City Bureau of Maintenance yards on Kerby are the storage and staging area for street maintenance throughout the city.

The neighborhoods in the vicinity of the project are the most depressed in the City of Portland. Much of the city's black population lives in these neighborhoods. Although primarily residential, land use is mixed. Relative to the city as a whole, incomes are low, unemployment high, and housing conditions poor. Nevertheless, most of the area is considered to remain a viable residential community.

With respect to air quality, the DEIS concludes that: a) relative to Federal standards photo-chemical oxidant levels are a problem in the Portland area; b) nitrogen dioxide levels are not a problem; c) lead levels may exceed the Oregon standard of 3 $\mu g/m^3$ within the I-5 right-of-way, but probably do not in the rest of the area; d) background levels of carbon monoxide in the area do not approach the Federal primary standard for either maximum 1- or 8-hour levels, but the 8-hour standard of 10 mg/m^3 is probably frequently exceeded near major traffic streets in winter, and both in winter and occasionally in summer near I-5; and, e) the Federal standard for hydrocarbons is probably exceeded throughout the city.

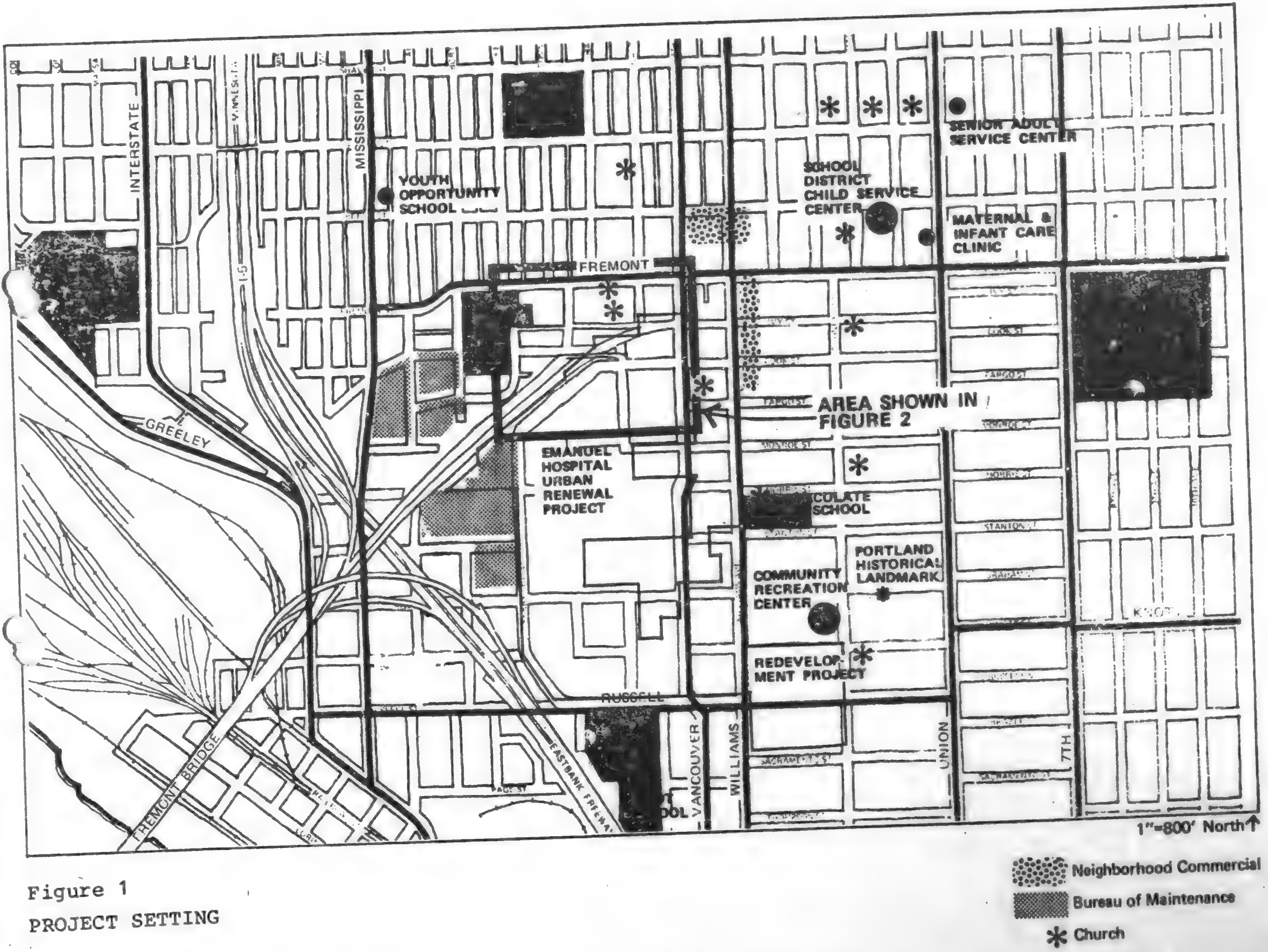

INTERSTATE
MINNESOTA
MISSISSIPPI
I-5
GREELEY
YOUTH OPPORTUNITY SCHOOL
FREMONT
SCHOOL DISTRICT CHILD SERVICE CENTER
SENIOR ADULT SERVICE CENTER
MATERNAL & INFANT CARE CLINIC
AREA SHOWN IN FIGURE 2
EMANUEL HOSPITAL URBAN RENEWAL PROJECT
COLATE SCHOOL
PORTLAND HISTORICAL LANDMARK
COMMUNITY RECREATION CENTER
REDEVELOPMENT PROJECT
STANTON ST
KNOTT
RUSSELL
FREMONT BRIDGE
EASTBANK FREEWAY
SCHOOL
VANCOUVER
WILLIAMS
UNION
7TH
1"=800' North↑
Neighborhood Commercial
Bureau of Maintenance
Church

Figure 1
PROJECT SETTING

The DEIS concludes that noise levels in the area of the project are high relative to State and Federal standards, particularly near major traffic streets. L_{10} noise samples of 61.6 and 63.2 dBA were taken near the east-end ramps.

Existing traffic levels on the two streets directly affected by the proposed project are low--less than 1,000 vehicles per day. The central location of the area and existing traffic facilities provide good access, but traffic going to and from a large portion of southwest Portland must pass through the Broadway/Weidler/I-5 interchange, which is frequently congested. This congestion is projected to remain in the future.

ENVIRONMENTAL IMPACTS

The expected low level of traffic use of the east-end ramps provides the basis for the determination that the proposed project will have no significant adverse environmental impacts. Total average daily traffic projected to use the ramps in 1980 is 3,000 vehicles per day. This is expected to increase to 3,200 vehicles per day by 1990. Based on the analysis contained in the DEIS, the proposed project will not cause the 10 mg/m^3 8-hour maximum average carbon monoxide standard to be exceeded. In addition, the proposed project is not expected to significantly increase total traffic levels or change traffic patterns. It can therefore be concluded that the project will not significantly affect air quality or cause violations of State or Federal standards and is thus consistent with the Oregon State Implementation Plan for clean air.

The proposed project will increase noise levels in the immediate vicinity of the ramps. Preliminary evaluation indicates that the project will cause L_{10} noise levels to exceed 70 dBA at 3 and perhaps more single-family dwellings located from 50 to 175 feet from the proposed improvements. A noise study report as per Federal Highway Program Manual 7-7-3 will be filed with the Federal Highway Administration prior to submittal of plans, specifications, and cost estimates. The noise study will: a) describe existing land use, including the presence of critical receptors; b) identify existing noise levels; c) predict noise levels with and without the proposed project for the year of implementation and 10 years after; and, d) identify mitigation measures to be taken or justify not taking such measures because of excessive cost, ineffectiveness, or other reasons.

The proposed project is designed to discourage use by through traffic to avoid increasing traffic on neighborhood streets. Some use by through traffic is unavoidable. However, because the time savings afforded by the ramps to through traffic would be small even if unimpeded, controlling through traffic is not expected to be a special problem. The effect on local streets will be small.

Project construction is expected to take 4 months. Removing the existing connection to the on ramp, regrading, and other construction activities will generate some noise and dust. Standard noise and dust control measures should be adequate. Scheduling construction for the summer months will not avoid interference with Boise School, located nearby, because the school operates year-around.

The proposed project will not require any relocation. The project will improve the level of access to Emanuel Hospital for its users, employees, and medical staff. Opening the ramps is expected to help attract additional medical facilities to the Emanuel Hospital Urban Renewal Project. In addition to hospital and City Bureau of Maintenance traffic, some large trucks from nearby storage and transfer companies may use the ramps instead of the route they presently use for freeway access, which is heavily used by pedestrians.

The Oregon State Historic Preservation Office reviewed the proposed project and found that since ground disturbance of previously undisturbed ground is minimal, there is no likely impact to archeological resources, that no cultural resource surveys are required, and that the project is in compliance with Public Law 89-665 and Executive Order 11593. A copy of a letter stating these conclusions is attached.

A broad range of other economic, social, and environmental considerations were addressed in the DEIS, which also included a detailed transportation analysis of the alternatives. The following pages contain a summary matrix comparing the alternatives. This matrix is taken from a newspaper-type summary of the DEIS.

COORDINATION OF THE AIR QUALITY ANALYSIS WITH THE DEPARTMENT OF ENVIRONMENTAL QUALITY

During the course of preparing the DEIS, staff members of the Oregon Department of Environmental Quality (DEQ) reviewed the monitoring procedures (including the calibration of instruments), the derivation of emission factors, and the applicability of measured and historical data to the study area. DEQ reviewed the DEIS, including the Technical Appendix,

Comparison of Alternatives

	No Build Variations	Short Cook	Cook–Fremont	Fremont Blvd.
Access	Hospital and Stanton Yard Only variation improves access between the immediate vicinity of Emanuel Hospital and west side parts of Portland.	Improves access between Primary Impact Area and west side parts of Portland. Also improves in small degree access to areas immediately to the north and south of Primary Impact Area.	Improves access between Primary Impact Area and west side parts of Portland, but effect reduced by metering. Also improves in small degree access to rest of Study Area.	Improves access between Primary Impact Area and west side parts of Portland. Improves in small degree access to rest of Study Area and to area north.
Ramp Use	Total Trips in 1990 under Hospital and Stanton Yard Only variation to and from: Emanuel Hospital 2,100(66%) Stanton Yard 300(9%) Immediate Vicinity 800(25%) TOTAL 3,200(100%)	Total Trips in 1990 to or from: Primary Impact Area 6,100(48%) Rest of Study Area 4,900(39%) Outside Study Area 1,700(13%) TOTAL 12,700(100%)	Total Trips in 1990 to or from: Primary Impact Area 5,600(38%) Rest of Study Area 5,100(34%) Outside Study Area 4,200(28%) TOTAL 14,900(100%)	Total Trips in 1990 to or from: Primary Impact Area 6,200(26%) Rest of Study Area 8,100(34%) Outside Study Area 9,300(40%) TOTAL 23,600(100%)
Traffic Conditions	Major peak-hour congestion west of 7th occurs on Killingsworth, Vancouver north of Broadway, and Broadway/Weidler between Vancouver and 7th. By 1990, congestion on Killingsworth will no longer occur, but other will remain.	Causes peak-hour congestion on Williams from Fremont to Skidmore. By 1990 this congestion will no longer occur and effect will be to relieve congestion on Vancouver near Broadway. Potential for traffic use of local streets to avoid controls greatest among alternatives.	Causes peak-hour congestion on Union north of Fremont, but relieves congestion on Killingsworth between I-5 and Union. By 1990, congestion on Union will no longer occur and effect will be to relieve congestion on Vancouver near Broadway.	Causes peak-hour congestion on Williams, Vancouver and Union between Fremont and Skidmore, but relieves congestion on Killingsworth between I-5 and Union and on Vancouver near Broadway. By 1990, congestion on Williams, Vancouver and Union will no longer occur. Effect will be to relieve congestion at the Broadway/Weidler/I-5 interchange.
Air Quality	Maximum 8-hour average carbon monoxide levels (which occur from 5 to 10 times per year) exceed the federal standard (10 mg/m3) at the intersections of Williams, Vancouver, and Union with Fremont. Assuming the current schedule for motor vehicle emission controls, these violations will no longer occur by 1990.	Will cause maximum 8-hour average carbon monoxide levels to exceed the federal standard at the intersection of Cook and Vancouver. Assuming the current schedule for motor vehicle emission controls, this violation will no longer occur by 1990.	Will cause maximum 8-hour average carbon monoxide levels to exceed the federal standard between Williams and Vancouver from Cook to Fremont and along Fremont to Union. Assuming the current schedule for motor vehicle emission controls, these violations will no longer occur by 1990.	Will cause maximum 8-hour average carbon monoxide levels to exceed the federal standard along the ramps, the connection to Fremont, and along Fremont to Union. Assuming the current schedule for motor vehicle emission controls, these violations will no longer occur by 1990.
Noise	Dwelling units in Study Area west of 7th exposed to noise levels above Federal Highway Administration design standard: 1980 1,083 1990 216 Dwelling units in Fremont Bridge–Union Avenue corridor exposed to noise levels above the standard by No Build variations: 1980 0 1990 0	Dwelling units exposed to noise levels above standard: 1980 1,062 1990 197 Dwelling units in corridor exposed to noise levels above standard by Short Cook alt.: 1980 1 1990 0.	Dwelling units exposed to noise levels above standard: 1980 1,069 1990 229 Dwelling units in corridor exposed to noise levels above standard by Cook-Fremont alt.: 1980 1 1990 40	Dwelling units exposed to noise levels above standard: 1980 1,103 1990 241 Dwelling units in corridor exposed to noise levels above standard by Fremont Blvd. alt.: 1980 19 1990 46
Land Use	Hospital and Stanton Yard Only variation will support continued redevelopment at the Emanuel Hospital Urban Renewal Project.	Will support continued redevelopment at the Emanuel Hospital Urban Renewal Project.	Will support continued redevelopment at the Emanuel Hospital Urban Renewal Project and along Union.	Will support continued redevelopment at the Emanuel Hospital Urban Renewal Project and along Union. The effect on Union will be greater than under the Cook–Fremont alt.

Relocation	None	None	McDonald's (restaurant at Fremont and Union)	Forty people in 17 households (removes 20 houses including 3 that are vacant), McDonald's (restaurant at Fremont and Union), Albina Legal Clinic (Fremont and Union), House of Style (hair styling at Fremont and Union), Foxes Den (clothing at Fremont and Union), Ray Fleming, Inc. (auto parts at Fremont and Williams), Immanuel Free Methodist Church (on Ivy between Commercial and Gantenbein).
Social Impacts	Ramp use may persist as community issue under Permanent Closure and Limited Bridge Access variations.	Until volumes decline in the 1980's, increased traffic will adversely affect residential quality of Williams and Vancouver north of Fremont.	Until volumes decline in the 1980's, increased traffic will adversely affect residential quality of Williams and Vancouver north of Fremont, but less than under Short Cook and Fremont Blvd. alternatives. Will also adversely affect residential quality of Fremont west of Union; the visual quality of the street will be lowest among build alternatives.	Until volumes decline in the 1980's, increased traffic will adversely affect residential quality of Williams and Vancouver north of Fremont; this effect will be greatest among the alternatives. Adverse effect on the residential quality of Fremont will also be greatest among the alternatives, but mitigated by relocation and visual improvements. Traffic flow will discourage pedestrian movement across Fremont.
Economic Impacts	Hospital and Stanton Yard Only variation will benefit Emanuel Hospital Urban Renewal Project.	Will benefit the Emanuel Hospital Urban Renewal Project and Eliot, Boise, and Humboldt neighborhoods. Net effect on business sales and payrolls in Study Area will be negative.	Will benefit Emanuel Hospital Urban Renewal Project and Eliot, Boise, and Humboldt neighborhoods, and Union Ave. Net effect on business sales and payrolls in Study Area will be negative and greatest among the build alternatives.	Will benefit Emanuel Hospital Urban Renewal Project and Eliot, Boise and Humboldt neighborhoods, and Union Ave. Effect on Union will be greatest among build alternatives. Net effect on business sales and payrolls in Study Area will be negative but smallest among the build alternatives.
Construction Impacts	Ramp Removal expected to take 5 mo. and will have a greater air quality and noise impact than other No Build variations. Hospital and Stanton Yard only variation will take 4 months. Permanent Closure and Limited Bridge Access variations will take 1 month.	Construction expected to take 10 months. Potential for traffic congestion on Fremont and restrictions to property access greater than under Fremont Blvd. alternative.	Construction expected to take 12 months. Potential for traffic congestion on Fremont and restrictions to property access similar to Short Cook alternative.	Construction expected to take 14 months. Traffic congestion on Fremont and restrictions to property access less than Short Cook and Cook–Fremont alternatives.
Project Costs	Ramp Removal $284,000 Permanent Closure 15,000 Limited Bridge Access 15,000 Hospital and Stanton Yard Only $195,000	Engineering and Contingencies $ 441,600 Property Acquisition 2,300 Construction 1,104,000 TOTAL $ 1,548,000	Engineering and Contingencies $ 549,200 Property Acquisition and Relocation 69,900 Construction 1,373,000 TOTAL $1,992,000	Engineering and Contingencies $ 645,000 Property Acquisition and Relocation 535,200 Construction 1,466,000 TOTAL $2,646,000
Cost–Benefit Comparison	Net Costs equal Project Costs	$\frac{\text{Total Benefits}}{\text{Total Costs}} = \frac{\$8{,}157{,}000}{\$11{,}299{,}000} = .72$ Net Costs = $3,147,000	$\frac{\text{Total Benefits}}{\text{Total Costs}} = \frac{\$12{,}136{,}000}{\$21{,}041{,}000} = .58$ Net Costs = $8,905,000	$\frac{\text{Total Benefits}}{\text{Total Costs}} = \frac{\$10{,}906{,}000}{\$10{,}908{,}000} = 1.00$ Net Costs = $2,000

and found the analysis adequate. DEQ has also reviewed the finding of this negative declaration that the proposed project is consistent with the Oregon State Implementation Plan and concurs.

SUMMARY OF CORRIDOR - DESIGN PUBLIC HEARING TESTIMONY AND COMMENTS RECEIVED ON THE DEIS, WITH RESPONSES

Summary of Corridor - Design Public Hearing Testimony and Responses

On 14 December 1976, a formal corridor/design public hearing was held to receive testimony and comments on information contained and the alternatives presented in the DEIS for opening the east-end ramps of the Fremont Bridge.

A review of the recorded transcript of the hearing indicates that a total of twenty-one (21) persons testified concerning the project as follows:

1. Of seven (7) persons representing business interests within the study area, three (3) favored the Fremont Boulevard alternative as a means to prevent traffic congestion on Union Avenue and relieve traffic going through Irvington when I-5 is clogged, to improve conditions for industry, retailers, and residential areas, and to prevent a waste of taxpayers' money since the ramps are already there. One (1) favored the Cook-Fremont alternative because it would provide industry with better access to the area. One (1) favored any of the build alternatives.

RESPONSE Neither the Fremont Boulevard nor the Cook-Fremont build alternative was selected. They are considered to cost more in terms of both construction cost and environmental impact than is warranted by the value of the benefits they would provide. The proposed project will improve access to businesses and industry in the immediate vicinity of the east-end ramps.

2. Three (3) persons representing interested organizations testified. Of these, two (2) favored the Short Cook alternative, but expressed reservations about any build alternative that would cause increased automobile emissions and traffic on Union Avenue and Fremont Street. One of these asked that establishing a bicycle path over the Fremont Bridge be considered. One (1) favored the Hospital-Stanton Yard variation of the no build alternative, and Fremont Boulevard of the build alternatives.

The Short Cook build alternative was not selected. It is considered to cost more in terms of both construction cost and environmental impact than is warranted by the value of the benefit it would provide. The proposed project will avoid causing increased automobile emissions and traffic on Union Avenue and Fremont Street. The Hospital and Stanton Yard Only variation of the no build alternative is the proposed project.

RESPONSE According to the DEIS, a bicycle path could be constructed on the Fremont Bridge using one of the shoulders, but this would require relaxing federal highway standards and would cause a serious decline in traffic safety. However, the DEIS also concludes that one of the lanes on the bridge could be used for a bicycle path without causing serious capacity problems if regional public transit were improved to reduce projected future traffic levels and if one of the no build variations, which includes the proposed project, were adopted.

3. Eleven (11) persons who are neighborhood residents presented testimony. Of these, four (4) favored the no build variations, especially the Hospital and Stanton Yard Only, because they felt the build options would cause unnecessary relocation would cause a negative economic impact; would increase Knott Street traffic, thereby endangering school children; would cause little or no time savings to people using the offramps and that it would be too difficult to limit heavy traffic flows on Fremont. One (1) favored any of the no build options. Two (2) preferred the Fremont Boulevard option because they felt traffic would equalize itself and that taxpayers have a right to use the ramps because they paid for them. One (1) person favored any of the build options and did not see air pollution as a real problem. Two (2) people did not care which option was selected as long as they received relief from heavy auto emissions and from heavy rush hour traffic on Cook Street. One (1) person favored none of the alternatives and instead proposed that Vancouver and Williams be widened to four lanes each to carry the north-south traffic.

RESPONSE The proposed project was selected in part to avoid the adverse effects of the build alternatives. Traffic congestion and air pollution problems induced by the build alternatives were other reasons. The proposed project should lead to better control of ramp use, relieving heavy use of Cook Street. Circulation plans for the area envision downgrading Vancouver and Williams as north-south traffic streets and emphasizing Union Avenue.

4. No elected official or government representative gave testimony.

Summary of City Council Hearing Testimony and Responses

On 14 April 1977, the Portland City Council formally received testimony and comments on the Fremont Bridge Access Study and passed a resolution to adopt the Hospital-Stanton Yard option described in Draft Environmental Impact Statement.

A review of the recorded transcript of the hearing indicates that a total of sixteen (16) persons testified concerning the project as follows.

1. Five (5) people representing businesses testified. Four (4) people favored the Fremont Boulevard alternative for the following reasons: improve access to Albina for heavy trucks; promote economic development on Union Avenue and in the Overlook-Albina area; and attract professional and support services to the northeast business community. One (1) favored any of the build alternatives and felt they would promote traffic (truck) safety, and fuel and time conservation and would make the best use of public monies spent to construct the ramps.

RESPONSE Neither the Fremont Boulevard alternative nor either of the other two build alternatives was selected because the cost of these alternatives in terms of both construction cost and environmental impact was not considered to be warranted by the value of the benefits they would provide. The DEIS found that time and vehicle-mile savings afforded by the alternatives would be small.

2. Six (6) representatives of associations and organizations presented testimony. Two (2) supported the Hospital-Stanton Yard option because they distrust the effectiveness of traffic controls, feel that increased heavy traffic would destroy the residential character of the primary impact area and would endanger school children in transit to Irvington School on Knott and 15th Streets,

and since the build alternatives offer no economic benefits or time-savings, they should not be implemented. One (1) favored the Fremont Boulevard option because they felt it would give an economic boost to Union Avenue and the northeast as a whole. One (1) favored Short Cook because it would improve access but avoid the heavy negative environmental effects that the Fremont Boulevard option would cause. One (1) preferred any no build alternative because the build alternatives offer no positive economic or environmental benefits. One (1) favored postponing a decision until a decision is made to locate the Veterans Administration Hospital. One (1) would stand by any decision that the City Council makes.

RESPONSE The proposed project is the Hospital and Stanton Yard Only alternative favored by several of the neighborhood organizations. The build alternatives were rejected in part because of the adverse neighborhood impacts they would cause. The decision was not postponed because it was felt that after four years of debate the issue needed to be resolved and that selection of the proposed project would not discourage selection of the Emanuel Hospital campus for a new Veterans Administration hospital.

3. Four (4) individuals who are neighborhood residents offered testimony. Of these, two (2) supported the Hospital-Stanton Yard option because it would preserve the residential quality of the impact area and because opening the ramps would make it difficult to implement the arterial streets plan. One (1) supported the Fremont Boulevard alternative because it would offer the most benefits to the most people. One (1) favored any no build alternative because more development in the area would be unwise from an environmental standpoint.

RESPONSE The Hospital and Stanton Yard Only alternative is consistent with the Portland Arterial Streets Policy and will avoid the adverse impacts of the build alternatives.

4. One (1) representative of Portland School District No. 1 testified. That government body favored the no build option because the safety of school children would be adversely affected by opening the ramps, as would the quality of the neighborhoods.

RESPONSE One advantage of the proposed project is that neither the ramps nor the streets directly affected by traffic going to and from the ramps intersect school children pedestrian routes. The ramps themselves are enclosed by a fence that will discourage children from coming onto them.

Summary of Comments Received On The DEIS and Responses

In response to circulation of the DEIS, comments were received from the following government agencies and other interested parties:

1. U.S. Department of Transportation, Office of the Assistant Secretary for Environment and Urban Systems
2. U.S. Department of the Interior, Office of the Secretary, Pacific Northwest Region
3. U.S. Environmental Protection Agency, Region X
4. Oregon State Highway Division
5. Oregon Department of Environmental Quality
6. Columbia Region Association of Governments
7. Northeast Business Boosters
8. Paramount Oil Company
9. Irvington Community Association
10. Tri-Met
11. Whitcomb Crichton
12. Grant Park Neighborhood Association
13. ITT Continental Baking Company Inc.
14. Albina Transfer Company, Inc.
15. Immanuel Free Methodist Church
16. Emanuel Hospital
17. G. Susan Leigh

18. Sadie L. Reeder

19. Mr. and Mrs. Nicolas Hanches

20. Mrs. Robert V. Kerley

A summary of these letters and responses to their comments follows:

1. U.S. Department of the Interior, Office of the Secretary, Pacific Northwest Region

The agencies involved in this project are aware of their responsibilities to protect cultural resources and will complete such a survey for the final environmental statement if a build alternative is selected. If a 4(f) statement is needed, it will be prepared and included with the final environmental impact statement. If these steps are taken, cultural resources will have received adequate consideration.

Although possible impacts on fish and wildlife are not discussed, the urban character of the area indicates that no impacts on fish and wildlife resources will occur.

RESPONSE The State Historic Preservation has found that a cultural survey for the project will not be necessary and that the project is in compliance with Public Law 89-665 and Executive Order 11593. A 4(f) statement is not required. The proposed project will not impact fish and wildlife resources.

2. U.S. Department of Transportation, Office of the Assistant Secretary for Environment and Urban Systems

Copy of the Department of Transportation "Replacement Housing Policy" (DOT 5620.1).

RESPONSE The proposed project will not require any relocation.

3. U.S. Environmental Protection Agency, Region X

The air quality analysis is complete and comprehensive. However, air quality monitoring conducted in the area shows current violations or near violations of the National Ambient Air Quality Standards for particulates, photochemical oxidants and carbon monoxide. The air quality analysis also reveals that each of the build alternatives could contribute to existing violations or cause new violations.

According to the Department of Environmental Quality, the build alternatives are inconsistent with the Oregon State Implementation Plan (SIP). The Oregon State Highway Division, the City of Portland, and the Department of Environmental Quality should work together to make the proposed build alternatives consistent with the SIP.

The discussion of construction noise and mitigation measures should state whether construction activities will comply with Section 18.10.060, Construction Activities and Equipment, of the Portland Noise Ordinance (Ordinance No. 141-882). If not, the final E.I.S. should state whether or not a variance will be obtained.

This project is rated EU-1 (Environmentally Unsatisfactory, Adequate Information) based on our concerns about probable air quality standards violations. We recommend further analysis of the alternatives. This rating will be published in the Federal Register.

RESPONSE None of the build alternatives has been selected. The proposed project will not cause violations of National Ambient Air Quality Standards and is consistent with the Oregon State Implementation Plan.

Construction of the proposed project will comply with Section 18.10.060, Construction Activities and Equipment, of the Portland Noise Ordinance. A variance will not be requested.

Selection of the proposed project is considered grounds for changing the Environmental Protection Agency's rating from EU-1 (Environmentally Unsatisfactory, Adequate Information) to ES-1 (Environmentally Satisfactory, Adequate Information).

4. Oregon State Highway Division

Copies of Oregon State Highway Division "Relocation Assistance Program" and "Land Acquisition Program."

RESPONSE The proposed project will not require any relocation.

5. Oregon Department of Environmental Quality

We find the air quality analysis performed for the study adequate.

Earth Metrics, Inc., is technically competent and can discuss the Oregon State Highway Division comments without attendance by DEQ at the meeting.

Please keep us advised of any changes that are made to the air quality analysis.

RESPONSE No changes have been made in the air quality analysis.

6. Oregon Department of Environmental Quality

Air quality and noise quality comments are contained herein.

The air quality analysis is adequate at this point. The alternatives were reviewed as to their consistency with the requirements of OAR 340-20-130(5) - conditions for denial of an indirect source construction permit.

No Build - Consistent. Does not propose to construct an indirect source. No build air quality violations documented in the study will be addressed in ongoing Department air quality attainment and maintenance programs. If strategies are developed to deal with these air quality violations, proposed indirect sources will be judged for consistency in accordance with these strategies.

Cook-Fremont - Inconsistent. Would cause new violations which are minor. Future revisions to this alternative could be consistent if such violations are eliminated.

Short Cook - Indeterminate. Discrepancy in the report: the figure on page 78, Review Draft, June 1976 states that this proposed indirect source would cause no new violations. However, Table B-6, page B-41, Review Draft Technical Appendix, June 1976, clearly states a new violation will occur at the intersection of Fremont Ramp and Vancouver. Clarify the discrepancy. If violations do occur, the inconsistency might be resolved as in Cook-Fremont above.

Fremont Boulevard - Inconsistent. Would cause significant new violations in 1980, is projected to equal standards under the "delay" or "maximum" assumption in 1990, and results in increased total emissions when compared to the no build.

Any build alternative, if selected, will require application for an Indirect Source Construction Permit pursuant to OAR 340-20-115(2)(a)(B).

The noise quality impact study is adequate. However, the text and appendix contain the following errors:

1. Table C-1 in the appendix is confusing and incorrect.
2. The suggestion on page C-4 that schools are quiet areas is misleading.
3. The table on page 97 in the text needs to be explained further.
4. On page 18, the two homes near the ramps are incorrectly labeled.
5. A few other typographical errors, though minor in nature, were found.

The noise impacts of the four alternatives discussed in the draft may be ranked, with the least impact first, as follows:

1. No build
2. Short Cook
3. Cook-Fremont
4. Fremont Boulevard

Four noise control techniques were proposed in the draft:

1. Traffic Control (street closure, traffic signal metering, etc.)

   The traffic controls should discourage the use of the Fremont Bridge access ramps by other than local neighborhood vehicles and should therefore limit traffic noise.

2. Property Acquisition

Although property will be acquired for other than noise concerns, this would definitely contribute to the control of noise in the area.

3. Berms and/or Barriers

Barriers were proposed next to the ramps for all of the "build" alternatives. All but the barrier on the north side of the ramp that is included in the Fremont Boulevard alternative are classified as "non-project" barriers. Although the use of barriers to protect homes in other areas is probably not a feasible option, their use in protecting backyard livability should be investigated.

4. Insulation of Homes Against Noise

For the majority of homes, the noise reduction technique of insulating homes is the only feasible alternative. Homes located in areas subjected to the FHWA exterior level of L_{10}=70 dBA are proposed to be insulated with "project" funds. Homes which are located in areas subjected to the more protective FHWA exterior level of L_{10}=65 dBA would be insulated using "non-project" funds. It is the study's credit that the more protective exterior level of 65 dBA and the interior level of 45 dBA were addressed.

The number of structures proposed for insulation is as follows:

Alternatives	Project	Non-Project
Short Cook	1	10
Cook Fremont	36	15
Fremont Boulevard	32	16

Noise Control Recommends:

1. The use of the proposed traffic controls;
2. the acquisition of property, where suitable;
3. the construction of a barrier on both sides of the ramp; and
4. the insulation of all of the proposed homes (both project and non-project).

There has been opposition to the insulation of homes as a noise reduction technique for various reasons. However, it would be the most effective noise reduction technique and should therefore receive funding support.

The Department does not believe that the reduction of noise inside homes is protective of citizens as many activities occur outside the home. However, as a method of partially mitigating the noise resulting from the "build" alternatives, this recommendation should be implemented.

RESPONSE Neither the Cook-Fremont nor the Fremont Boulevard build alternative was selected. It is believed that DEQ's determination that the status of the Short Cook alternative was "indeterminate" was based on an error in the review draft of the DEIS the above-summarized letter was based on. Had the determination been based on the published version of the DEIS, it is believed that DEQ would have found the Short Cook alternative inconsistent with the State Implementation Plan.

Because the proposed project will carry less than 10,000 ADT, an Indirect Source Construction Permit from DEQ pursuant to OAR 340-20-115(2)(a)(B) will not be required.

The acquisition of noise-impacted homes and the use of berms or barriers to mitigate noise impacts of the proposed project will be addressed in the noise study report that will be filed with the Federal Highway Administration prior to submittal of plans, specifications, and cost estimates. Insulating homes against noise will not be proposed.

7. Columbia Region Association of Governments

The issues and opportunities involved in the study are primarily of local concern. However, the issues that do apply to regional transportation are adequately addressed in the Draft EIS.

The impact of predicted noise levels on pages 99 and 100 and the description of mitigating measures need clarification.

The table on page 100 is confusing because it fails to indicate the number of dwellings exposed under the no build that would not be exposed by the new alternative.

FHWA's policy on funding mitigation measures is not clear regarding noise mitigation. The gap between dwellings that exceed FHWA's "standard" of L_{10} on page 93 and the funding policy on page 103 should be elaborated on.

Otherwise, the Draft EIS appears to adequately cover the issues associated with the project.

RESPONSE No response.

8. Northeast Business Boosters

The NEBB approved opening the ramp access to the Fremont Bridge, and favors the "Fremont Boulevard Street Improvements."

The Fremont Boulevard alternative would facilitate the flow to traffic onto Union Avenue under normal conditions, relieve traffic congestion caused by any major obstruction on I-5, and eliminate the necessary detouring, especially during peak hours.

Union Avenue is part of Highway 99 East and therefore should connect these two major arterials.

RESPONSE The Fremont Boulevard alternative was not selected. It is considered to cost more in terms of both construction cost and environmental impact than is warranted by the value of the benefit it would provide.

9. Paramount Oil Company

We favor the Fremont Boulevard Plan. We are very disappointed that the ramps have not yet been opened. I believe we speak for many of the business people in this area.

10. Irvington Community Association

We recommend the Fremont Bridge ramp be left as is until an official decision is reached on location of the proposed Veterans Hospital. We favor the limited bridge access variation of the no build option. We reserve the right to state an opinion in the future after a decision is made on locating the VA Hospital.

RESPONSE The decision on the east-end ramps was made in part on the ground that the issue needed to be resolved after 4 years of debate and that a final decision on the location of a new Veterans Administration hospital might be long in coming.

11. Tri-Met

All of the alternatives that allow any degree of access are acceptable from a transit viewpoint. Ramp removal would be the only action that would eliminate potential transit usage.

Future hospital development will create a demand for additional transit service via the Fremont ramps. We will examine this matter in future routing studies of the area.

RESPONSE There is no reason why transit vehicles could not use the east-end ramps under the proposed project.

12. Whitcomb Chrichton

I favor opening the ramps and lean toward the Fremont Boulevard option as the most practical and beneficial solution for the public. I own property just north of the City's Albina yards. One of these warehouses has remained vacant for two months. The tenant did not renew his lease because his trucks could not safely and conveniently negotiate Mississippi Avenue south of Alberta Street when coming off the Fremont Bridge inbound from the Northwest Portland industrial district.

RESPONSE Business and industrial traffic in the vicinity of Mr. Chrichton's property (located to the north of the ramps near Fremont) will be able to use the east-end ramps under the proposed project to avoid congested conditions on Mississippi Avenue. Access to the ramps will be less convenient than under the build alternatives.

13. Grant Park Neighborhood Association

We support any of the no build alternatives, especially the permanent closure variation because of its relatively low cost and the flexibility it provides for future requirements.

Of the build alternatives, we favor Short Cook.

We do not endorse the traffic metering devices because they can easily be moved or changed without consultation with concerned citizen groups.

RESPONSE The proposed project is one of the no build variations endorsed by the Grant Park Neighborhood Association.

14. ITT Continental Baking Company Inc.

The Short Cook alternative would add a lane control system, thus preventing our transport truck from making wide turns. We must have a safe traffic pattern in order for our customers to enter and leave the Thrift Store parking area.

We favor the Cook-Fremont alternative because it would allow direct access to the Fremont Bridge for our route trucks and would eliminate the present unsafe route that is used. It would also allow our trucks to move to and from the Bakery area without causing unnecessary congestion. However, the traffic median on Fremont would not allow transport trucks access to the Bakery. The traffic median could be used at the intersections only. This alternative also allows public access to our Retail Store, but does not allow access for our trucks or for customers to enter and leave the store area east-bound. This would be solved by using the median at the intersection only, allowing left turns from the left lane into the middle of the block.

Except for the traffic medians, we believe the Cook-Fremont alternative is the best.

RESPONSE The proposed project will not affect Fremont Street, Vancouver Avenue or Williams Avenue where they border the Continental Baking Company plant. The proposed project will not affect truck turning movements for access to the plant. The project may improve freeway access for the plant since it is located near the east-end ramps.

15. Albina Transfer Company, Inc.

Our heavy trucks currently use Cook-Fremont to Mississippi, then north to Skidmore over to Going Street and on to the I-205 freeway either north or south. During one day we estimate that our trucks make a total of 69 trips using this route. The most congested foot traffic area on the northeast side (at Mississippi Avenue and Shaver Street) is along this route. We favor opening the ramps under the Fremont Boulevard option to relieve the congestion on Mississippi Avenue.

RESPONSE Trucks going between I-405 and the vicinity of the Albina Transfer Company near Fremont to the north of the east-end ramps will be able to use them instead of Mississippi Avenue by using a route following Mississippi Avenue and Stanton Street.

16. Immanuel Free Methodist Church

We object to the Fremont Boulevard alternative because it would force us to vacate our facilities. Because it is so difficult to relocate, we favor the no build alternative.

RESPONSE The proposed project will not require the relocation of the Immanuel Free Methodist Church.

17. Emanuel Hospital

We support the build alternatives. They would permit Emanuel Hospital to better serve the northeast section of Portland, would provide immediate access to patients and emergency vehicles to the hospital, would provide easier access to the hospital for members of our staff, thus increasing the quality of patient care, and would attract additional investment in facilities compatible with the hospital on the grounds adjacent to the hospital.

RESPONSE The proposed project will provide the same level of access to the Emanuel Hospital campus from I-405 as the build alternatives.

18. G. Susan Leigh

I support the Fremont Boulevard alternative because I feel it would greatly benefit residences, business, and the Emanuel Hospital expansion.

RESPONSE The Fremont Boulevard alternative was not selected because it was considered to cost more in terms of both construction cost and environmental impacts than is warranted by the value of the benefits it would provide.

19. Sadie L. Reeder

Both the Fremont Boulevard and the Short Cook alternatives would cause me great inconvenience: one would require me to relocate, which I cannot afford to do, and the other would make it impossible to enter my garage from the opposite side of the street.

RESPONSE Neither the Short Cook nor the Fremont Boulevard alternative was selected. The proposed project will require no relocation.

20. Mr. and Mrs. Nicolas Hanches

We feel the ramps should be subject to a full environmental impact statement and that a negative declaration by the City circumvents the full public exposure that they deserve. Since these ramps are likely candidates for request of transfer funds from the Mt. Hood Freeway, we feel this negative declaration would be out of order.

RESPONSE A Draft Environmental Impact Statement was prepared for the project. A Final EIS was planned and would have been prepared had a build alternative been selected. Selection of the proposed project vitiated the need for a Final EIS.

21. Mr. Robert V. Kerley

I favor widening Fremont Boulevard and opening the ramps. It makes sense to open the Fremont Bridge since it is midway between the Broadway Bridge and the next northerly bridge. Opening the ramps to Fremont Boulevard would relieve the tremendous congestion in the Broadway-Weidler area, improving access and safety conditions for the hospital and business in the area.

RESPONSE The Fremont Boulevard alternative was not selected because the cost of the project in terms of both construction cost and environmental impact was not considered to be warranted by the value of the benefits it would provide.

BASIS FOR NEGATIVE DECLARATION

It is the conclusion of the City of Portland and Oregon State Highway Division that this project constitutes a "major action" as defined in the Federal-Aid Highway Program Manual, Volume 7, Chapter 7, Section 2, and that implementing the proposed action will not have a significant impact upon the quality of the human environment. Therefore, a final environmental impact statement will not be processed.

Concurred in by:

City Engineer,
City of Portland
Date

Technical Services Engineer,
Oregon Department of Transportation
7-28-77
Date

Original Signed By
G. L. GREEN
Division Engineer

Division Administrator,
Federal Highway Administration
8-24-77
Date

APPENDIX

Letter from State Historic Preservation Office

ROBERT W. STRAUB
GOVERNOR

Department of Transportation
PARKS AND RECREATION BRANCH
525 TRADE STREET S.E., SALEM, OREGON 97310

DATE: July 15, 1977

Mr. Pieter Dykman, Research Coordinator
Environmental Section
412 Transportation Building
Salem, Oregon 97310

RE: East-End Ramps of the Fremont Bridge
I-405, Portland, Multnomah County

Dear Sirs:

This letter is in response to your request for official comment from the State Historic Preservation Office regarding impact of your federally funded project on cultural resources.

After a careful review of your proposed project, our office can offer the following comments. We feel the area of the project is not of historic significance and since ground disturbance of previously undisturbed ground is minimal, this office feels that there will be no likely impact to archeological resources. We therefore feel no cultural resource surveys are required and that the project is in compliance with Public Law 89-665 and Executive Order 11593.

Sincerely,

Paul B. Hartwig

Paul B. Hartwig
Historical Programs Coordinator
State Historic Preservation Office

EL:ko

Form FHWA 121 (Rev. 5-73) 8909

UNITED STATES GOVERNMENT

Memorandum

DEPARTM OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
Box 300
Salem OR 97308

DATE: May 17, 1977

In reply refer to: HEC.1-OR

SUBJECT: Oregon Projects M-9822(1)
East Burnside/Sandy Blvd., and
Oregon Project M-9914(1)
Fremont Bridge Access Study
Final Environmental Documents

FROM: G. L. Green, Division Administrator

NOTED
E. S. HUNTER

TO: Mr. H. Scott Coulter, State Highway Engineer
Salem, Oregon

Mr. Hunter's May 11, 1977 letter indicates that the Portland City Council and the Oregon Department of Transportation have adopted the Minimum Improvement Alternative for the East Burnside/Sandy Boulevard Project, and the Hospital and Stanton Yard Only variation of the No-Build Alternative for the Fremont Bridge Access Study.

We concur with your determination that with the selection of these alternatives it would be appropriate to proceed with the preparation of Final Negative Declarations (FND) in lieu of Final Environmental Impact Statements (FEIS) for these projects. When such a change is made the FND will require the same distribution as would have been afforded the FEIS. A brief explanation setting forth the reasons for preparing a FND in lieu of a FEIS should be distributed with each document.

for G. L. Green

5-19-77
Potter - Draft, if Req.

RECEIVED
STATE HWY ENGR
MAY 19 77
REFER TO
Hunter
FOR

Info	Immed	R/D	D/R	Sign	Act	File
			✓			

ROBERT W. STRAUB
GOVERNOR

Oregon State Highway Division

TRANSPORTATION BUILDING, SALEM, OREGON 97310

May 11, 1977

Mr. Glen L. Green
Division Administrator
Federal Highway Administration
Box 300
Salem, OR 97308

Dear Mr. Green:

East Burnside/Sandy Boulevard - copy
East Fremont Bridge

The Portland City Council and the Oregon Department of Transportation have adopted the Minimum Improvement Alternative for the East Burnside/Sandy Boulevard Project, and the Hospital and Stanton Yard Only variation of the No-Build Alternative for the Fremont Bridge Access Study.

We believe the environmental impacts to be not significant and request your approval of a Final Negative Declaration.

Very truly yours,

E. S. Hunter
Deputy State Highway Engineer

ESH:ja

bc H. S. Coulter
R. N. Bothman (enc.)
G. A. Potter "
L. E. George "
J. H. Versteeg "

STATE OF OREGON INTEROFFICE MEMO

TO: GARY A. POTTER, Manager
Environmental Section

DATE: May 5, 1977

FROM: JEF KAISER
Environmental Planner

SUBJECT: a) East Burnside/Sandy Boulevard
Traffic improvements
b) East Fremont Bridge
Ramp connection

RECEIVED
ENVIRONMENTAL
SECTION
MAY 6 1977
Referred to

I recommend approval of the attached request. Neither alternative selected has sufficient impacts to warrant the preparation of an FEIS.

The city of Portland has indicated that comments from the draft statements and hearings will be formally responded to regardless of the type of final environmental document prepared.

Please obtain federal approval for this down scoping if you concur.

ja
Enclosure

1-122-1937

326-1977
230

CITY OF
PORTLAND
OREGON

DEPARTMENT OF
PUBLIC WORKS

CONNIE McCREADY
COMMISSIONER

OFFICE OF
PUBLIC WORKS
ADMINISTRATOR

400 S.W. SIXTH AVE.
PORTLAND, OR. 97204

April 15, 1977

Robert N. Bothman
Assistant State Highway Engineer
Oregon State Highway Division
5821 NE Glisan Street
Portland, Oregon 97213

Dear Bob:

On April 14, 1977 the Portland City Council adopted the Minimum Improvement alternative as the preferred alternative for the East Burnside/Sandy Boulevard Project. The Council also adopted the Hospital and Stanton Yard Only variation of the No Build alternative as the preferred alternative for the Fremont Bridge Access Study.

We do not believe that the anticipated environmental impacts of either of these alternatives are significant. Therefore, under the provisions of Federal-Aid Highway Program Manual 7-7-2, 13p, we are now requesting approval to prepare a final Negative Declaration in place of a final Environmental Impact Statement.

Thank you for your consideration of this request. If you have any questions about either of these projects, please contact Glen Pierce at 248-4643.

Sincerely,

John M Lang

JOHN M. LANG, CHIEF
Bureau of Street and Structural Engineering

GRP:jb

ME PE PR1 PR2 DE
O.S.H.D. - METRO
APR 20 1977
FILE T/A

8909

DEPARTMENT OF JUSTICE

Memorandum

TO: R. L. Schroeder
Assistant State Highway Engineer

DATE: March 15, 1977

FROM: Jack L. Sollis
Assistant Attorney General

SUBJECT: Fremont Bridge - Union Avenue Connection Study, FAU Project M-2029 (1), Request for Additional Compensation

Attached you will find an official request from CH2M Hill for additional compensation on the above contract.

I have met with representatives of the City and CH2M and discussed the request. Following, you will find my observation concerning the various categories in which CH2M has requested additional compensation. Before discussing the individual categories, I would like to briefly discuss the background that led up to this formal request. Last spring I was contacted by a representative of CH2M relative to how consultant contracts were dealt with as regards increases in the contract. I did not at the time realize that there was going to be a disagreement on a contract that involved the State. While the State's involvement in this contract is rather minor, the state did provide the funds and to some degree was to provide a Liaison Engineer. The contractor indicated to the City in the spring of 1976 that they were going to overrun the contract amount and need more money to complete the contract. The contractor's story is that theywere told that it wouldn't do them any good to request more money and they weren't going to get anymore money. The correspondences indicated that although they had asked for more money, that they were not at that time making a claim for more money as they really didn't know how much they wanted to ask for. This is a little bit unusual as far as I am concerned as I recall many other contracts of this type where the contractor has come in and said specifically how much money he needed before he ran out of money, rather than saying we are going to run out of money and after we have ran out of money and over spent the contract we will come in and ask for some more money. Under the terms of the contract, the contractor is not obligated to spend any more money than that amount allocated in the contract unless there is a change in the scope of work and an additional amount has been allocated by a supplemental contract. The contractor did not indicate that there was any change in the scope of the work until our meeting last week, although in the past they had indicated that the time delays had affected their costs. The City indicated that the reason they had turned down the claim (the city at this time considered it a claim) was that there was not enough substantiating data in order to evaluate the claim. At this point I am in complete agreement with the City and it was not until the meeting of last week that the contractor finally came up with a specific run down on what their extra expenditures were for. I will now comment on each individual category that has been submitted by the contractor.

Delay in Obtaining Traffic Data - - $16,542.00

This appears to be a fairly legitimate claim if it can be substantiated that the information was to be available to them as soon as the study was started.

3-16-77 Original Ltr.
sent to Bothman

NOTED
R. L SCHROEDER

The weak points in this claim, in my mind, are the fact that they agreed to a four to six week delay, but in figuring up their claim, take in the total twelve week delay as being an added cost to them. I would also question how they arrived at the 20% loss of effectiveness of staff working on the project during this total twelve week period. The gimmick here is that for every staff hour they are able to indicate was wasted they are also able to add to that figure 132.6 per cent as the provisional overhead charge. I think that they should be required to specifically indicate what staff members were wasting 20 per cent of their time because of the unavailability of this data or what portion of the project it was not efficient to work upon because of the unavailability of the data. It seems to me that merely the fact that it was not available is not grounds enough to indicate that more money is due, but rather they must establish that this actually cost them money and wasted staff time where the people were idle, couldn't work another project and therefore because of the delay in obtaining the data they incurred extra costs against this project that they did not anticipate.

Field Survey of Project Area Residents - - $3,000.00

My only question here is did they have approval of the project engineer to go ahead and spend this extra $3,000 to make a meaningful more detailed comparison. If they did not obtain permission to subcontract to a minority consultant this survey, then it would appear to me that this is not a valid charge against this project. Whenever a contractor undertakes to do an item of work that was not anticipated in its original proposal the contractor is required to obtain the approval of the project officer not only to do the work, but incur the extra cost and indicate at that time what the costs are in addition to those budgeted in the agreement.

Preparation of New Base Map - - $1,296.00

Under this item I raise the same question as under the previous item, did they receive the approval of the project officer to go ahead and prepare a new base map. Did they discuss with the project officer the inadequancy and inaccuracy of the base maps that were available and receive permission to incur this additional expense.

Prolonged Selection of Final Alternative - - $9, 820.00

Under this particular item I think the contractor must show that the two week period allowed for final selection was definitely set out in the proposal and secondly that they advised the committee that they had a two week deadline within which they had to make a final decision. I also feel that it is important that they indicate how much staff time they had budgeted to be spent during the two week period in order to show that the staff time spent over the six week period was greater than the staff time that would have been spent during the two week period had they advised the committee of the deadline. Again, it appears to me that there should have been some contact with the project officer at this particular time indicating that the evaluation was taking longer, more time was being spent on it and that this could possibly overrun the contract.

Extended Review of Draft EIS - - $4,282.00

The same comments apply to this paragraph as the proceeding paragraph and I believe that they should be required to show specifically what additional time was spent. It does appear that there was rather lengthy delay because of DEQ, but I think they should have to show exactly what time was spent that was not contained in the original budget. By showing this I do not mean setting it forth in a letter like this, but I mean an actual breakdown by person, by day of what expenses were incurred over and above those which were budgeted.

Added Earth Metrics Costs Due to Delay - - $2,551.00

This portion of the claim is rather difficult to analyze and it would appear that there is validity for it because of the DEQ delay. I do not know how much they had originally put forth in their budget for this particular type of work and again would want to see actual figures before commenting further.

Added Traffic Projections - - $4,962.00

This is another item that should have been checked out with the project engineer and permission obtained to run the additional projections. The thing that concerns me all the way through this claim, is whether or not permission to do additional work was received from the project officer with the understanding that this could result in additional cost.

Evaluation of Closing Fremont at 7th Avenue - - $1, 567.00

I would question whether project officer approved this additional work. As I understand it, Commissioner McCready merely mentioned this during a meeting and asked if the contractor could do the work and they said certainly. I believe that there was no meeting of the minds that this would be work over and above the terms of the contract and unless the contracting officer was advised of this and gave his approval, I think their claim is invalid.

New Requirements for Cultural and Historic Resources Analysis - - $817.00

This is a rather small item and there is a good possibility that they could have spent the additional work because of a change in the requirements.

Special Report on the Cook-Ivy Couplet Alternative - - $498.00

Again I would want to know who in the City requested a list of the reasons why the Cook-Ivy Couplet alternative should not be included and whether the information was requested by the project officer or someone who did not have authority to make such a request.

Increased Cost Due to Inflation - - $5,744.00

There is no question that the project has been delayed over the schedule set forth in the proposal and these delays certainly did have an impact on the cost of the contractor. I would consider that this particular item probably is a valid claim because of the extended period of completing the contract.

Anticipated Overhead Adjustment - - $4,650.00

This is another increase attributable to the delay in the project and appears to be valid.

Costs Since Draft Delivery - - $2,356.00

This appears to be a rather vague claim and I would like to know what amount they have budgeted to cover the period after the phase three report was in. It would seem to me to be very naive to assume that once the report is there will be no more questions relating to the project.

Unidentified Cost Overrun - - $6,932.00

This item is essentially all that makes up the difference between what they have charged the project and the amount they were authorized to spend. The total overrun is just over $65,000.

In reviewing this claim, it appears to me that there was evidently very little, if any, communication between the project officer or officers and the contractor as regards certain items of work that were done by the contractor. Unless the City or the State can substantiate that the contractor had authorization to go ahead and spend some additional monies, it would appear that certain parts of their claim are invalid. It is clear that they do have some money coming because of the delay in the work which ran them into another year where salaries were higher and costs were higher. It is clear that the delay was caused mostly by the City or the State. The question of whether or not more money for salaries was actually expended because of these delays is another question and one which I think would require much more justification. In some of the claims, unless they can substantiate that the project officer authorized them to spend this additional money and that they gave some indication that this was extra work over and above what they had budgeted for, that they are stuck with it. I think that the contractor has an obligation when a project of this type is being carried out to tell the agency when an item of work is discussed that if they feel that this item of work is over and above what they had anticipated doing when they submitted their proposal I also feel that they are obligated at that time to advise the contracting agency that this is an item of extra work, give them an estimate of the cost of it, and indicate that they will expect that the project authorization be increased by that amount at some appropriate time if the agency approves the work. It appears to me that the contractor was not keeping the state or city abreast of the fact that extra items of work were coming up, that delays were costing them extra money and that they would be submitting a claim. It also appears to me that they were sort of playing with the state and city in early 1976 as they would not specify an amount which they wanted, but merely indicated that they wanted more money and waited until they had completed phase three and then came and went clear back to day one and started building their claim.

JLS:sjb
enclosure

NOTED
R. L. S[illegible]

8909

PRO-6-2

December 9, 1976

Department of Environmental Quality
1234 S.W. Morrison Street
Portland, OR 97205

Gentlemen:

We are submitting an Indirect Source Construction Permit application for the East Fremont Interchange (E. Fremont Bridge Connection to Union Avenue Section) Fremont Avenue, FAU 9914.

In conformance with the Environmental Quality Commission rules for indirect source permits, OAR 340-20-100 through 20-135, we are submitting, (1) a completed application form, (2) a map showing the location of the site, and (3) a description of the proposed and prior use of the site.

Approval of the attached permit for a facility as described in the attachments is requested. We are looking forward to working with you as this project progresses.

Very truly yours,

GINAL SIGNED BY
D. E. SWAN

for L. W. Rulien
Program Management Engineer

DAR:ljt

Enclosure

bc: E. S. Hunter
R. L. Schroeder
G. A. Potter (w/att.)
J. H. Versteeg "
D. E. Swan "

ROBERT W. STRAUB
GOVERNOR

DEPARTMENT OF ENVIRONMENTAL QUALITY

1234 S.W. MORRISON STREET • PORTLAND, ORE. 97205 • Telephone (503) 229- -5696

INDIRECT SOURCE CONSTRUCTION PERMIT APPLICATION

APPLICATION TO:
( ) Construct a New Indirect Source
(X) Modify an Existing Indirect Source

An Indirect Source Construction Permit shall be applied for at least 90 days in advance of the anticipated start of construction. The Department may request additional information within 15 days of receipt of this application. The Department will act to approve or deny a completed application within 60 days after receipt of the completed application.

1. Project Information

Project Name East Fremont Interchange

Address of Project Fremont and Union Avenue (Portland) Oregon
street *city* *state* *zip*

Nature of Business Road Construction (Grading, Paving & Structures)

Estimated Construction Date Not determined No. of Parking Spaces none
(Please include information requested pursuant to OAR 340-20-100 through 20-135)

2. Applicant Information *(Permit will be issued to this person, agency or business)*

Business Name Oregon State Highway Division

Mailing Address Transportation Building, Salem Oregon 97310
Street *city* *state* *zip*

Responsible Person to Contact Gary Potter Title Environmental Manager

Other Person Who May Be Contacted L. W. Rulien Title Program Mgmt. Engineer

Corporation ( ) Partnership ( ) Individual ( ) Government Agency (XX)

3. Consultant Information *(If representing applicant)*

Business Name ________ Phone ________

Mailing Address ________
street *city* *state* *zip*

Responsible Person to Contact ________ Title ________

Other Person Who May be Contacted ________ Title ________

4. Signature of Applicant ________ Date ________

Title ________ Phone ________

DEQ-1

ROBERT W. STRAUB
GOVERNOR

DEPARTMENT OF TRANSPORTATION

STATE HIGHWAY BUILDING • • SALEM, OREGON • • 97310

December 9, 1976

PROJECT NAME: E. Fremont Interchange

HIGHWAY: FAU 9914

COUNTY: Multnomah

URBAN AREA: Portland

TERMINI: Fremont Bridge-Union Avenue

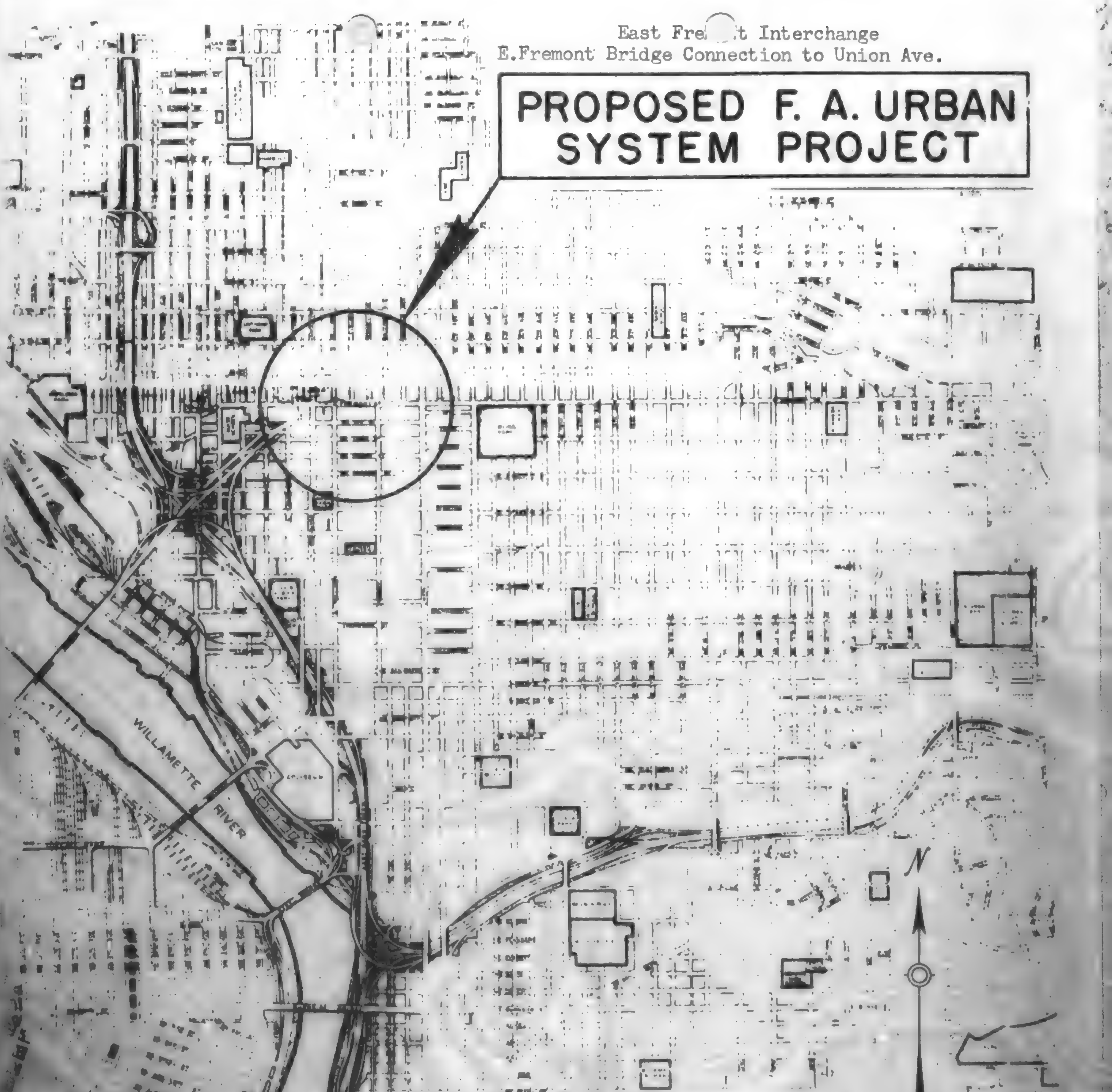
LENGTH: 0.70 mile

TRAFFIC VOLUME: Present ADT 14,000; Projected ADT 23,600

NARRATIVE: The Fremont Boulevard construction alternative is one of several design choices from a no-build to a 0.70 mile construction section involved in connecting the Fremont Bridge to the Portland city streets. In this alternative a connection between the bridge ramps and Union Avenue by way of Fremont Street is used. A direct link between the ramps and Fremont is constructed and Fremont is widened between Gantenbein and 6th Avenue to provide adequate capacity for the projected traffic demand in 1990. A direct connection is also made between the ramps and Kerby Boulevard at Gantenbein.

East Fremont Interchange
E.Fremont Bridge Connection to Union Ave.

PROPOSED F. A. URBAN SYSTEM PROJECT


WILLAMETTE
RIVER
N
PORTLAND, OREGON

~~8909~~ 9914

FORM 81-734-3030

OREGON STATE HIGHWAY DIVISION
INTER-OFFICE CORRESPONDENCE

FILE: INT 5

Portland, OR 97213
December 2, 1976

FROM: ROBERT N. BOTHMAN ebg
Ass't. State Highway Engineer

SUBJECT: City of Portland request for 86-14 per cent federal aid match on FAUS projects

TO: L. W. RULIEN
Project Management Engineer

Attached is a request from the city of Portland for the new federal aid match ratio of 86-14 percent on all ongoing FAUS projects in the city.

This includes all projects underway or for which final estimates have not been concluded. I draw your attention to the Foster/Woodstock couplet as one in that category where the project has not been finalized.

The CRAG Transportation Improvement Program Subcommittee is addressing the issue of all local jurisdictions maximizing the federal aid monies and minimizing the local match by using the 86-14 per cent match.

In the case of the city, they have indicated they wish to proceed on the basis of the 86-14 per cent and will adjust their portion of the TIP accordingly.

It will be necessary, as the other jurisdictions also take this option, that adjustments be made in the TIP to accommodate the larger federal aid portion for projects on the urban system.

Please take the necessary steps to comply with the city's request.

ebg

attachment

Cy: Laux
Hacek

PROJECT MANAGEMENT
DEC -3 '76
REFER TO Prange
FOR

Info	Investigate	R/D	Action	File	Letter	See me
			✓			

Hopkins
Harwell
Holmes ✓
Prange R
Unrein
A

RECEIVED
DEC 6 - 1976
COUNTY
CITY
UNIT

Requires Reply ☐
Requires Approval ☐
Receiver Keep ☐
Do not File ☐
Return To
Bring Up / /
Other

BULK RATE
U. S. POSTAGE
PAID
Portland, Oregon
Permit No. 863

State of Oregon
Highway Commission
State Highway Building
Salem OR 97310

RECEIVED
STATE HWY ENGR
NOV 18 '76
REFER TO
FOR

Info	Inves	R/D	D/R	Sign	Act	File

11-18

NOTED
E. S. HUN

FREMONT BRIDGE ACCESS STUDY
c/o Office of City Engineer
400 S.W. Sixth, Rm. 418
Portland, Oregon 97204

SUMMAR
FREMONT BRID

Fremont Brid
Access Stu

This is a summary of the
on the F
describes and compares four
the use of the ramps on the eas
Fremont Bridge.

11-17-76

NOTED
E. S. HUNTER

NOVEMBER 1976

MARY REPORT
T BRIDGE ACCESS STUDY

[illegible] report
[illegible] for
[illegible] of the

Public Hearing

[illegible] OF CASCADE HALL
[illegible] TY COLLEGE
[illegible] TH
[illegible] Y, DECEMBER 14th, 1976
7:00 P.M.

Representatives of the City will be available to discuss the alternatives and answer [illegible] from 1:00 to

Further Information

If you have questions after reading this summary or want more information, the full report on the Fremont Bridge Access Study is available at the following locations:

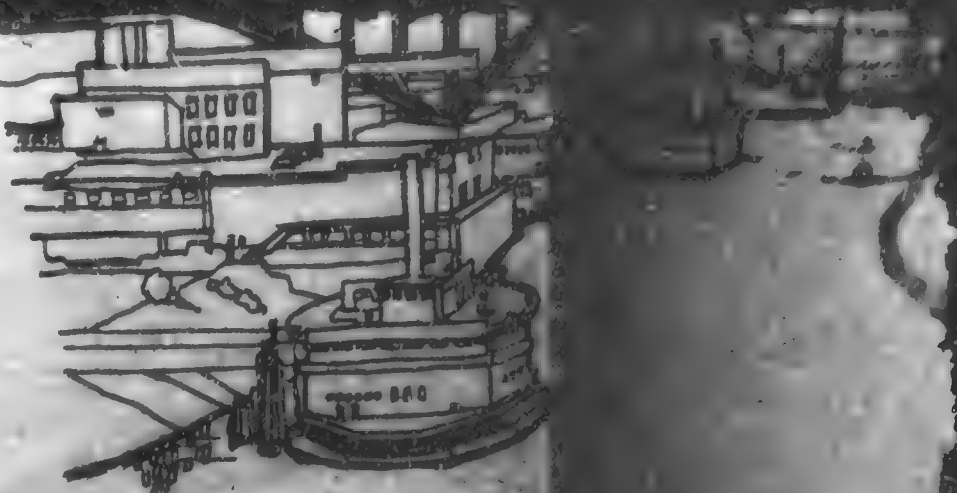
Multnomah County Central Library
810 S.W. 10th Avenue

Albina Branch Library

BULK RATE
U. S. POSTAGE
PAID
Portland, Oregon
Permit No. 653

SUMMARY REP
FREMONT BRIDGE ACCESS

FREMONT BRIDGE ACCESS STUDY
c/o Office of City Engineer
400 S.W. Sixth, Rm. 416
Portland, Oregon 97204



PORT
SS STUDY

Fremont Bridg
Access Study

This is a summary of the consu
on the Fremont Bridge Acc
describes and compares
the use of the ramps on the ea
Fremont Bridge.

The report and this summary w
for the City of Portland, Ore
Highway Division and Federal
Administration by CH2M HILL
Metrics, Inc.

Public Informati
Meeting

KING SCHOOL CAFETORIUM
TUESDAY, NOVEMBER 30th,
7:30 P.M.

Use the entrance next to the Ki
hood Facility at 4815 N.E. 7t
The people who conducted th
Bridge Access Study will descr
findings and answer questions this
meeting so you or your group eady
to express your views at the pu ting.

Publi

AUDITOR

The purpo
give everyo
or her view
for the rec
written sta
or mail it
Engineer,
Oregon 97

Public Hearing

AUDITORIUM OF CASCADE HALL
PORTLAND COMMUNITY COLLEGE
[illegible] KILLINGSWORTH
[illegible], DECEMBER 14th, 1978
7:00 P.M.

Representatives of the City will be available to discuss the alternatives and answer questions in the afternoon from 1:00 to 6:00 P.M., in the auditorium of the North Portland Branch Library at 512 N. Killingsworth. They will also be available in an adjacent classroom while the hearing is under way.

The purpose of the public hearing is to give everyone an opportunity to state his or her views. A transcript will be prepared for the record. If you wish to submit a written statement, bring it to the hearing or mail it to Glen Pierce, Office of City Engineer, 400 S.W. 6th Avenue, Portland, Oregon 97204 by January 3rd, 1976.

Further Information

If you have questions after reading this summary or want more information, the full report on the Fremont Bridge Access Study is available at the following locations:

Multnomah County Central Library
810 S.W. 10th Avenue

Albina Branch Library
3630 N. Vancouver Avenue

North Portland Branch Library
512 N. Killingsworth Street

Hollywood Branch Library
3930 N.E. Hancock Street

Northeast Community Office
King Neighborhood Facility
4815 N.E. 7th Avenue

Community Development Services Office
2416 N. Williams Avenue

Office of City Engineer
400 S.W. 6th Avenue, Rm. 416

Oregon State Highway Division
5821 N.E. Glisan Street

SUMMARY REPORT

FREMONT BRIDGE ACCESS STUDY

Introduction

The Fremont Bridge Access Study deals with the east-end ramps of the Fremont Bridge. These are the ramps that meet with N. Ivy Street near Emanuel Hospital. They were built along with the bridge but never opened for general use.

The study describes four alternatives for connecting the east-end ramps to the city street system and objectively compares them in the form of an Environmental Impact Statement. Its primary purpose is to provide information to help people in deciding which alternative should be adopted.

After the public hearing announced on the front page, the east-end ramps question will be taken up by the board of the Northeast Coalition of Neighborhoods and the Portland Planning Commission for recommendations to the City Council. The council will then hold hearings on the question, at the conclusion of which it is expected to adopt a final solution.

Background

The east-end ramps of the Fremont Bridge were originally designed to connect to the Rose City Freeway, which was planned to run east-west through northeast Portland. Since construction of the ramps, the Rose City Freeway has been eliminated from the regional transportation plan. It will not be built.

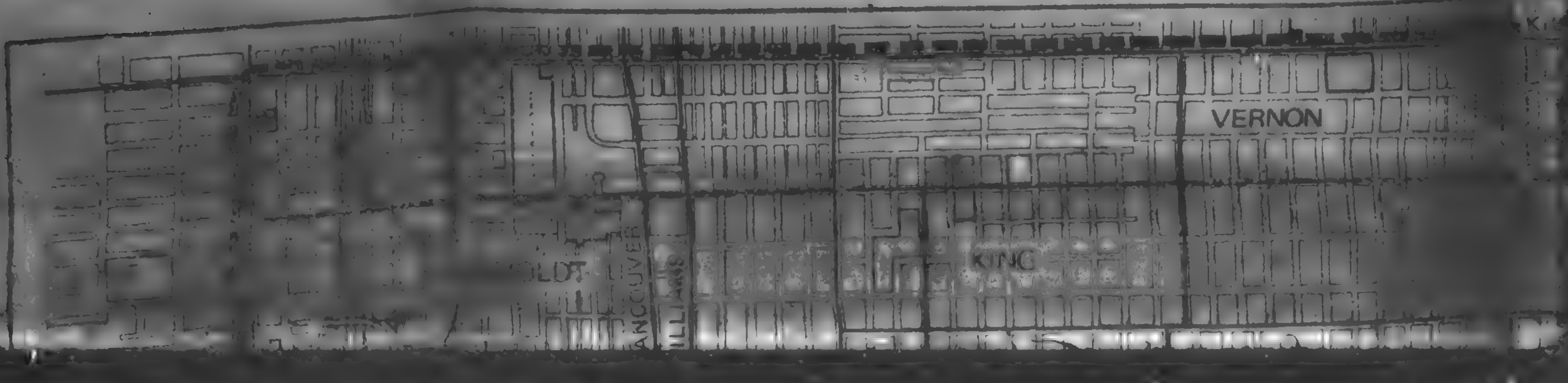
When the Fremont Bridge was built, the east-end ramps were connected to the local streets for use until construction of the Rose City Freeway. A one-way couplet using Fremont and Ivy Street to connect them to Union Avenue was envisioned. However, in response to concern over traffic going to and from the ramps, the east-end ramps were kept closed when the Fremont Bridge was opened in November of 1973.

In early 1974, the Portland City Council called for a study of "a long-range solution linking the bridge ramps to Union Avenue." The Council set the following objectives for the long-range solution:

- Ensure compatibility between the long-range solution and the design of the Union Avenue Redevelopment Program;
- Ensure that traffic to and from the ramps will be encouraged to use Union Avenue rather than Fremont or other east-west streets;
- Ensure that significant additional traffic will not be generated by the solution; and
- Ensure adequate access is provided to Emanuel Hospital, Stanton Yard, and the immediate neighborhood.

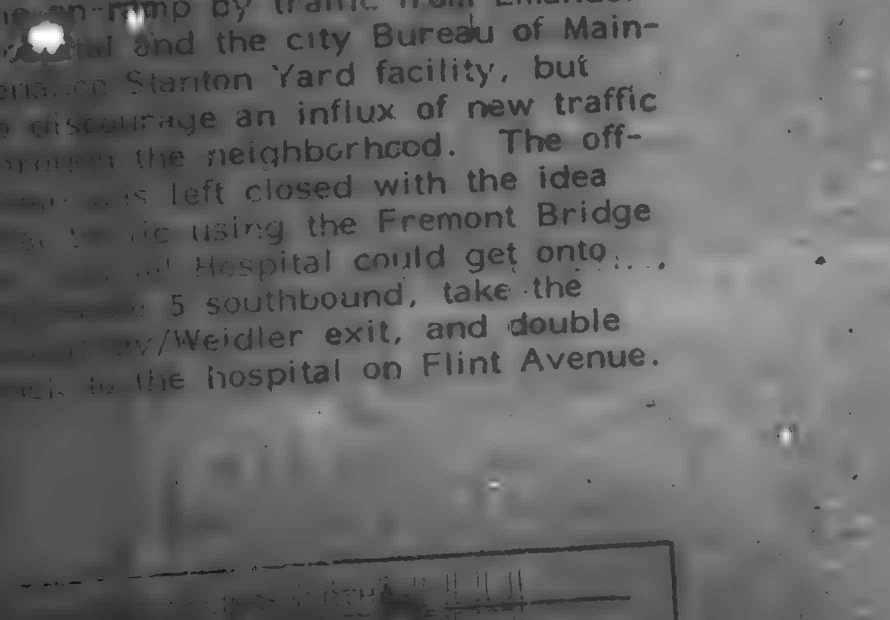
The Fremont
was initiated
In addition to
City Council'
study report
liminary desi
Environmenta
required by
Highway Divi
Highway Adm
agencies are
the study in
City of Portla
mental Impac
amine all rea
for a project
developed du
clude a "No
connects the
Williams and
but not to U

When the Cit
the study of
solutions to
the east-end
ed a plan (t
for use of th
mentation of
tion. Under
the on-ramp
and Kerby B
May of 1975,
mary impact
right turn o
from Cook S
The intentio
the on-ramp
Hospital and
tenance Stan
to discourag
through the
ramp has le
that traffic
to Emanuel
Interstate 5
Broadway/W
back to the



The Fremont Bridge Access Study was initiated in March of 1975. In addition to responding to the City Council's objectives, the study report serves as a preliminary design study and Draft Environmental Impact Statement required by the Oregon State Highway Division and Federal Highway Administration. These agencies are jointly sponsoring the study in conjunction with the City of Portland. Since Environmental Impact Statements must examine all reasonable alternatives for a project, the alternatives developed during the study include a "No Build" and one that connects the east-end ramps to Williams and Vancouver Avenues, but not to Union.

When the City Council called for the study of alternative long-range solutions to the problem of using the east-end ramps, it also approved a plan (the "Interim Solution") for use of the ramps until implementation of the long-range solution. Under the plan, access to the on-ramp from Gantenbein Avenue and Kerby Boulevard was opened in May of 1975, as shown in the Primary Impact Area map, but the right turn onto the ramp connection from Cook Street was prohibited. The intention was to allow use of the on-ramp by traffic from Emanuel Hospital and the city Bureau of Maintenance Stanton Yard facility, but to discourage an influx of new traffic through the neighborhood. The off-ramp was left closed with the idea that traffic using the Fremont Bridge to Emanuel Hospital could get onto Interstate 5 southbound, take the Broadway/Weidler exit, and double back to the hospital on Flint Avenue.



Comparison of Alternatives

	No Build Variations	S
Access	Hospital and Stanton Yard Only variation improves access between the immediate vicinity of Emanuel Hospital and west side parts of Portland.	Improves a Impact Are of Portland small degre diately to Primary Im
Ramp Use	Total Trips in 1990 under Hospital and Stanton Yard Only variation to and from: Emanuel Hospital 2,100(66%) Stanton Yard 300(9%) Immediate Vicinity 800(25%) TOTAL 3,200(100%)	Total Trip Primary Im Rest of St Outside St TO
Traffic Conditions	Major peak-hour congestion west of 7th occurs on Killingsworth, Vancouver north of Broadway, and Broadway/Weidler between Vancouver and 7th. By 1990, congestion on Killingsworth will no longer occur, but other will remain.	Causes pr tions fro By 1990 longer oc relieve co or Broa use of lo product
Air Quality	Maximum 8-hour average carbon monoxide levels (which occur from 5 to 10 times per year) exceed the federal standard (10 mg/m3) at the intersections of Williams, Vancouver, and Union with Fremont. Assuming the current schedule for motor vehicle emission controls, these violations will no longer occur by 1990.	Will cau carbon m the feder section o Assumin for moto trols, th occur by
Noise	Dwelling units in Study Area west of 7th exposed to noise levels above Federal Highway Administration design standard: 1980 1,083 1990 216 Dwelling units in Fremont bridge-Union Avenue corridor exposed to noise levels above the standard by No Build variations: 1980 0 1990 0	[illegible]
Land Use	Hospital and Stanton Yard Only variation will support continued redevelopment at the Emanuel Hospital Urban Renewal Project.	[illegible] Urban
Relocation	None	None
Social Impacts	Ramp use may persist as community issue under Permanent Closure and Limited Bridge Access variations.	

ernatives

Build Variations	Short Cook	Cook–Fremont	Fremont Blvd.
l and Stanton Yard Only n improves access between ediate vicinity of Emanuel l and west side parts of d.	Improves access between Primary Impact Area and west side parts of Portland. Also improves in small degree access to areas immediately to the north and south of Primary Impact Area.	Improves access between Primary Impact Area and west side parts of Portland, but effect reduced by metering. Also improves in small degree access to rest of Study Area.	Improves access between Primary Impact Area and west side parts of Portland. Improves in small degree access to rest of Study Area and to area north.
rips in 1990 under Hos- d Stanton Yard Only h to and from: l Hospital 2,100(66%) n Yard 300(9%) ate Vicinity 800(25%) TOTAL 3,200(100%)	Total Trips in 1990 to or from: Primary Impact Area 6,100(48%) Rest of Study Area 4,900(39%) Outside Study Area 1,700(13%) TOTAL 12,700(100%)	Total Trips in 1990 to or from: Primary Impact Area 5,600(38%) Rest of Study Area 5,100(34%) Outside Study Area 4,200(28%) TOTAL 14,900(100%)	Total Trips in 1990 to or from: Primary Impact Area [illegible],200(26%) Rest of Study Area 8,100(34%) Outside Study Area 9,300(40%) TOTAL 23,800(100%)
eak-hour congestion west occurs on Killingsworth, ver north of Broadway, adway/Weidler between ver and 7th. By 1990, ion on Killingsworth will r occur, but other wis	Causes peak-hour congestion on Williams from Fremont to Skidmore. By 1990 this congestion will no longer occur and effect will be to relieve congestion on Vancouver near Broadway. Potential for traffic use of local streets to avoid controls greatest among alternatives.	Causes peak-hour congestion on Union north of Fremont, but relieves congestion on Killingsworth between I-5 and Union. By 1990, congestion on Union will no longer occur and effect will be to relieve congestion on Vancouver near Broadway.	Causes peak-hour congestion on Williams, Vancouver and Union between Fremont and Skidmore, but relieves congestion on Killingsworth between I-5 and Union and on Vancouver near Broadway. By 1990, congestion on Williams, Vancouver and Union will no longer occur. Effect will be to relieve congestion at the Broadway/Weidler/I-5 interchange.
um 8-hour average carbon ide levels (which occur 10 times per year) ex- federal standard (10 the intersections of ncouver, and Union Assuming the for motor vehi- these violations longer occur by 1990.	Will cause maximum 8-hour average carbon monoxide levels to exceed the federal standard at the intersection of Cook and Vancouver. Assuming the current schedule for motor vehicle emission controls, this violation will no longer occur by 1990.	Will cause maximum 8-hour average carbon monoxide levels to exceed the federal standard between Williams and Vancouver from Cook to Fremont and along Fremont to Union. Assuming the current schedule for motor vehicle emission controls, these violations will no longer occur by 1990.	Will cause maximum 8-hour average carbon monoxide levels to exceed the federal standard along the ramps, the connection to Fremont, and along Fremont to Union. Assuming the current schedule for motor vehicle emission controls, these violations will no longer occur by 1990.
g units in Study Area west exposed to noise levels ederal Highway Adminis- design standard: 1980 1,083 1990 216 e units in Fremont Bridge- Avenue corridor exposed e levels above the standard Build variations: 1980 [illegible] 1990 0	Dwelling units exposed to noise levels above standard: 1980 1,062 1990 197 Dwelling units in corridor exposed to noise levels above standard by Short Cook alt.: 1980 1 1990 0	Dwelling units exposed to noise levels above standard: 1980 1,069 1990 229 Dwelling units in corridor exposed to noise levels above standard by Cook-Fremont alt.: 1980 1 1990 40	Dwelling units exposed to noise levels above standard: 1980 1,103 1990 241 Dwelling units in corridor exposed to noise levels above standard by Fremont Blvd. alt.: 1980 19 1990 46
l and Stanton Yard Only on will support continued lopment at the Emanuel tal Urban Renewal Project.	Will support continued redevelopment at the Emanuel Hospital Urban Renewal Project.	Will support continued redevelopment at the Emanuel Hospital Urban Renewal Project and along Union.	Will support continued redevelopment at the Emanuel Hospital Urban Renewal Project and along Union. The effect on Union will be greater than under the Cook-Fremont alt.
	None	McDonald's (restaurant at Fremont and Union)	Forty people in 17 households (removes 20 houses including 3 that are vacant), McDonald's (restaurant at Fremont and Union), Albina Legal Clinic (Fremont and Union), House of Style (hair styling at Fremont and Union), Foxes Den (clothing at Fremont and Union), Ray Fleming, Inc. (auto parts at Fremont and Williams), Immanuel Free Methodist Church (on Ivy between Commercial and Gantenbein).
[illegible]	Until volumes decline in the 1980's, increased traffic will adversely affect residential quality of Williams and Vancouver north of Fremont.	Until volumes decline in the 1980's, increased traffic will adversely affect residential quality of Williams and Vancouver north of Fremont, but less than under Short Cook and Fremont Blvd. alternatives. Will also adversely affect residential quality of Fremont west of Union; the visual quality of the street will be lowest among build alternatives.	Until volumes decline in the 1980's, increased traffic will adversely affect residential quality of Williams and Vancouver north of Fremont; this effect will be greatest among the alternatives. Adverse effect on the residential quality of Fremont will also be greatest among the alternatives, but mitigated by relocation and visual improvements. Traffic flow will discourage pedestrian movement across Fremont.
[illegible]	Will benefit the Emanuel Hospital Urban Renewal Project and Eliot, Boise, and Humboldt neighbor- Net effect on business	Will benefit Emanuel Hospital Urban Renewal Project and Eliot, Boise, and Humboldt neighborhoods, and Union Ave. Net	Will benefit Emanuel Hospital Urban Renewal Project and Eliot, Boise and Humboldt neighborhoods, and Union Ave. Effect on

the city street system and objectively compares them in the form of an Environmental Impact Statement. Its primary purpose is to provide information to help people in deciding which alternative should be adopted.

After the public hearing announced on the front page, the east-end ramps question will be taken up by the board of the Northeast Coalition of Neighborhoods and the Portland Planning Commission for recommendations to the City Council. The council will then hold hearings on the question, at the conclusion of which it is expected to adopt a final solution.

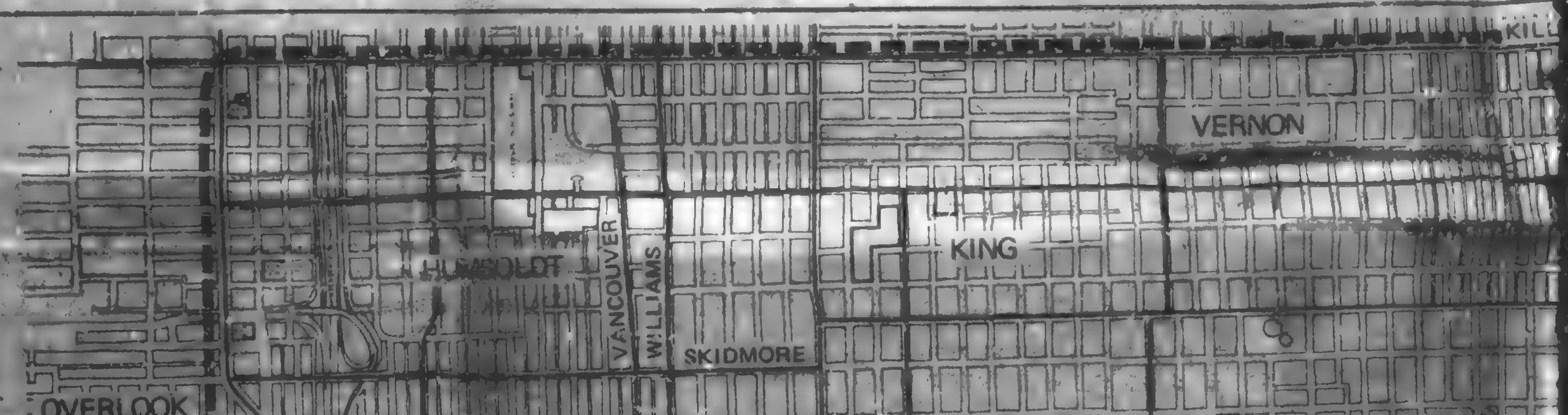
Background

The east-end ramps of the Fremont

ves for the long-ra

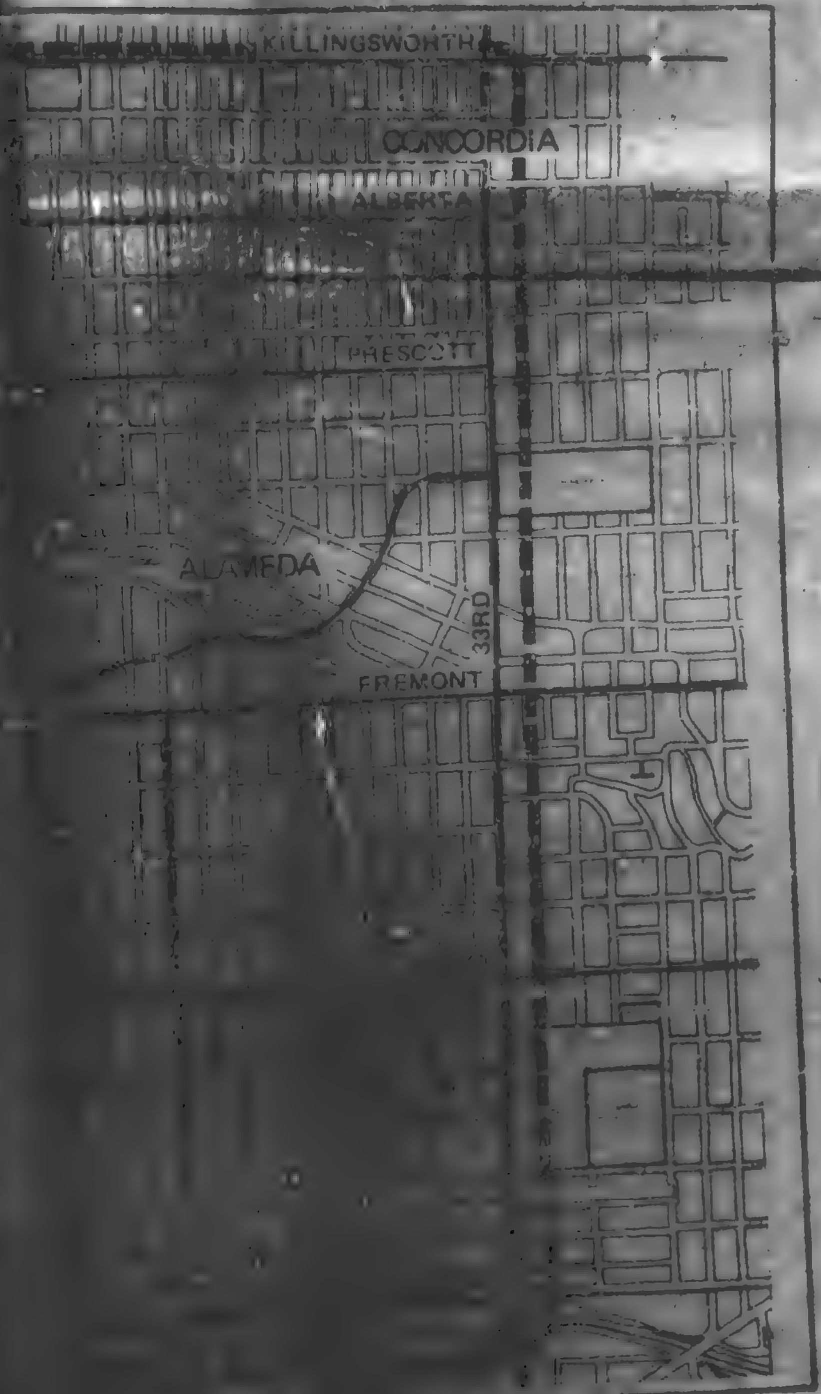
- Ensure compatibility between the long-range solution and the design of the Union Avenue Redevelopment Program;
- Ensure that traffic to and from the ramps will be encouraged to use Union Avenue rather than Fremont or other east-west streets;
- Ensure that significant additional traffic will not be generated by the solution; and
- Ensure adequate access is provided to Emanuel Hospital, Stanton Yard, and the immediate neighborhood.

se of th
mentation of th
tion. Under
the on-ramp
and Kerby Bo
May of 197
mary Impact A
right turn ont
from Cook Str
The intention
the on-ramp b
Hospital and t
tenance Stant
to discourage
through the n
ramp was left
that traffic u
to Emanuel H
Interstate 5 s
Broadway/We
back to the h


KILL
VERNON
KING
HUMBOLDT
VANCOUVER
WILLIAMS
SKIDMORE
OVERLOOK
SABIN
ALAMEDA
GREELEY
INTERSTATE
MISSISSIPPI
BOISE
UNION
7TH
15TH
PRIMARY IMPACT AREA
ELIOT
RUSSELL
IRVINGTON
21ST
STUDY AREA
WEIDLER

STUDY AREA

mentation of the long-range solution. Under the plan, access to the on-ramp from Gantenbein Avenue and Kerby Boulevard was opened in May of 1975, as shown in the Primary Impact Area map, but the right turn onto the ramp connection from Cook Street was prohibited. The intention was to allow use of the on-ramp by traffic from Emanuel Hospital and the city Bureau of Maintenance Stanton Yard facility, but to discourage an influx of new traffic through the neighborhood. The off-ramp was left closed with the idea that traffic using the Fremont Bridge to Emanuel Hospital could get onto Interstate 5 southbound, take the Broadway/Weidler exit, and double back to the hospital on Flint Avenue.



	will no longer occur by 1980.	
Noise	Dwelling units in Study Area west of 7th exposed to noise levels above Federal Highway Administration design standard: 1980 1,063 1990 216 Dwelling units in Fremont Bridge-Union Avenue corridor exposed to noise levels above the standard by No Build variations: 1980 0 1990 0	
Land Use	Hospital and Stanton Yard Only variation will support continued redevelopment at the Emanuel Hospital Urban Renewal Project.	
Relocation	None	None
Social Impacts	Ramp use may persist as community issue under Permanent Closure and Limited Bridge Access variations.	
Economic Impacts	Hospital and Stanton Yard Only variation will benefit Emanuel Hospital Urban Renewal Project.	
Construction Impacts	Ramp Removal expected to take 5 mo. and will have a greater air quality and noise impact than other No Build variations. Hospital and Stanton Yard only variation will take 4 months. Permanent Closure and Limited Bridge Access variations will take 1 month.	
Project Costs	Ramp Removal $284,000 Permanent Closure 15,000 Limited Bridge Access 15,000 Hospital and Stanton Yard Only $186,000	
Cost-Benefit Comparison	Net Costs equal Project Costs	

...these violations ...nger occur by 1990.		violations [illegible] 1990.	
...units in Study Area most ...posed to noise levels ...deral Highway Admini- ...sign standard: 1980 1,083 1990 216 ...g units in Fremont Bridge- ...venue corridor exposed ...levels above the standard ...build variations: 1980 0 1990 0	Dwelling units exposed to noise levels above standard: 1980 1,062 1990 187 Dwelling units in corridor exposed to noise levels above standard by Short Cook alt.: 1980 1 1990 0	Dwelling units exposed to noise levels above standard: 1980 1,069 1990 229 Dwelling units in corridor exposed to noise levels above standard by Cook-Fremont alt.: 1980 1 1990 40	Dwelling units exposed to noise levels above standard: 1980 1,103 1990 241 Dwelling units in corridor exposed to noise levels above standard by Fremont Blvd. alt.: 1980 19 1990 46
...al and Stanton Yard Only ...will support continued ...opment at the Emanuel ...l Urban Renewal Project.	Will support continued redevelopment at the Emanuel Hospital Urban Renewal Project.	Will support continued redevelopment at the Emanuel Hospital Urban Renewal Project and along Union.	Will support continued redevelopment at the Emanuel Hospital Urban Renewal Project and along Union. The effect on Union will be greater than under the Cook-Fremont alt.
	None	McDonald's (restaurant at Fremont and Union)	Forty people in 17 households (removes 20 houses including 3 that are vacant), McDonald's (restaurant at Fremont and Union), Albina Legal Clinic (Fremont and Union), House of Style (hair styling at Fremont and Union), Foxes Den (clothing at Fremont and Union), Ray Fleming, Inc. (auto parts at Fremont and Williams), Immanuel Free Methodist Church (on Ivy between Commercial and Gantenbein)
...p use may persist as com- ...ty issue under Permanent ...re and Limited Bridge...	Until volumes decline in the 1980's, increased traffic will adversely affect residential quality of Williams and Vancouver north of Fremont.	Until volumes decline in the 1980's, increased traffic will adversely affect residential quality of Williams and Vancouver north of Fremont, but less than under Short Cook and Fremont Blvd. alternatives. Will also adversely affect residential quality of Fremont west of Union; the visual quality of the street will be lowest among build alternatives.	Until volumes decline in the 1980's, increased traffic will adversely affect residential quality of Williams and Vancouver north of Fremont; this effect will be greatest among the alternatives. Adverse effect on the residential quality of Fremont will also be greatest among the alternatives, but mitigated by relocation and visual improvements. Traffic flow will discourage pedestrian movement across Fremont.
...and Stanton Yard Only [illegible] benefit Emanuel ...ital Urban Renewal Project.	Will benefit the Emanuel Hospital Urban Renewal Project and Eliot, Boise, and Humboldt neighborhoods. Net effect on business sales and payrolls in Study Area will be negative.	Will benefit Emanuel Hospital Urban Renewal Project and Eliot, Boise, and Humboldt neighborhoods, and Union Ave. Net effect on business sales and payrolls in Study Area will be negative and greatest among the build alternatives.	Will benefit Emanuel Hospital Urban Renewal Project and Eliot, Boise and Humboldt neighborhoods, and Union Ave. Effect on Union will be greatest among build alternatives. Net effect on business sales and payrolls in Study Area will be negative but smallest among the build alternatives.
...Removal expected to take 5 [illegible] will have a greater air [illegible] than other [illegible] and Stanton Yard [illegible]	Construction expected to take 10 months. Potential for traffic congestion on Fremont and restrictions to property access greater than under Fremont Blvd. alternative.	Construction expected to take 12 months. Potential for traffic congestion on Fremont and restrictions to property access similar to Short Cook alternative.	Construction expected to take 14 months. Traffic congestion on Fremont and restrictions to property access less than Short Cook and Cook-Fremont alternatives.
[illegible] 15,000 [illegible] $195,000	Engineering and Contingencies $ 441,600 Property Acquisition 2,300 Construction 1,104,000 TOTAL $ 1,548,000	Engineering and Contingencies $ 549,200 Property Acquisition and Relocation 69,900 Construction 1,373,000 TOTAL $1,992,000	Engineering and Contingencies $ 646,000 Property Acquisition and Relocation 535,200 Construction 1,466,000 TOTAL $2,646,000
...Project Costs	Total Benefits $ 8,157,000 / Total Costs $11,299,000 = .72 Net Costs = $3,147,000	Total Benefits $12,136,000 / Total Costs $21,041,000 = .58 Net Costs = $8,905,000	Total Benefits $10,906,000 / Total Costs $10,908,000 = 1.00 Net Costs = $2,000

Please route the attached to the following in the order listed:

1. H. S. Coulter

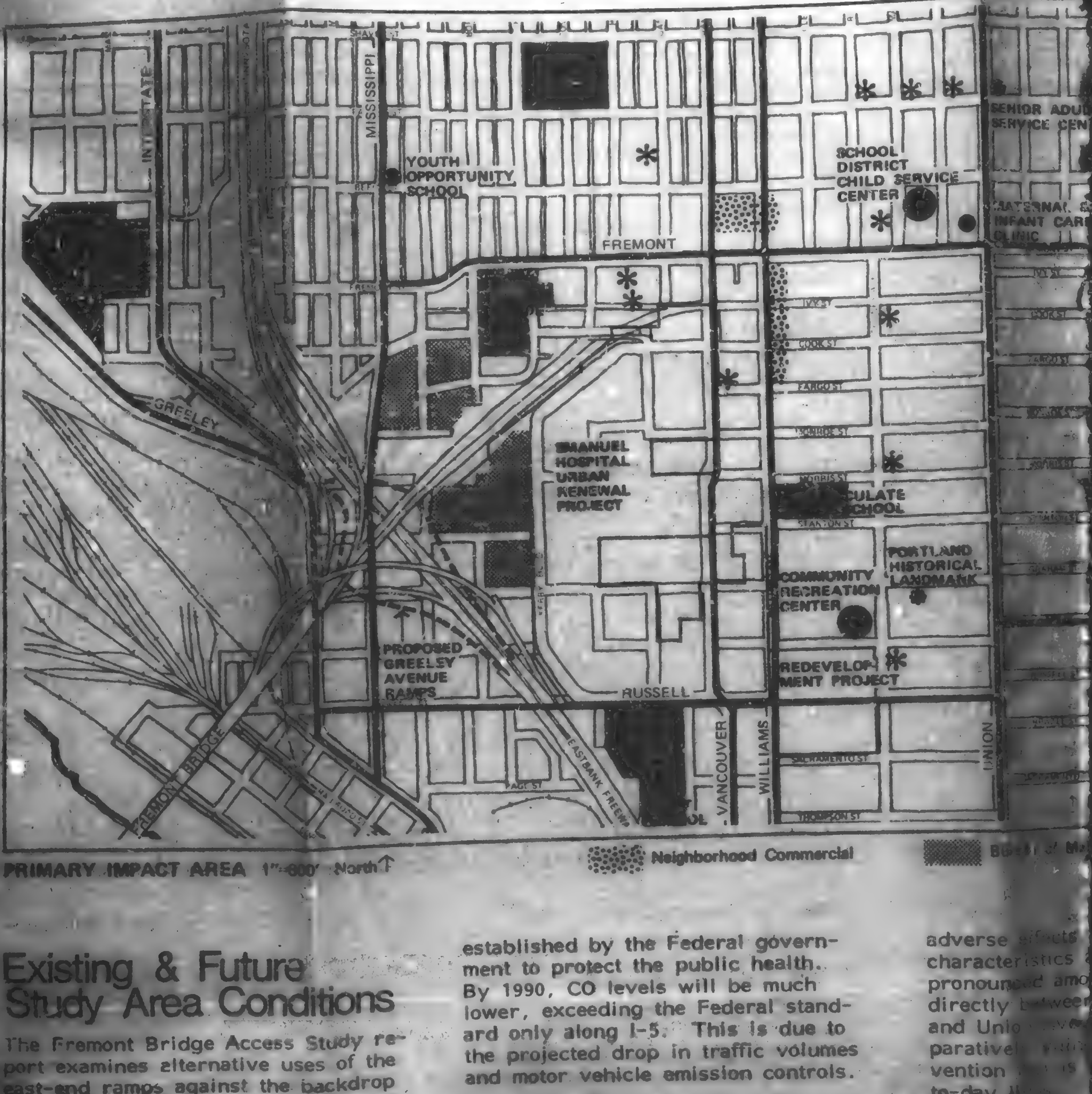
2. ~~[illegible]~~

3. ~~R. [illegible]er~~

4. ______________

5. ______________

6. General Files


SHAVER ST
MISSISSIPPI
INTERSTATE
YOUTH OPPORTUNITY SCHOOL
SCHOOL DISTRICT CHILD SERVICE CENTER
SENIOR ADU
SERVICE CEN
MATERNAL &
INFANT CAR
CLINIC
FREMONT
IVY ST
COOK ST
FARGO ST
MONROE ST
MORRIS ST
STANTON ST
GREELEY
EMANUEL HOSPITAL URBAN RENEWAL PROJECT
CULATE
SCHOOL
PORTLAND HISTORICAL LANDMARK
COMMUNITY RECREATION CENTER
PROPOSED GREELEY AVENUE RAMPS
REDEVELOPMENT PROJECT
RUSSELL
FREMONT BRIDGE
EASTBANK FREEWAY
PAGE ST
SACRAMENTO ST
THOMPSON ST
VANCOUVER
WILLIAMS
UNION
Neighborhood Commercial

PRIMARY IMPACT AREA 1"=800' North↑

Existing & Future Study Area Conditions

The Fremont Bridge Access Study report examines alternative uses of the east-end ramps against the backdrop of existing and expected future conditions in the Study Area. Some key observations made in the report are as follows:

Traffic and Transportation. Traffic in general is projected to increase slightly by 1980, but to decline by 1990 owing largely to a projected increase in the proportion of trips using public transit. Major congestion occurs on some streets today and will worsen by 1980. By 1990, the decline in traffic will eliminate much of the congestion, but some streets will continue to be affected.

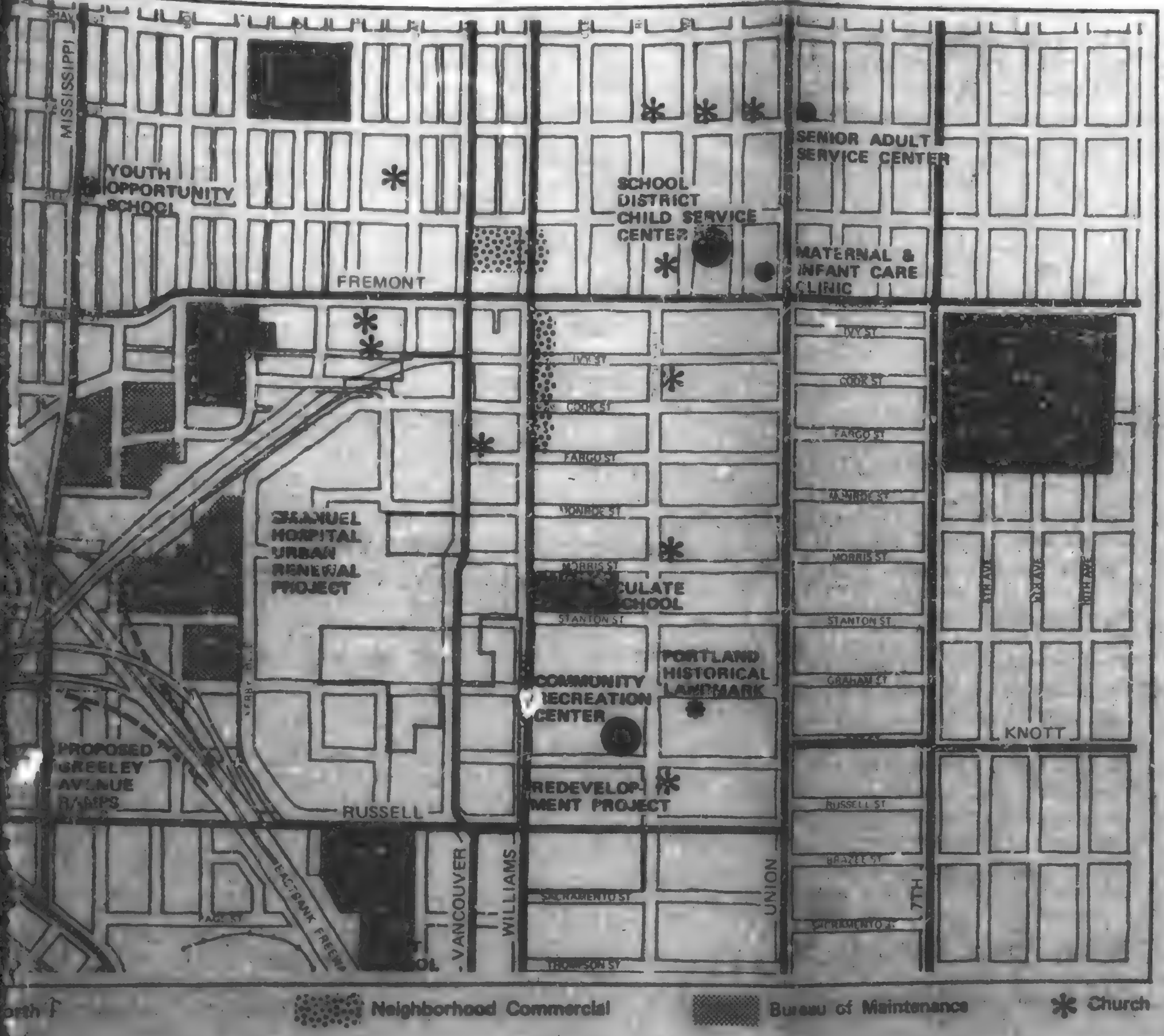
established by the Federal government to protect the public health. By 1990, CO levels will be much lower, exceeding the Federal standard only along I-5. This is due to the projected drop in traffic volumes and motor vehicle emission controls.

Noise. Noise levels along major traffic streets are high relative to Federal and local standards. Noise levels will be lower by 1990 due to lower traffic volumes and to legislation mandating quieter trucks and cars. Nevertheless, there will still be many areas near major traffic streets with high noise levels.

Land Use. Land use is mixed along Union Avenue and in Eliot neighborhood, and both remain physically and economically depressed. The city's Union Avenue Redevelopment Program

adverse effects
characteristics
pronounced amo
directly between
and Unio
parative
vention
to-day

Econom
western
main d
in econ
rest of
if the U
Plan is
ties suc
the Ema
Project
with ex
employm
area's


MISSISSIPPI
YOUTH OPPORTUNITY SCHOOL
SCHOOL DISTRICT CHILD SERVICE CENTER
SENIOR ADULT SERVICE CENTER
MATERNAL & INFANT CARE CLINIC
FREMONT
IVY ST
COOK ST
FARGO ST
MONROE ST
MORRIS ST
STANTON ST
GRAHAM ST
EMANUEL HOSPITAL URBAN RENEWAL PROJECT
IMMACULATE SCHOOL
PORTLAND HISTORICAL LANDMARK
COMMUNITY RECREATION CENTER
REDEVELOPMENT PROJECT
PROPOSED GREELEY AVENUE RAMPS
RUSSELL
RUSSELL ST
KNOTT
BRAZEE ST
SACRAMENTO ST
THOMPSON ST
EASTBANK FREEWAY
VANCOUVER
WILLIAMS
UNION
7TH
North
Neighborhood Commercial
Bureau of Maintenance
Church

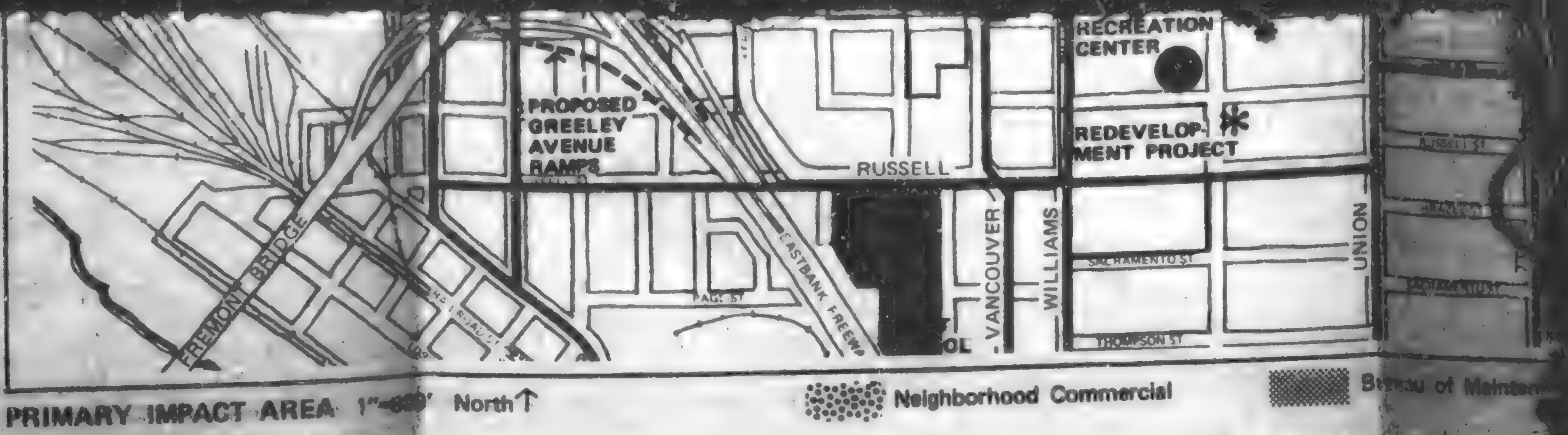
established by the Federal government to protect the public health. By 1990, CO levels will be much lower, exceeding the Federal standard only along I-5. This is due to the projected drop in traffic volumes and motor vehicle emission controls.

Noise. Noise levels along major traffic streets are high relative to Federal and local standards. Noise levels will be lower by 1990 due to lower traffic volumes and to legislation mandating quieter trucks and cars. Nevertheless, there will still be many areas near major traffic streets with high noise levels.

Land Use. Land use is mixed along Union Avenue and in Eliot neighborhood, and both remain physically and economically depressed. The city's Union Avenue Redevelopment Program [illegible] private investment

adverse effects of inflation. These characteristics are generally more pronounced among people living directly between the east-end ramps and Union Avenue, making them comparatively vulnerable to public intervention that is disruptive of their day-to-day lives.

Economics. The prospects for the western half of the Study Area remain dim. A significant improvement in economic conditions relative to the rest of the city will be achieved only if the Union Avenue Redevelopment Plan is successful and other possibilities such as continued progress at the Emanuel Hospital Urban Renewal Project are realized in conjunction with expanded programs to increase employment and incomes among the area's residents.



Existing & Future Study Area Conditions

The Fremont Bridge Access Study report examines alternative uses of the east-end ramps against the backdrop of existing and expected future conditions in the Study Area. Some key observations made in the report are as follows:

Traffic and Transportation. Traffic in general is projected to increase slightly by 1980, but to decline by 1990 owing largely to a projected increase in the proportion of trips using public transit. Major congestion occurs on some streets today and will worsen by 1980. By 1990, the decline in traffic will eliminate much of the congestion, but some streets will continue to be affected. These are Broadway and Weidler near I-5, Killingsworth east of 15th, and 33rd Avenue. Only I-5 and Fremont Street are projected to carry more traffic in 1990 than in 1980. Fremont will carry more traffic because it is a direct route between the west end of the Study Area and 82nd Avenue.

The transportation [illegible] Portland metropolitan [illegible] envision significant [illegible] Study Area, although [illegible] improvements in public [illegible] planned. However, Portland's [illegible] Streets Program may [illegible] changes in street usage [illegible] improvements along Union [illegible] as part of the [illegible] Avenue Redevelopment [illegible]

Air Quality. Carbon [illegible] concentrations in [illegible] major traffic streets frequently [illegible] levels established by the Federal government to protect the public health. By 1990, CO levels will be much lower, exceeding the Federal standard only along I-5. This is due to the projected drop in traffic volumes and motor vehicle emission controls.

Noise. Noise levels along major traffic streets are high relative to Federal and local standards. Noise levels will be lower by 1990 due to lower traffic volumes and to legislation mandating quieter trucks and cars. Nevertheless, there will still be many areas near major traffic streets with high noise levels.

Land Use. Land use is mixed along Union Avenue and in Eliot neighborhood, and both remain physically and economically depressed. The city's Union Avenue Redevelopment Program seeks to promote private investment in new commercial, industrial, and residential development. Current planning policy for Eliot neighborhood is to redevelop much of it for residential use. About 20 acres of undeveloped land remains near the ramps in the Emanuel Hospital Urban Renewal Project.

Social. Over one-half the black population of the city of Portland lives within a mile or so of the east-end of the Fremont Bridge. In comparison to the residents of the rest of the Study Area, the people living in the neighborhoods containing the Primary Impact Area include a higher proportion of blacks (69 percent versus 32 percent), have a higher unemployment rate (15 percent versus 9 percent in the summer of 1975), include more people receiving public assistance (31 percent versus 9 percent), and are more subject to the adverse effects of

characteristics are

pronounced among

directly between the

and Union Avenue,

paratively vulnerab

vention that is dist

to-day lives.

Economic[illegible] The p

western [illegible] of the

main di[illegible]

in econo[illegible]

rest of t[illegible] wi

if the U[illegible]

Plan [illegible]

ties such as contin

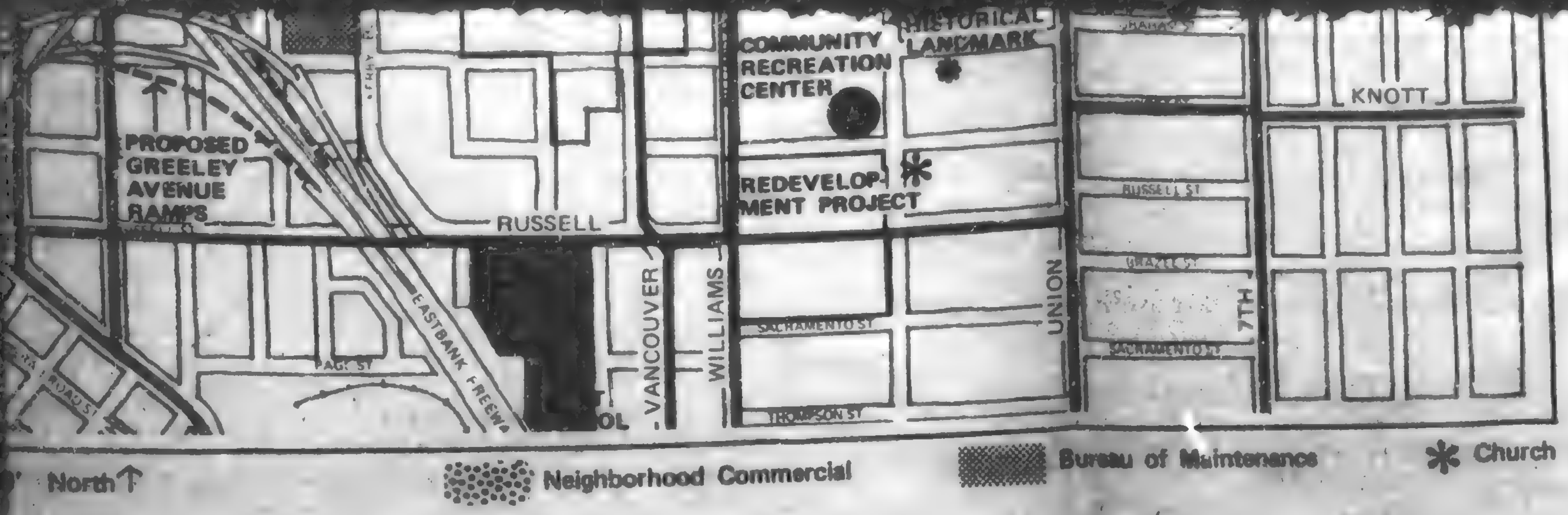
the Eman[illegible]

Project [illegible]

with ex[illegible]

employm[illegible]

area's r


HISTORICAL LANDMARK
COMMUNITY RECREATION CENTER
KNOTT
PROPOSED GREELEY AVENUE RAMPS
RUSSELL
REDEVELOPMENT PROJECT
RUSSELL ST
VANCOUVER
WILLIAMS
UNION
7TH
SACRAMENTO ST
EASTBANK FREEWAY
PAGE ST
THOMPSON ST
North ↑
Neighborhood Commercial
Bureau of Maintenance
Church

ditions

Study re-
es of the
ackdrop
re condi-
ne key
ort are

Traffic
rease
ne by

today
1990,
ted.
15th,
nd
carry
c be-
a and

Port-
en-
rove-
ned.
enue

con-
or traf-
levels

established by the Federal government to protect the public health. By 1990, CO levels will be much lower, exceeding the Federal standard only along I-5. This is due to the projected drop in traffic volumes and motor vehicle emission controls.

Noise. Noise levels along major traffic streets are high relative to Federal and local standards. Noise levels will be lower by 1990 due to lower traffic volumes and to legislation mandating quieter trucks and cars. Nevertheless, there will still be many areas near major traffic streets with high noise levels.

Land Use. Land use is mixed along Union Avenue and in Eliot neighborhood, and both remain physically and economically depressed. The city's Union Avenue Redevelopment Program seeks to promote private investment in new commercial, industrial, and residential development. Current planning policy for Eliot neighborhood is to redevelop much of it for residential use. About 20 acres of undeveloped land remains near the ramps in the Emanuel Hospital Urban Renewal Project.

Social. Over one-half the black population of the city of Portland lives within a mile or so of the east-end of the Fremont Bridge. In comparison to the residents of the rest of the Study Area, the people living in the neighborhoods containing the Primary Impact Area include a higher proportion of blacks (69 percent versus 32 percent), have a higher unemployment rate (15 percent versus 9 percent in the summer of 1975), include more people receiving public assistance (31 percent versus 9 percent), and are more subject to the adverse effects of inflation. These characteristics are generally more pronounced among people living directly between the east-end ramps and Union Avenue, making them comparatively vulnerable to public intervention that is disruptive of their day-to-day lives.

Economics. The prospects for the western half of the Study Area remain dim. A significant improvement in economic conditions relative to the rest of the city will be achieved only if the Union Avenue Redevelopment Plan is successful and other possibilities such as continued progress at the Emanuel Hospital Urban Renewal Project are realized in conjunction with expanded programs to increase employment and incomes among the area's residents.

Description of Alternatives

THE NO BUILD ALTERNATIVE

There are four variations of the No Build alternative, as shown in the figures at the right.

Ramp Removal Variation

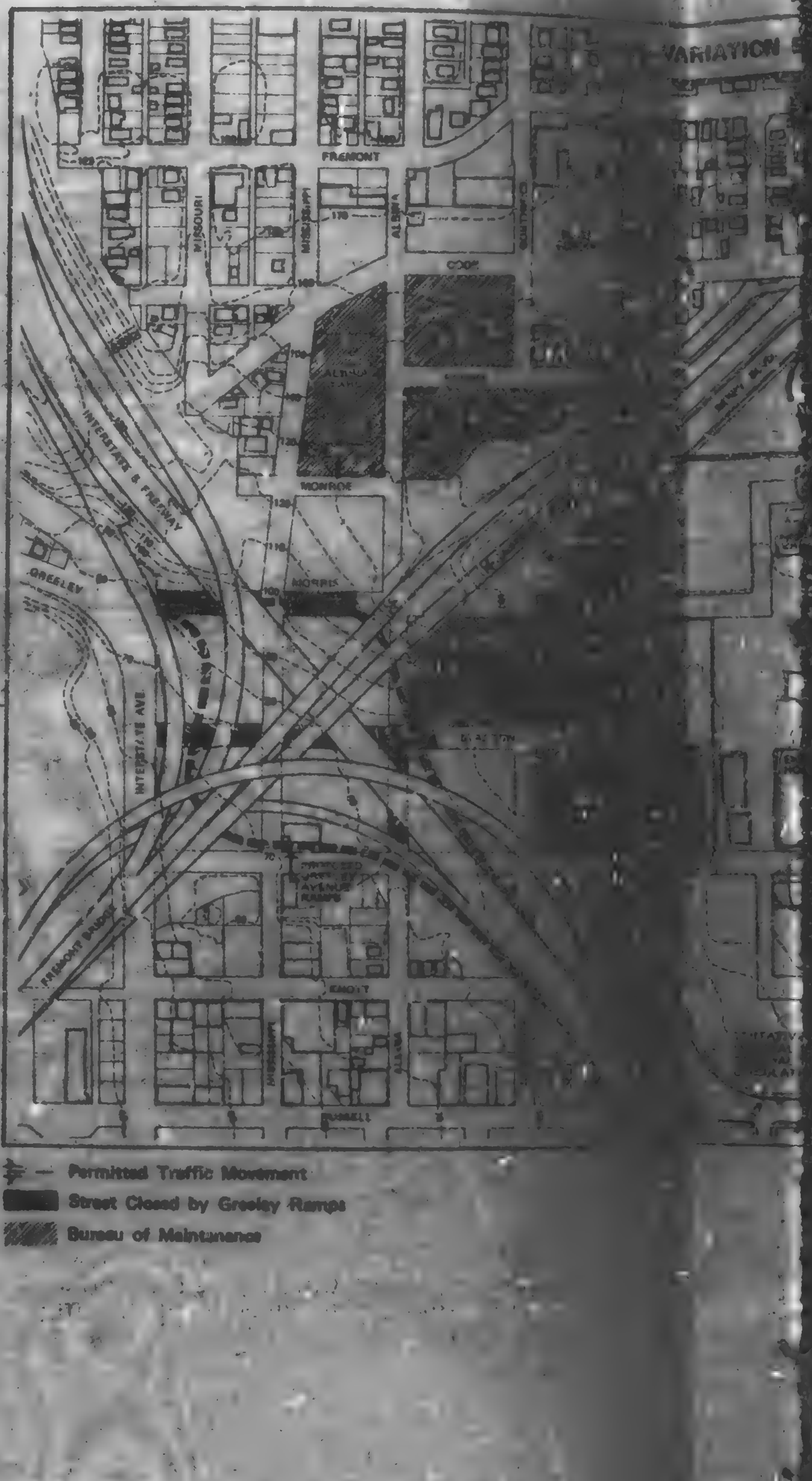
The portion of the east-end ramps built on ground fill will be removed and the land will be made available for other uses. If warranted, part of the ramp structures can also be removed, but because of the cost it is unlikely that removal would extend beyond where the ramps cross over Interstate 5. Redevelopment opportunities are discussed in the report.

Permanent Closure Variation

The ramps will be permanently closed to general traffic. The ends of the ramps will be barricaded and the area landscaped to minimize the visual intrusion of the ramps. The existing connection between the on-ramp and Cook Street at Gantenbein Avenue could be modified to allow use of the ramps by emergency v[illegible] (primarily ambulances to [illegible] Hospital), or by [illegible] tra[illegible]icles, or access for these vehi[illegible] [illegible] be provided where the ram[illegible] [illegible] Ivy Street. Access at either loca[illegible] [illegible] have to be controlled, pos[illegible] [illegible] vehicle-operated barriers. [illegible] the off-ramp from the bri[illegible] [illegible] have to be similarly controlled.

Limited [illegible]

This variation makes permanent the [illegible] in effect. The [illegible] coming [illegible] d north-[illegible] [illegible] e, thus al-[illegible] bound [illegible] [illegible] to the City Bureau of [illegible] access [illegible] Yard and


VARIATION
FREMONT
MISSOURI
MISSISSIPPI
ALBINA
COOK
MONROE
GREELEY
INTERSTATE & FREEWAY
INTERSTATE AVE.
FREMONT BRIDGE
KNOTT
RUSSELL
Permitted Traffic Movement
Street Closed by Greeley Ramps
Bureau of Maintanance

NO BUILD VARIA[illegible]

FREMONT
IVY

ATIVE

ns of the No
hown in the

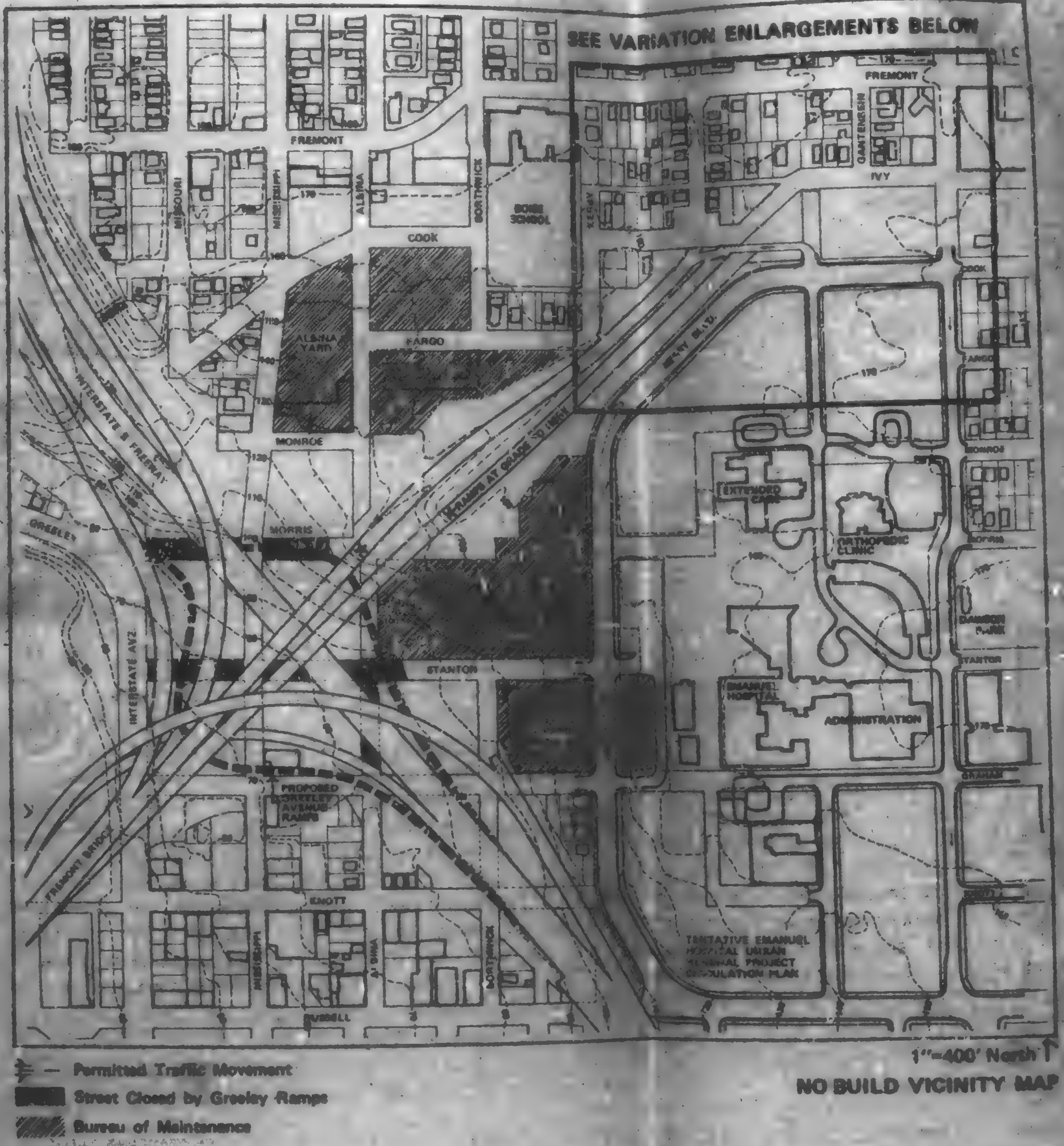
-end ramps
be removed
ade available
ranted, part
can also be
of the cost it
would extend
s cross over
pment oppor-
n the report.

n

manently closed
e ends [illegible] the
ed and the area
the visual in-
The [illegible]
on-ramp and
ein [illegible]
low [illegible] the
el[illegible]
Em[illegible] pi-
nsi[illegible]s, or
es [illegible] pro-
[illegible] street.
on [illegible] ve
b[illegible] cle-
c[illegible] -off-
w[illegible] to

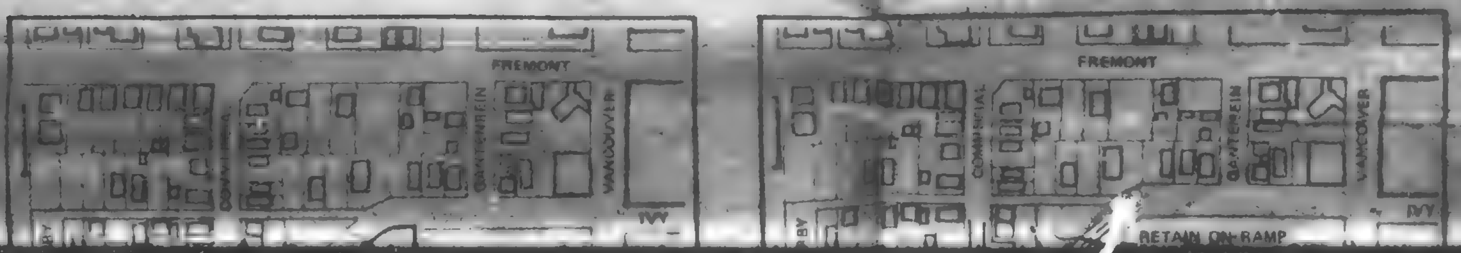
The

north-
thus als


SEE VARIATION ENLARGEMENTS BELOW
FREMONT
IVY
GANTENBEIN
COOK
FARGO
MONROE
MORRIS
STANTON
GRAHAM
KNOTT
RUSSELL
MISSOURI
MISSISSIPPI
ALBINA
BORTHWICK
VANCOUVER
BOISE SCHOOL
ALBINA YARD
INTERSTATE 5 FREEWAY
INTERSTATE AVE.
GREELEY
FREMONT BRIDGE
PROPOSED GREELEY AVENUE RAMPS
RAMPS AT GRADE TO UNION
UNION BLVD.
EXTENDED CARE
ORTHOPEDIC CLINIC
EMANUEL HOSPITAL
ADMINISTRATION
DAWSON PARK
TENTATIVE EMANUEL HOSPITAL URBAN RENEWAL PROJECT CIRCULATION PLAN
1"=400' North
Permitted Traffic Movement
Street Closed by Greeley Ramps
Bureau of Maintenance

NO BUILD VICINITY MAP

NO BUILD VARIATIONS


FREMONT
GANTENBEIN
VANCOUVER
IVY
FREMONT
GANTENBEIN
VANCOUVER
IVY
RETAIN ON-RAMP

will be removed and the land will be made available for other uses. If warranted, part of the ramp structures can also be removed, but because of the cost it is unlikely that removal would extend beyond where the ramps cross over Interstate 5. Redevelopment opportunities are discussed in the report.

Permanent Closure Variation

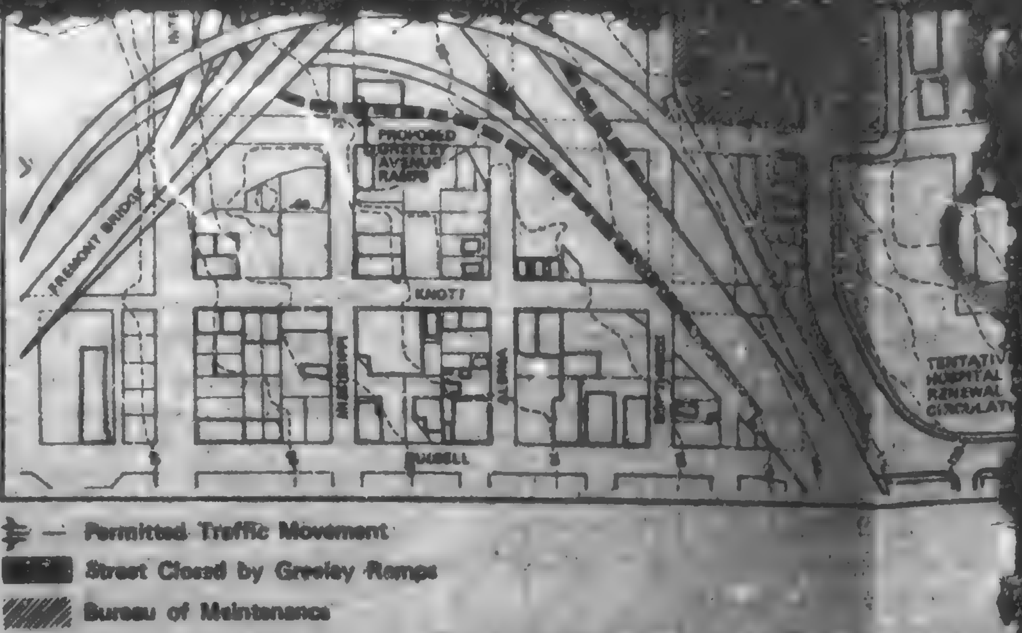
The ramps will be permanently closed to general traffic. The ends of the ramps will be barricaded and the area landscaped to minimize the visual intrusion of the ramps. The existing connection between the on-ramp and Cook Street at Gantenbein Avenue could be modified to allow use of the ramps by emergency vehicles (primarily ambulances to Emanuel Hospital), or by public transit vehicles, or access for these vehicles could be provided where the ramps meet Ivy Street. Access at either location would have to be controlled, possibly by vehicle-operated barriers. Access to the off-ramp from the bridge would have to be similarly controlled.

Limited Bridge Access Variation

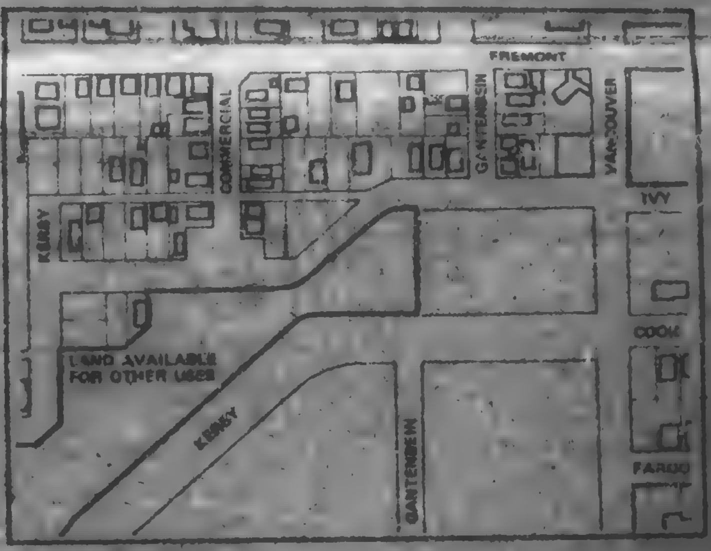
This variation makes permanent the "interim solution" now in effect. The on-ramp is open to traffic coming from either Kerby Boulevard northbound or Gantenbein Avenue, thus allowing access to the City Bureau of Maintenance's Stanton Yard and Emanuel Hospital. The right turn from Kerby Boulevard is prohibited. Some reconstruction and landscaping would be undertaken to improve the appearance of the ramp ends at Ivy Street. The existing connector between the on-ramp and Kerby Boulevard could be modified to allow emergency vehicle and/or future public transit use of the off-ramp.

Hospital & Stanton Yard Access Only Variation

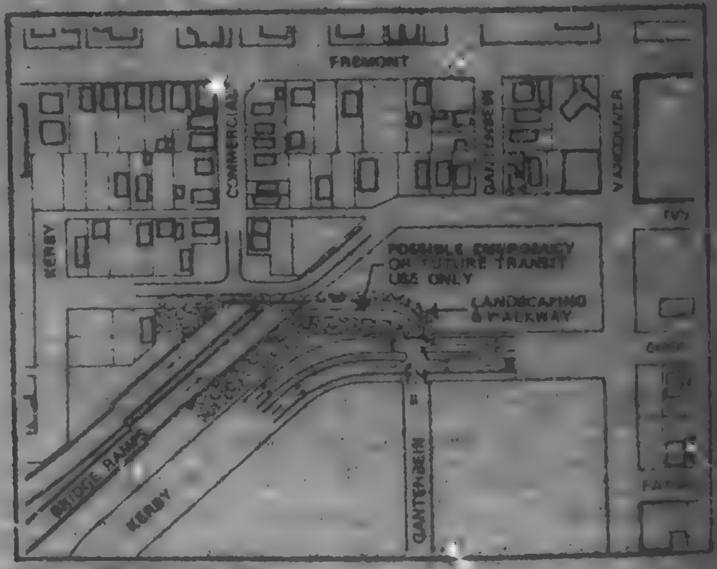
This variation connects both bridge ramps to Gantenbein Avenue where it enters the Emanuel Hospital Urban Renewal Project area and to Kerby Boulevard s[illegible] Gantenbein. As with [illegible] variations allowing u[illegible] on-ramp, the right turn [illegible] Street is prohibited. [illegible] of the ramps would be [illegible] for Stanton Yard and [illegible]ospital, but not for areas outside the immediate vicinity.


FREMONT BRIDGE
PROPOSED GREELEY AVENUE RAMPS
KNOTT
RUSSELL
TENTATIVE HOSPITAL RENEWAL CIRCULATI
⇶ — Permitted Traffic Movement
■ Street Closed by Greeley Ramps
▨ Bureau of Maintenance

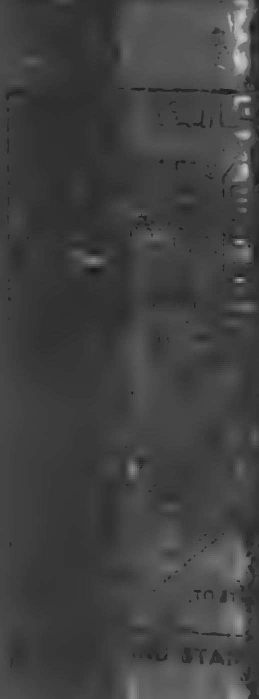
NO BUILD VARIATIONS


FREMONT
COMMERCIAL
GANTENBEIN
VANCOUVER
IVY
KERBY
COOK
LAND AVAILABLE FOR OTHER USES
KERBY
GANTENBEIN
FARGO

RAMP REMOVAL

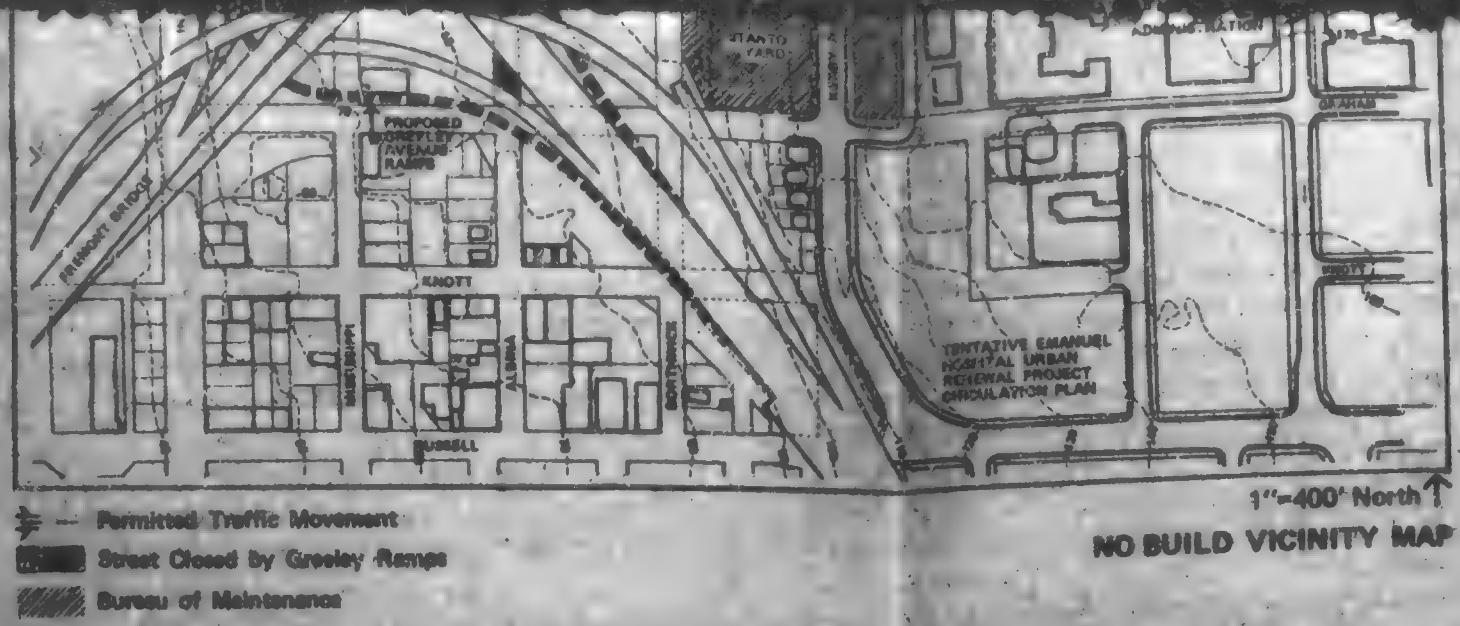

FREMONT
COMMERCIAL
GANTENBEIN
VANCOUVER
KERBY
IVY
POSSIBLE EMERGENCY OR FUTURE TRANSIT USE ONLY
LANDSCAPING & WALKWAY
BRIDGE RAMPS
KERBY
GANTENBEIN

PERMANENT CLOSURE



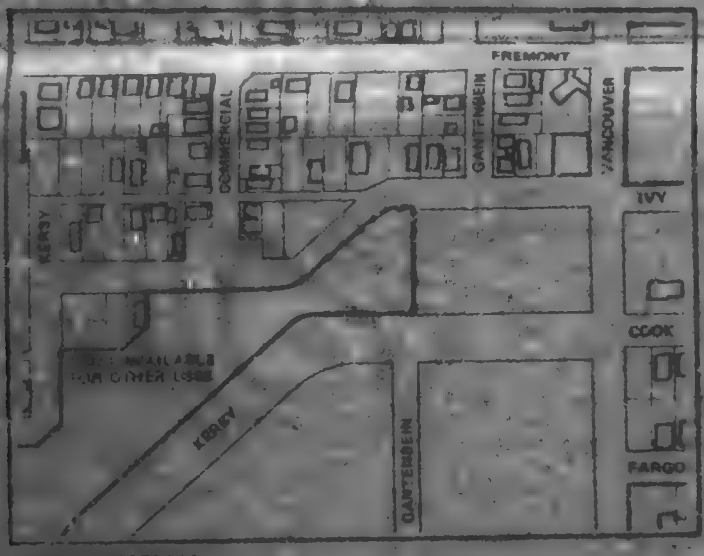
ble
art
be
st it
extend
over
ppor-
port.

closed
the
he area
al in-
sting
and
ue
of the
pri-
ospi-
les, or
be pro-
y Street.
have
vehicle-
e off-
to

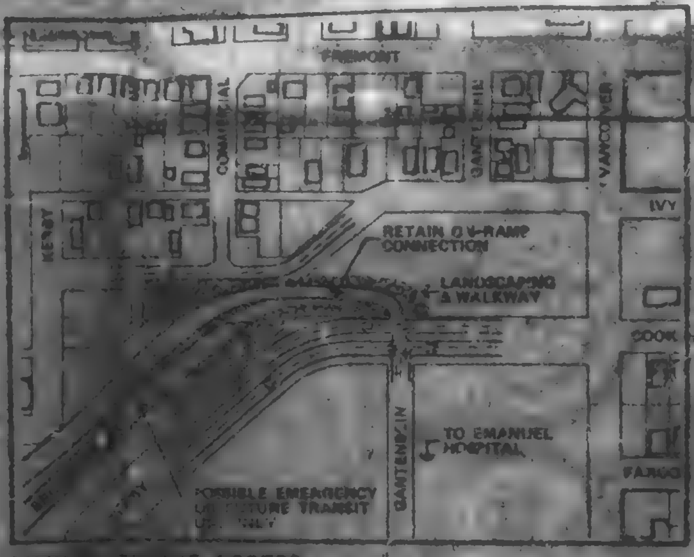

STANTON YARD
ADMINISTRATION
PROPOSED GREELEY AVENUE RAMPS
FREMONT BRIDGE
KERBY
KNOTT
MISSISSIPPI
ALBINA
RUSSELL
TENTATIVE EMANUEL HOSPITAL URBAN RENEWAL PROJECT CIRCULATION PLAN
1"=400' North
Permitted Traffic Movement
Street Closed by Greeley Ramps
Bureau of Maintenance

NO BUILD VICINITY MAP

NO BUILD VARIATIONS


FREMONT
COMMERCIAL
GANTENBEIN
VANCOUVER
IVY
KERBY
COOK
FARGO
AVAILABLE FOR OTHER USES

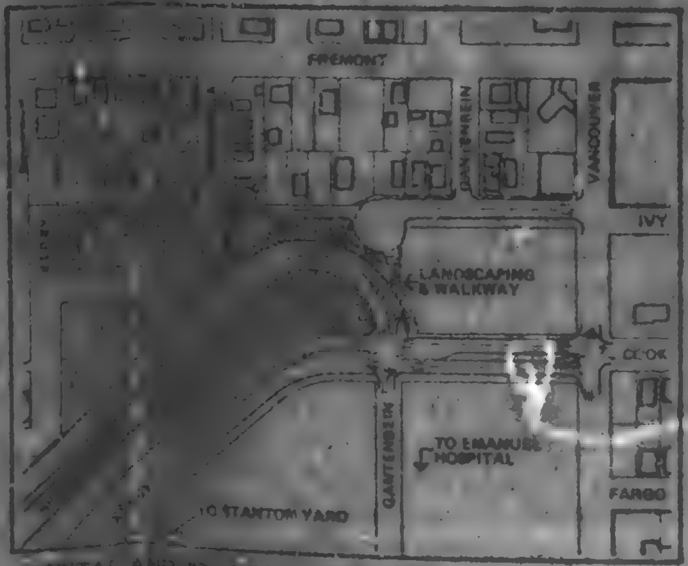
RAMP REMOVAL


FREMONT
COMMERCIAL
GANTENBEIN
VANCOUVER
IVY
KERBY
RETAIN ON-RAMP CONNECTION
LANDSCAPING & WALKWAY
COOK
TO EMANUEL HOSPITAL
POSSIBLE EMERGENCY
FARGO

LIMIT... IDGE ACCESS

FREMONT
VANCOUVER
IVY
POSSIBLE EMERGENCY
LANDSCAPING & WALKWAY
COOK
GANTENBEIN
FARGO

...T CLOSURE


FREMONT
GANTENBEIN
VANCOUVER
IVY
LANDSCAPING & WALKWAY
COOK
TO EMANUEL HOSPITAL
TO STANTON YARD
FARGO

HOSPITAL AND STANTON YARD ONLY

SHORT COOK ALTERNATIVE

This alternative connects the bridge ramps to Williams and Vancouver Avenues for general traffic use. It also allows direct access between the ramps and Kerby Boulevard and Gantenbein Avenue (Emanuel Hospital). Direct access between the ramps and Williams and Vancouver Avenues is allowed, but direct access between the ramps and Fremont Street to the east is not. Traffic using the off-ramp to Williams Avenue is prohibited from turning from Williams onto Fremont. Traffic turning from Fremont onto Vancouver is prohibited from turning onto Cook Street to reach the on-ramp.

Turning movement restrictions between Fremont, Williams, Vancouver and Cook Street to prevent direct access between Fremont and the bridge ramps are accomplished by prohibiting lane changes on Williams and Vancouver between Cook and Fremont Streets. This will be done primarily by dividing the lanes with a raised median strip.

Some traffic will try to avoid these controls by using side streets. Short Cook and the other build alternatives rely on street improvements proposed as part of the Union Avenue Redevelopment program to discourage this. These are shown in the figure on page 8. They include the closure of Ivy Street at its intersection with Union on the east side, the closure of Cook, Fargo, and Monroe Streets at Union on the west side, and a median strip on Union. The median will have to be unbroken at intersections north of Fremont at least to Shaver Street.

The Short Cook alternative includes several additional measures to discourage use of side streets. These are also shown on page 8. Fargo will be closed at its intersection with Williams Avenue and the left turn from Beech to Vancouver will be prohibited to discourage movement from Fremont westbound to the ramps. Likewise, Fargo will be made one-way westbound between Williams and Vancouver and a traffic diverter built at the intersection of Beech and Cleveland Avenue to discourage movement from the ramps to Fremont eastbound.

two traffic lanes in each direction, increasing the street's carrying capacity without expanding the right-of-way. This is made possible by restricting traffic going to and from the bridge ramps. The traffic signals at the intersections of the ramp connection with Kerby Boulevard and Gantenbein will be timed to limit or "meter" the amount of traffic passing through the intersections to and from the ramps. Traffic signals will be timed to avoid congestion on Fremont and to moderate other adverse effects of traffic flow through the area.

The design of the intersection at Fremont and Union Avenue under this alternative discourages traffic flow between the bridge ramps and Fremont east of Union. All turning movements at the intersection will be unrestricted, but flow across Union on Fremont will be limited to one lane in each direction and metered by timing the signals to limit total flow. The purpose is to "ensure that traffic to and from the ramps will be encouraged to use Union Avenue rather than Fremont or other east-west streets," as directed by the City Council.

As in the case of the Short Cook alternative, satisfactory operation of the Cook-Fremont alternative relies on implementing street improvements

vide ade
jected tr
direct co
tween th
at Ganter

As shown
group of
Free Met
tween th
be acqui
will all
on the n
and 6th
parts sto
the build
of Fremo
Donald's

As with
native, t
section o
nue will
tween the
east of U
traffic co
should re
Union on
limited t
and will
nals. St
by the
design.
alternati
metering
control
mont eas
the use

idge
r Ave-
also
e ramps
nbein
rect
Wil-
s al-
en the
e east
amp to
rom
nont.
nto
rning
n-ramp.

oe-
uver
ect ac-
bridge
hibiting
Vancou-
Streets.
divid-
dian

hese
Short
natives
roposed
edevel-
this.
on
sure
with
osure
treets
d a med-
an will
ections
haver

ludes
dis-
These
rgo
an with
urn
be pro-
from
s.
one-
s and
ove-
east-

two traffic lanes in each direction, increasing the street's carrying capacity without expanding the right-of-way. This is made possible by restricting traffic going to and from the bridge ramps. The traffic signals at the intersections of the ramp connection with Kerby Boulevard and Gantenbein will be timed to limit or "meter" the amount of traffic passing through the intersections to and from the ramps. Traffic signals will be timed to avoid congestion on Fremont and to moderate other adverse effects of traffic flow through the area.

The design of the intersection at Fremont and Union Avenue under this alternative discourages traffic flow between the bridge ramps and Fremont east of Union. All turning movements at the intersection will be unrestricted, but flow across Union on Fremont will be limited to one lane in each direction and metered by timing the signals to limit total flow. The purpose is to "ensure that traffic to and from the ramps will be encouraged to use Union Avenue rather than Fremont or other east-west streets," as directed by the City Council.

As in the case of the Short Cook alternative, satisfactory operation of the Cook-Fremont alternative relies

vide adequate capacity for the projected traffic demand in 1990. A direct connection is also made between the ramps and Kerby Boulevard at Gantenbein.

As shown on the following page, a group of houses and the Immanuel Free Methodist Church located between the ramps and Fremont will be acquired for right-of-way, as will all dwellings adjoining Fremont on the north side between Williams and 6th Avenue, the Ray Fleming auto parts store at Williams and Fremont, the building on the northwest corner of Fremont and Union, and the McDonald's restaurant across Union.

As with the Cook-Fremont alternative, the design of the intersection of Fremont and Union Avenue will discourage traffic flow between the bridge ramps and Fremont east of Union. Under projected 1990 traffic conditions, turning movements should remain easy. Flow across Union on Fremont, however, will be limited to one lane in each direction and will be metered by traffic signals. Storage for vehicles delayed by the metering is included in the design. As with the Cook-Fremont alternative, the purpose of traffic metering at Union and Fremont is to control the amount of traffic on Fremont east of Union and to encourage

This will be done primarily [illegible] ing the lanes with a raised median strip.

Some traffic will try to avoid these controls by using side streets. Short Cook and the other build alternatives rely on street improvements proposed as part of the Union Avenue Redevelopment program to discourage this. These are shown in the figure on page 8. They include the closure of Ivy Street at its intersection with Union on the east side, the closure of Cook, Fargo, and Monroe Streets at Union on the west side, and a median strip on Union. The median will have to be unbroken at intersections north of Fremont at least to Shaver Street.

The Short Cook alternative includes several additional measures to discourage use of side streets. These are also shown on page 8. Fargo will be closed at its intersection with Williams Avenue and the left turn from Beech to Vancouver will be prohibited to discourage movement from Fremont westbound to the ramps. Likewise, Fargo will be made one-way westbound between Williams and Vancouver and a traffic diverter built at the intersection of Beech and Cleveland Avenue to discourage movement from the ramps to Fremont eastbound.

Street improvements will be made to Fremont between Williams and Union to accommodate expected traffic volumes. The improvements are entirely within the existing right-of-way and consist primarily of left turn lanes at Union.

COOK-FREMONT ALTERNATIVE

This alternative will provide a connection between the bridge ramps and Union Avenue via the Williams-Vancouver couplet and Fremont Street. As shown in the Street Improvements figure on the following page, direct connections are also provided to Kerby Boulevard and the Emanuel Hospital Urban Renewal Project by way of Gantenbein Avenue.

Key aspects of this alternative are the changes to Fremont Street between Vancouver and Union Avenue and traffic metering. Parking is restricted along Fremont to allow [illegible] traffic lanes in [illegible] increasing the street's carrying capacity without expanding the right-of-way. This is made possible by restricting traffic going to and from the bridge ramps. The traffic signals at the intersections of the ramp connection with Kerby Boulevard and Gantenbein will be timed to limit or "meter" the amount of traffic passing through the intersections to and from the ramps. Traffic signals will be timed to avoid congestion on Fremont and to moderate other adverse effects of traffic flow through the area.

The design of the intersection at Fremont and Union Avenue under this alternative discourages traffic flow between the bridge ramps and Fremont east of Union. All turning movements at the intersection will be unrestricted, but flow across Union on Fremont will be limited to one lane in each direction and metered by timing the signals to limit total flow. The purpose is to "ensure that traffic to and from the ramps will be encouraged to use Union Avenue rather than Fremont or other east-west streets," as directed by the City Council.

As in the case of the Short Cook alternative, satisfactory operation of the Cook-Fremont alternative relies on implementing street improvements proposed under the Union Avenue Redevelopment Plan. These improvements will serve to discourage use of side streets to circumvent the metering at Union Avenue. As shown on page 8, a traffic diverter will be placed at the intersection of Grand Avenue and Beech Street for the same purpose.

The McDonald's restaurant at the corner of Union and Fremont will be acquired for right-of-way. No other improved properties will be acquired and property acquisition as a whole will be limited.

FREMONT BOULEVARD ALTERNATIVE

This alternative provides a connection between the bridge ramps and Union Avenue by way of Fremont Street. A direct link between the ramps and Fremont is constructed and Fremont is widened between Gantenbein and 6th Avenue to pro-

jected tr
direct co
tween th
at Ganter

As show
group of
Free Met
tween th
be acqui
will all
on the n
and 6th
parts sto
the build
of Fremo
Donald's

As with
native,
section o
nue will
tween th
east of U
traffic co
should r
Union on
limited to
and will
nals. S
by the n
design
alternati
metering
control
mont eas
the use o

Measure
using s
controls
the Cook
mont Bo
rier alon
nection b
to reduce

two traffic lanes in each direction, increasing the street's carrying capacity without expanding the right-of-way. This is made possible by restricting traffic going to and from the bridge ramps. The traffic signals at the intersections of the ramp connection with Kerby Boulevard and Gantenbein will be timed to limit or "meter" the amount of traffic passing through the intersections to and from the ramps. Traffic signals will be timed to avoid congestion on Fremont and to moderate other adverse effects of traffic flow through the area.

The design of the intersection at Fremont and Union Avenue under this alternative discourages traffic flow between the bridge ramps and Fremont east of Union. All turning movements at the intersection will be unrestricted, but flow across Union on Fremont will be limited to one lane in each direction and metered by timing the signals to limit total flow. The purpose is to "ensure that traffic to and from the ramps will be encouraged to use Union Avenue rather than Fremont or other east-west streets," as directed by the City Council.

As in the case of the Short Cook alternative, satisfactory operation of the Cook-Fremont alternative relies on implementing street improvements proposed under the Union Avenue Redevelopment Plan. These improvements will serve to discourage use of side streets to circumvent the metering at Union Avenue. As shown on page 8, a traffic diverter will be placed at the intersection of Grand Avenue and Beech Street for the same purpose.

The McDonald's restaurant at the corner of Union and Fremont will be acquired for right-of-way. No other improved properties will be acquired and property acquisition as a whole will be limited.

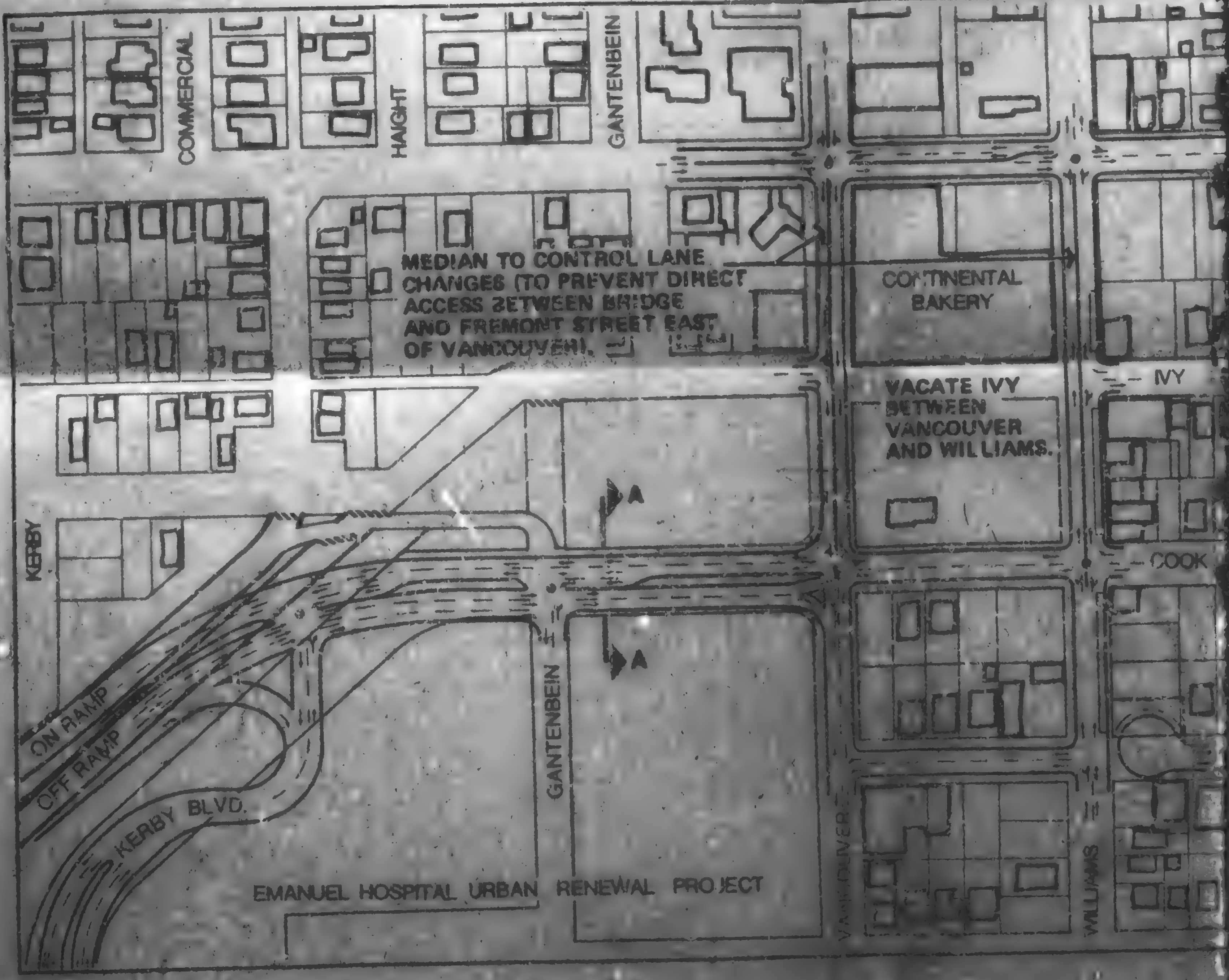
FREMONT BOULEVARD ALTERNATIVE

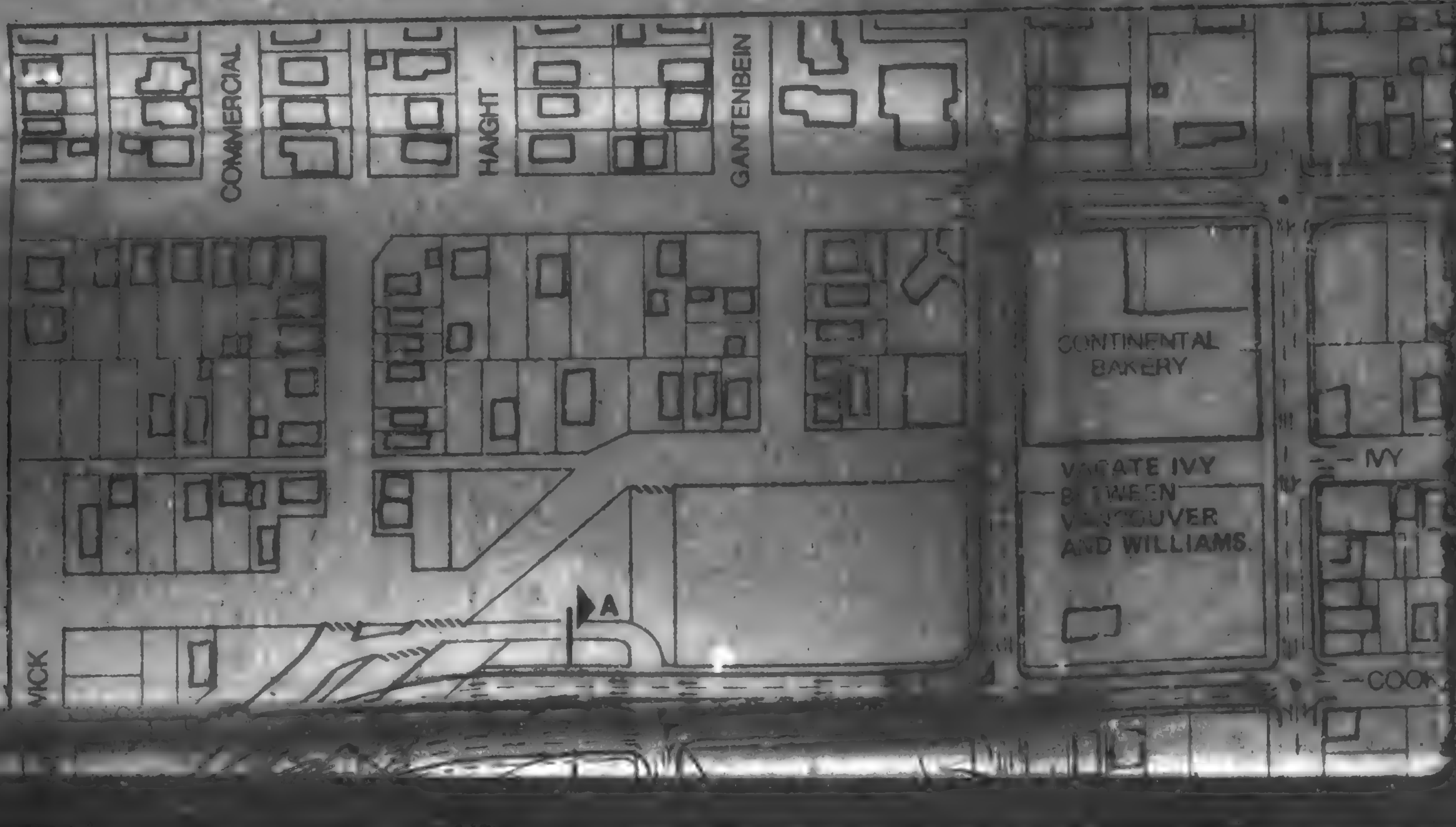
This alternative provides a connection between the bridge ramps and Union Avenue by way of Fremont Street. A direct link between the ramps and Fremont is constructed and Fremont is widened between Gantenbein and 6th Avenue to provide adequate capacity for the projected traffic demand in 1990. A direct connection is also made between the ramps and Kerby Boulevard at Gantenbein.

As shown on the following page, a group of houses and the Immanuel Free Methodist Church located between the ramps and Fremont will be acquired for right-of-way, as will all dwellings adjoining Fremont on the north side between Williams and 6th Avenue, the Ray Fleming auto parts store at Williams and Fremont, the building on the northwest corner of Fremont and Union, and the McDonald's restaurant across Union.

As with the Cook-Fremont alternative, the design of the intersection of Fremont and Union Avenue will discourage traffic flow between the bridge ramps and Fremont east of Union. Under projected 1990 traffic conditions, turning movements should remain easy. Flow across Union on Fremont, however, will be limited to one lane in each direction and will be metered by traffic signals. Storage for vehicles delayed by the metering is included in the design. As with the Cook-Fremont alternative, the purpose of traffic metering at Union and Fremont is to control the amount of traffic on Fremont east of Union and to encourage the use of Union.

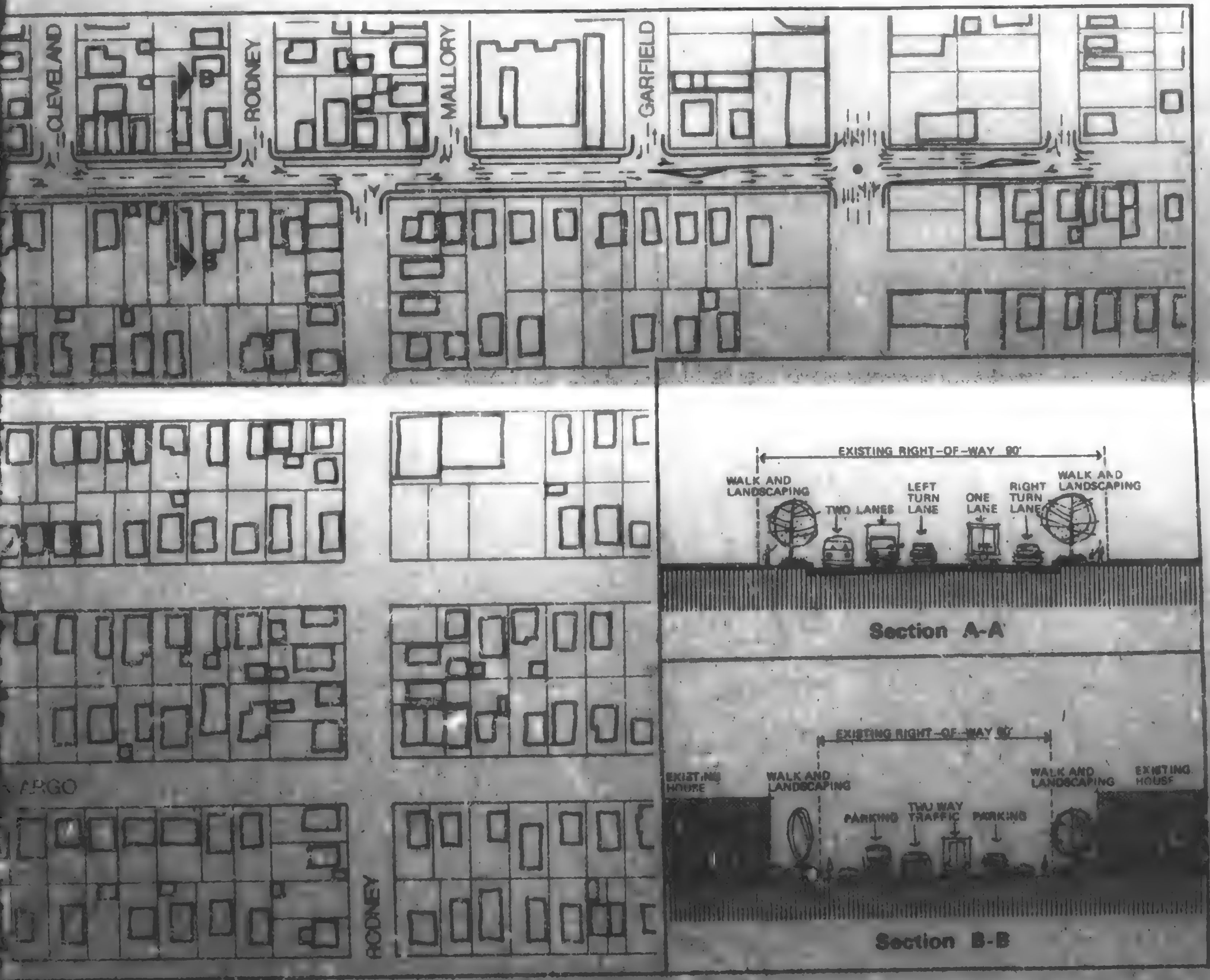
Measures to discourage traffic from using side streets to circumvent the controls will be the same as under the Cook-Fremont alternative. Fremont Boulevard also includes a barrier along the north side of the connection between the ramp and Fremont to reduce the noise impact.


COMMERCIAL
HAIGHT
GANTENBEIN
MEDIAN TO CONTROL LANE CHANGES (TO PREVENT DIRECT ACCESS BETWEEN BRIDGE AND FREMONT STREET EAST OF VANCOUVER).
CONTINENTAL BAKERY
VACATE IVY BETWEEN VANCOUVER AND WILLIAMS.
IVY
A
KERBY
COOK
A
ON RAMP
OFF RAMP
KERBY BLVD.
GANTENBEIN
VANCOUVER
WILLIAMS
EMANUEL HOSPITAL URBAN RENEWAL PROJECT

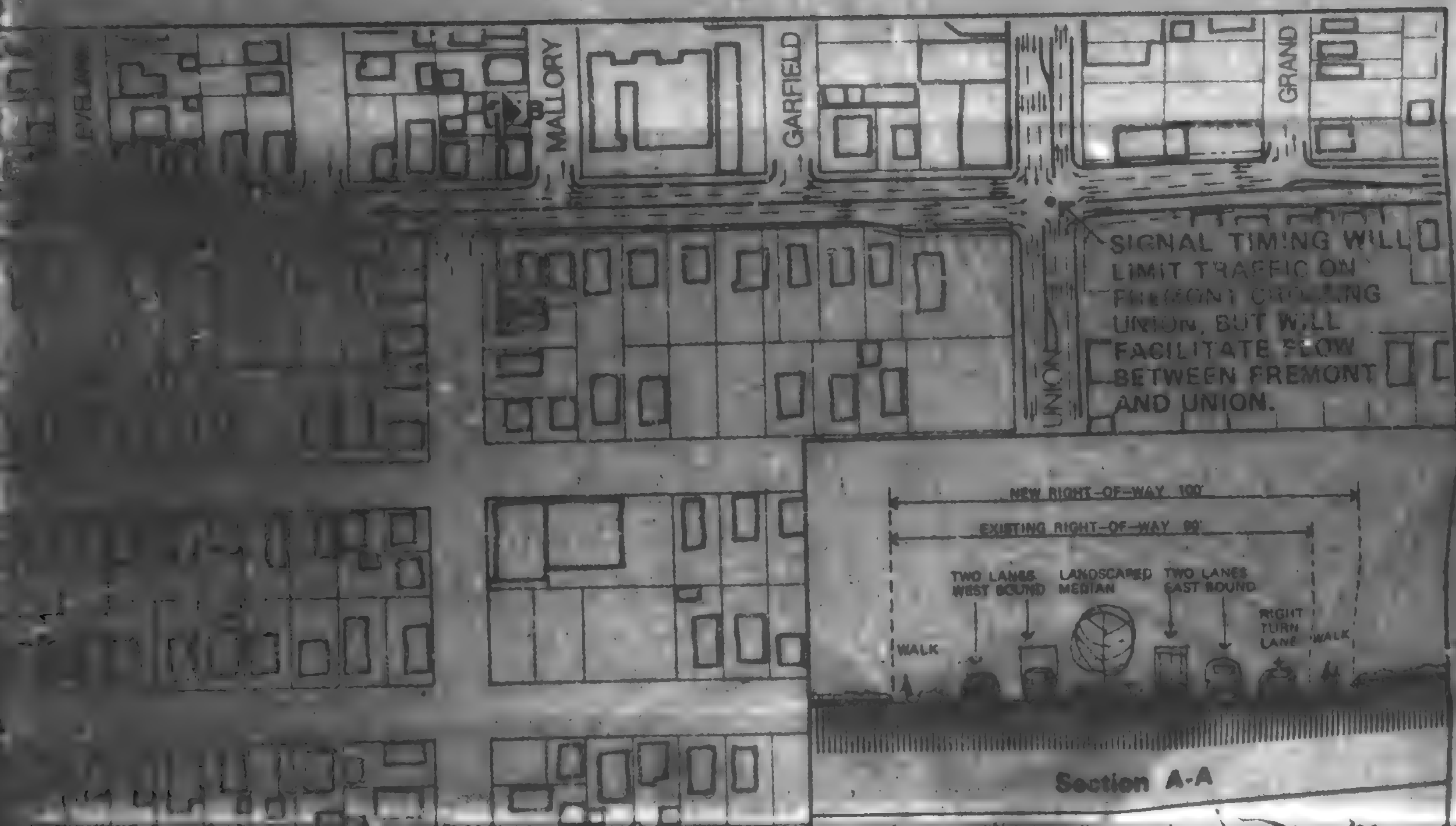

COMMERCIAL
HAIGHT
GANTENBEIN
CONTINENTAL BAKERY
IVY
VACATE IVY BETWEEN VANCOUVER AND WILLIAMS.
A
VICK
COOK

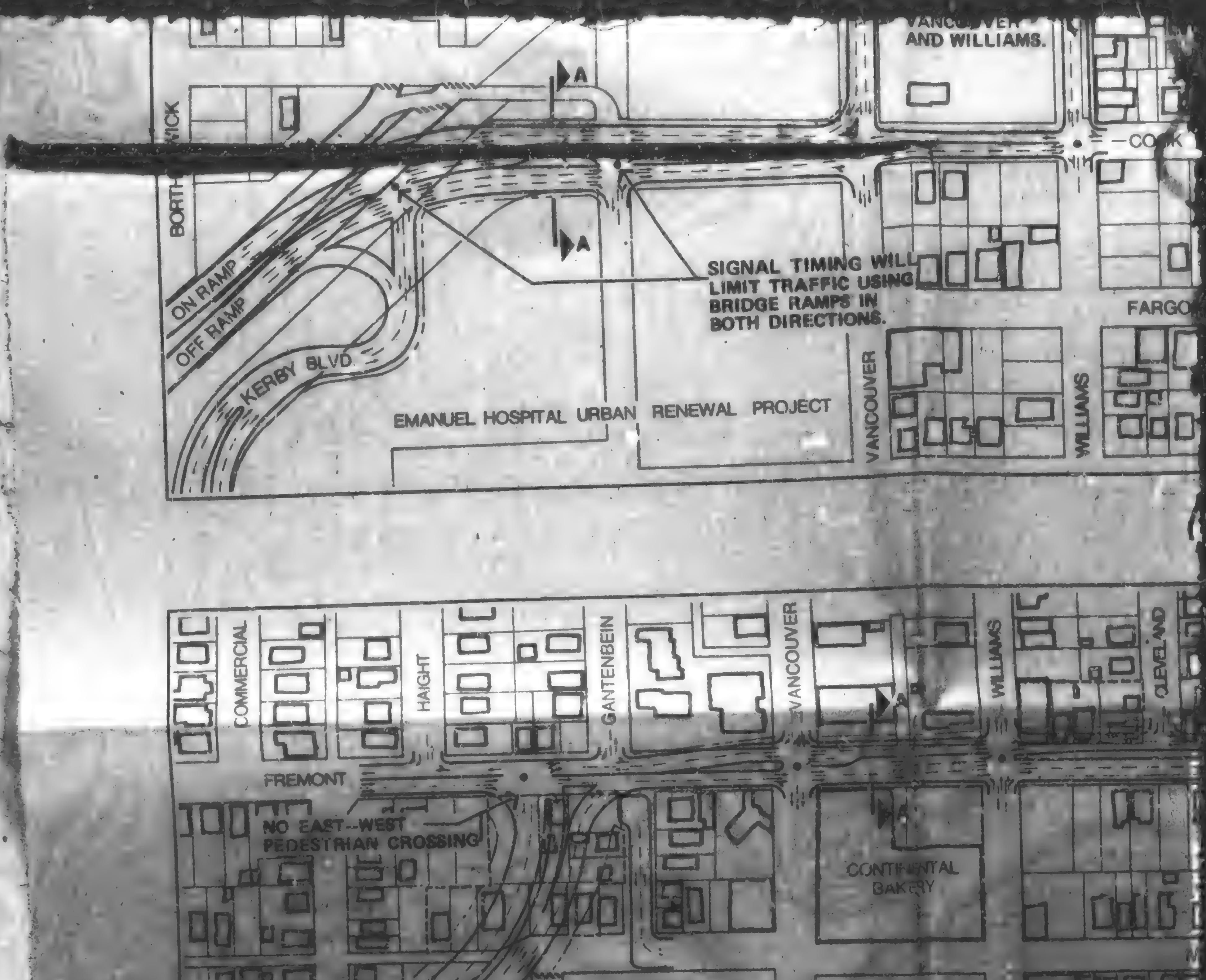
8909

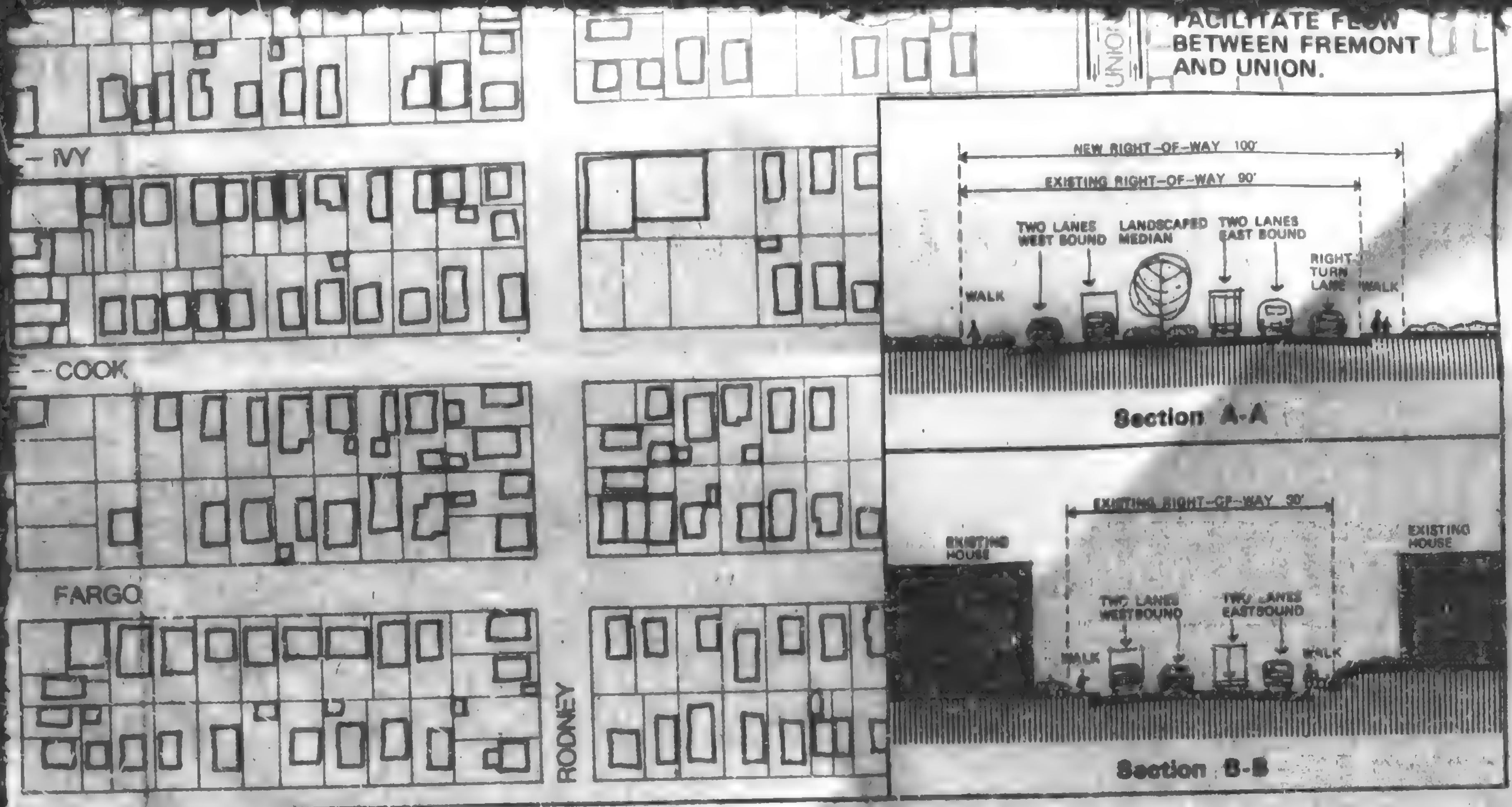
11-18-74


CLEVELAND
RODNEY
MALLORY
GARFIELD
B
B
ARGO
RODNEY
EXISTING RIGHT-OF-WAY 90'
WALK AND LANDSCAPING
TWO LANES
LEFT TURN LANE
ONE LANE
RIGHT TURN LANE
WALK AND LANDSCAPING
Section A-A'
EXISTING RIGHT-OF-WAY 90'
EXISTING HOUSE
WALK AND LANDSCAPING
PARKING
TWO WAY TRAFFIC
PARKING
WALK AND LANDSCAPING
EXISTING HOUSE
Section B-B

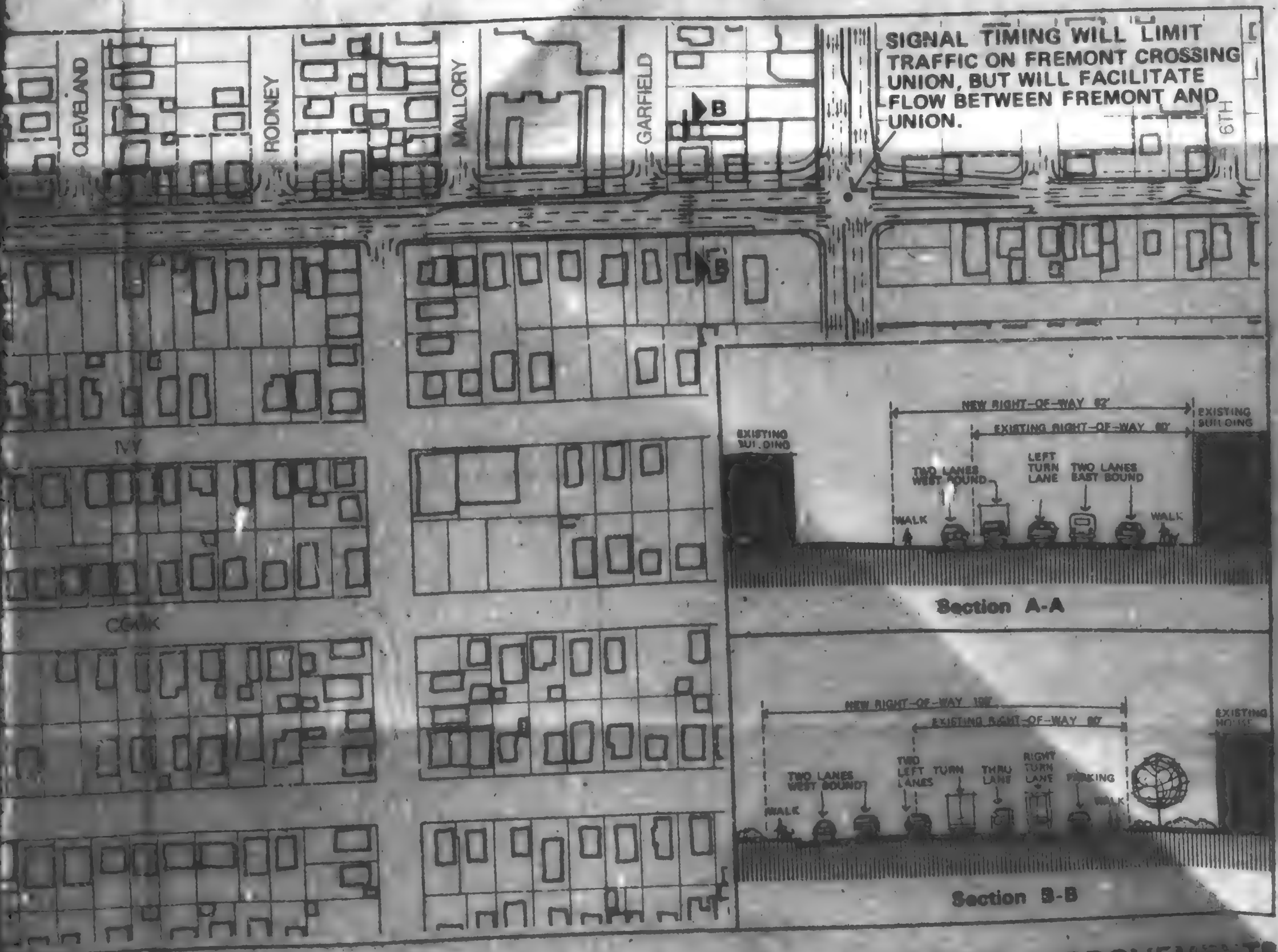
SHORT COOK STREET IMPROVEMENTS


CLEVELAND
MALLORY
GARFIELD
B
GRAND
UNION
SIGNAL TIMING WILL LIMIT TRAFFIC ON FREMONT CROSSING UNION, BUT WILL FACILITATE FLOW BETWEEN FREMONT AND UNION.
NEW RIGHT-OF-WAY 100'
EXISTING RIGHT-OF-WAY 90'
TWO LANES WEST BOUND
LANDSCAPED MEDIAN
TWO LANES EAST BOUND
RIGHT TURN LANE
WALK
WALK
Section A-A


VANCOUVER AND WILLIAMS.
A
BORTHWICK
ON RAMP
OFF RAMP
KERBY BLVD.
A
SIGNAL TIMING WILL LIMIT TRAFFIC USING BRIDGE RAMPS IN BOTH DIRECTIONS.
COOK
FARGO
VANCOUVER
WILLIAMS
EMANUEL HOSPITAL URBAN RENEWAL PROJECT
COMMERCIAL
HAIGHT
GANTENBEIN
VANCOUVER
A
WILLIAMS
CLEVELAND
FREMONT
NO EAST-WEST PEDESTRIAN CROSSING
A
CONTINENTAL BAKERY
PEDESTRIAN AND BICYCLE OVERPASS
KERBY BLVD.
GANTENBEIN
VANCOUVER
EMANUEL HOSPITAL URBAN RENEWAL PROJECT
Permitted Traffic Movements
Traffic Median or Lane Control
Traffic Signal
Lane Divider
Parking Permitted
Curb
Existing Right-of-Way Boun
New Right-of-Way Boundary
Property Acquisi
Existing Structure
A
Location of Cross
(Arrow Indicates


FACILITATE FLOW
BETWEEN FREMONT
AND UNION.
UNION
IVY
COOK
FARGO
RODNEY
NEW RIGHT-OF-WAY 100'
EXISTING RIGHT-OF-WAY 90'
TWO LANES WEST BOUND
LANDSCAPED MEDIAN
TWO LANES EAST BOUND
RIGHT TURN LANE
WALK
WALK
Section A-A
EXISTING RIGHT-OF-WAY 50'
EXISTING HOUSE
EXISTING HOUSE
TWO LANES WESTBOUND
TWO LANES EASTBOUND
WALK
WALK
Section B-B

COOK-FREMONT STREET IMPROVEMENTS


SIGNAL TIMING WILL LIMIT
TRAFFIC ON FREMONT CROSSING
UNION, BUT WILL FACILITATE
FLOW BETWEEN FREMONT AND
UNION.
CLEVELAND
RODNEY
MALLORY
GARFIELD
6TH
B
B
IVY
COOK
NEW RIGHT-OF-WAY 92'
EXISTING RIGHT-OF-WAY 80'
EXISTING BUILDING
EXISTING BUILDING
TWO LANES WEST BOUND
LEFT TURN LANE
TWO LANES EAST BOUND
WALK
WALK
Section A-A
NEW RIGHT-OF-WAY 100'
EXISTING RIGHT-OF-WAY 80'
EXISTING HOUSE
TWO LANES WEST BOUND
TWO LEFT LANES
TURN
THRU LANE
RIGHT TURN LANE
PARKING
WALK
WALK
Section B-B

FREMONT BOULEVARD STREET IMPROVEMENTS

1"=200' North ↑

erty Acquisition

ting Structure

ion of Cross Section

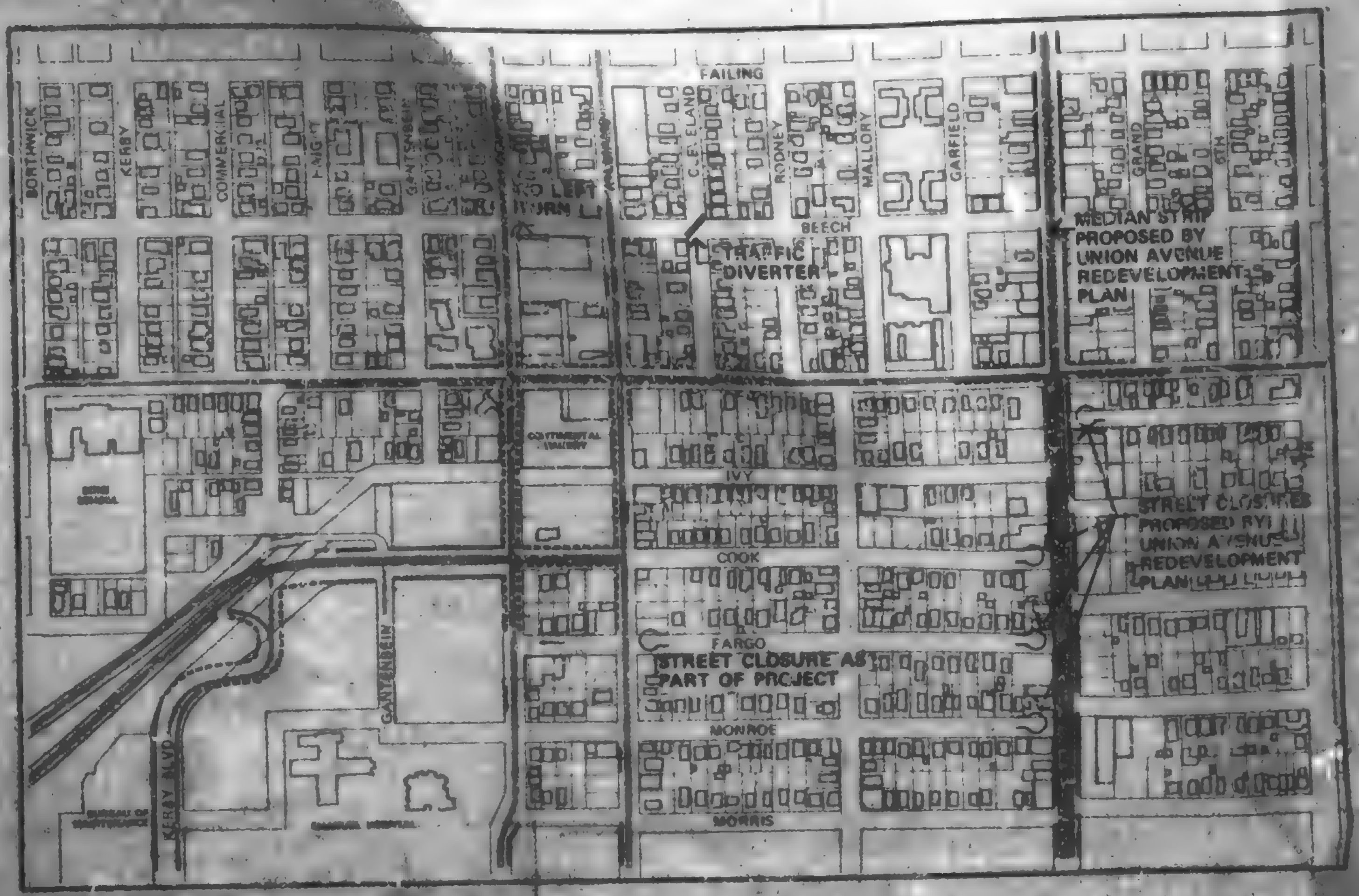
w Indicates Direction of View)

—— Existing parking control and parking control under Union Avenue Redevelopment Plan

------ Parking control as part of project

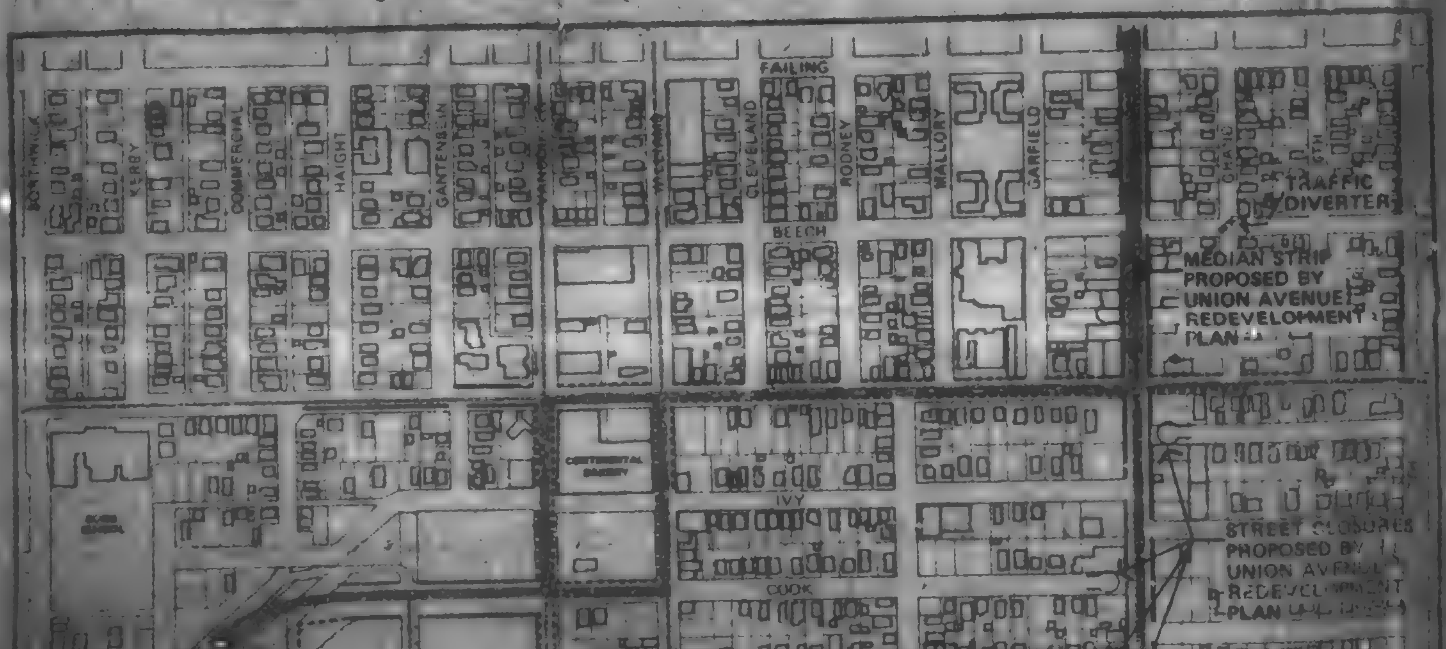
▨ Noise barrier

→ One-way traffic flow.



FAILING
BORTHWICK
KERBY
COMMERCIAL
HAIGHT
GANTENBEIN
NO LEFT TURN
CLEVELAND
RODNEY
MALLORY
GARFIELD
GRAND
6TH
BEECH
TRAFFIC DIVERTER
MEDIAN STRIP PROPOSED BY UNION AVENUE REDEVELOPMENT PLAN
CONTINENTAL BAKERY
IVY
STREET CLOSURES PROPOSED BY UNION AVENUE REDEVELOPMENT PLAN
COOK
FARGO
STREET CLOSURE AS PART OF PROJECT
MONROE
GANTENBEIN
KERBY BLVD.
MORRIS
EMANUEL HOSPITAL

SHORT COOK PROJECT FEATURES



FAILING
BORTHWICK
KERBY
COMMERCIAL
HAIGHT
GANTENBEIN
WILLIAMS
CLEVELAND
RODNEY
MALLORY
GARFIELD
6TH
BEECH
TRAFFIC DIVERTER
MEDIAN STRIP PROPOSED BY UNION AVENUE REDEVELOPMENT PLAN
CONTINENTAL BAKERY
IVY
STREET CLOSURES PROPOSED BY UNION AVENUE REDEVELOPMENT PLAN
COOK
FARGO
MORRIS
GANTENBEIN
EMANUEL HOSPITAL

COOK-FREMONT PROJECT FEATURES

Findir

The follo
analysis
which a
tives, im
in the a
informat
The mat
alternati
which th
material
be read
another

TRAFF

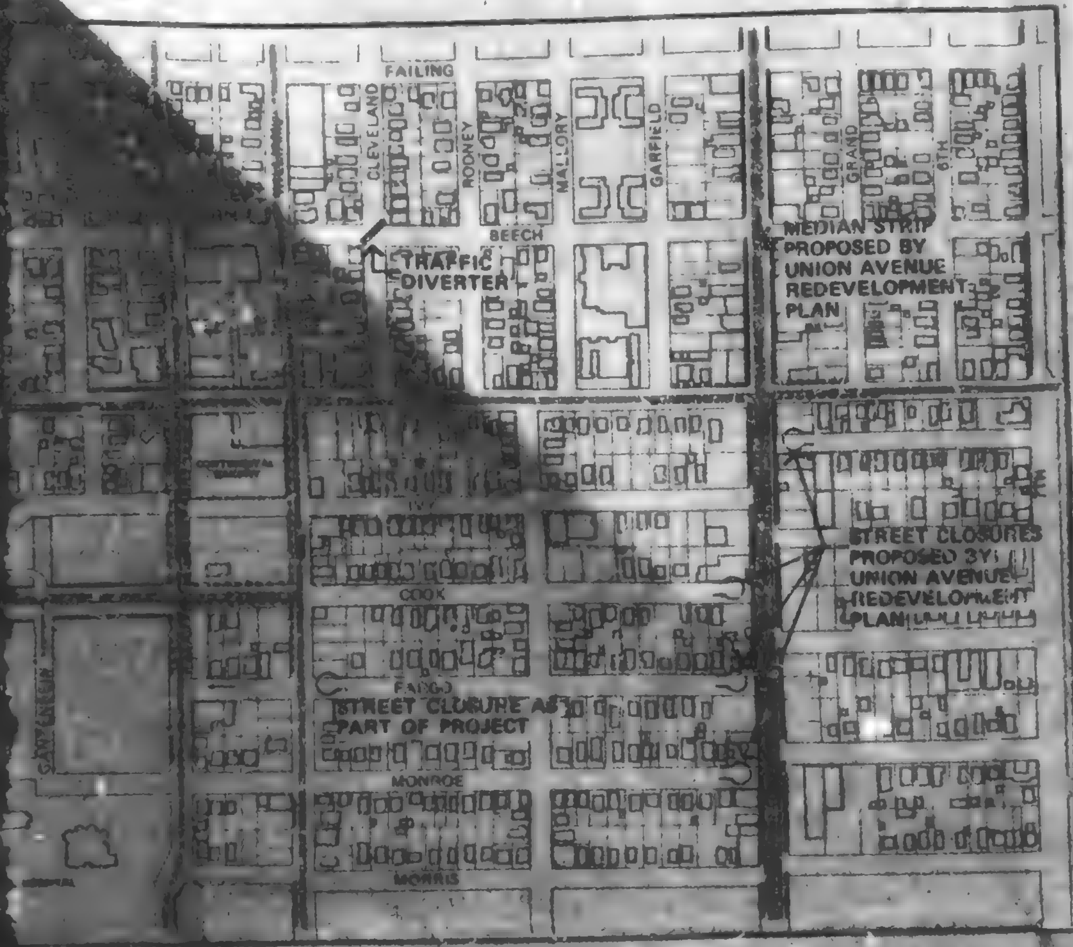
More th
cern ov
tial str
for the
In addi
ficant i
will be
traffic
on proj
alternat
predict
will aff
levels,
econom
the tra
part of

These
figures
a few e
volume
ed in
native.
the ass
traffic
signifi
volume
slightl
trends

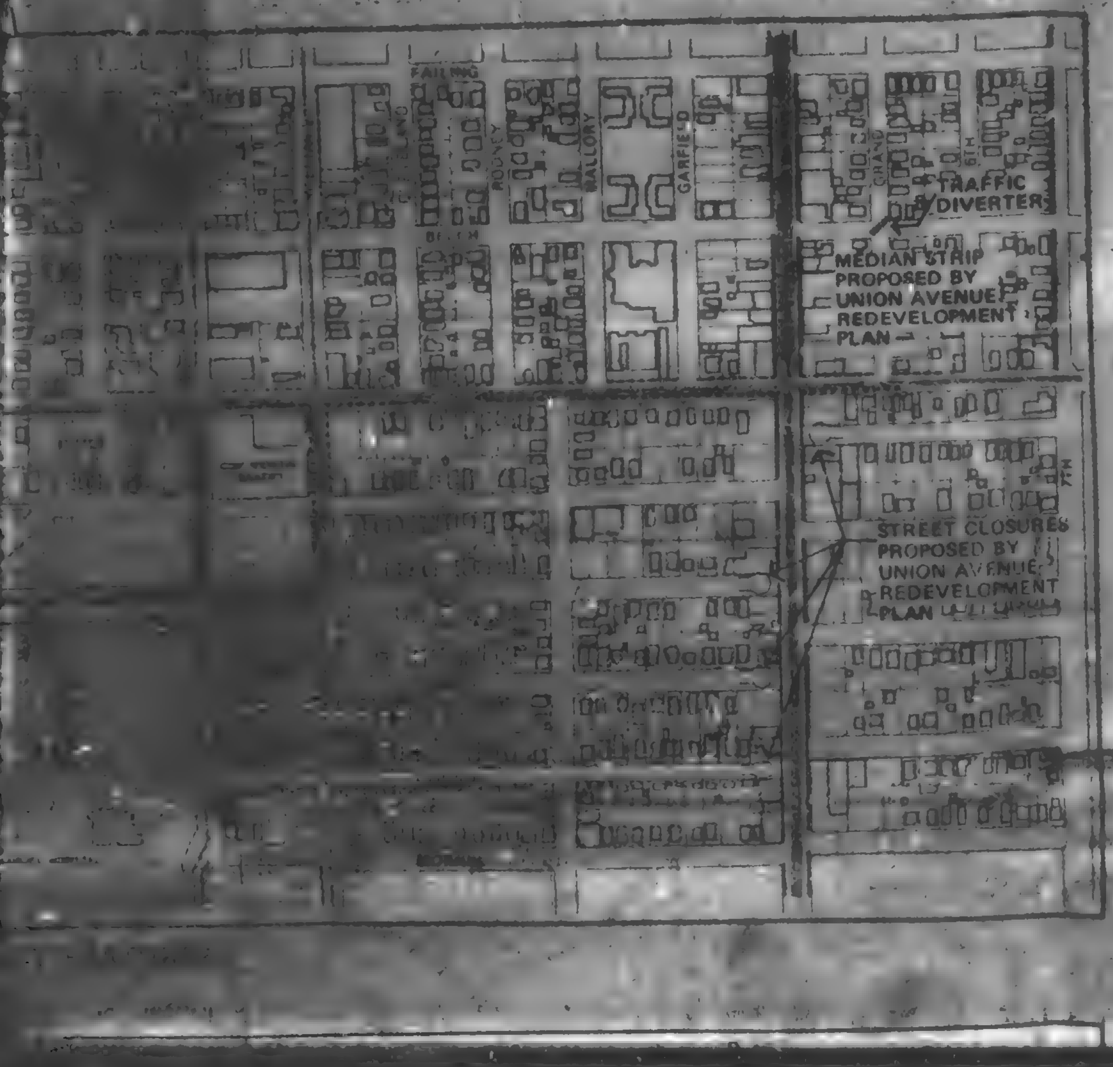
The p
using
lates
into a
popul
trans
trips
of the
It ther
route
Each
model

trol and parking control
Redevelopment Plan

rt of project


FAILING
CLEVELAND
RODNEY
MALLORY
GARFIELD
GRAND
6TH
BEECH
TRAFFIC DIVERTER
MEDIAN STRIP PROPOSED BY UNION AVENUE REDEVELOPMENT PLAN
STREET CLOSURES PROPOSED BY UNION AVENUE REDEVELOPMENT PLAN
COOK
FARGO
STREET CLOSURE AS PART OF PROJECT
MONROE
MORRIS

EATURES


FAILING
CLEVELAND
RODNEY
MALLORY
GARFIELD
GRAND
6TH
BEECH
TRAFFIC DIVERTER
MEDIAN STRIP PROPOSED BY UNION AVENUE REDEVELOPMENT PLAN
STREET CLOSURES PROPOSED BY UNION AVENUE REDEVELOPMENT PLAN
MORRIS

Findings

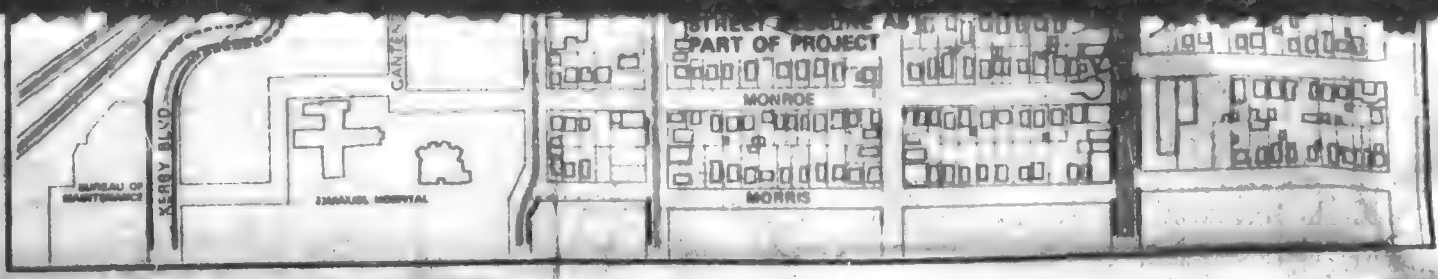
The following pages summarize the analysis of the alternatives. Effects which are similar among the alternatives, important assumptions made in the analysis and other background information are discussed below. The matrix on page 11 compares the alternatives by identifying ways in which their effects differ. The material below and the matrix should be read in conjunction with one another.

TRAFFIC PATTERNS

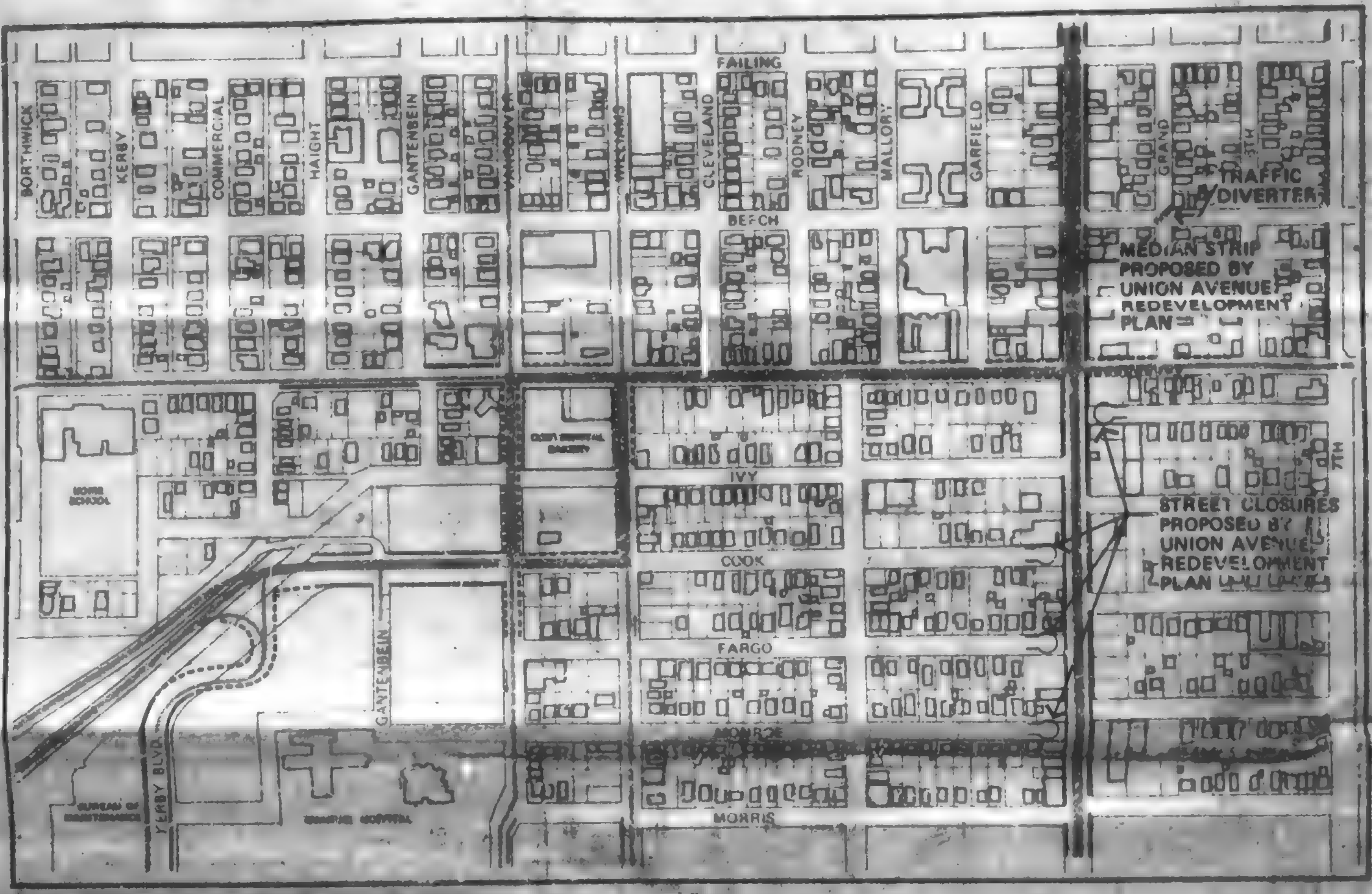
More than anything else, it was concern over traffic volumes on residential streets that gave rise to the need for the Fremont Bridge Access Study. In addition, some of the most significant impacts of the build alternatives will be caused by effects they have on traffic patterns. These effects, based on projections of future traffic for each alternative, were important inputs to predictions of how the alternatives will affect air pollution and noise levels, neighborhood quality, and economic conditions. Consequently, the traffic projections are a crucial part of the study's findings.

These projections are shown in the figures on the following page. With a few exceptions, existing traffic volumes are the same as those projected in 1980 under the No Build alternative. The 1980 projections reflect the assumption that factors affecting traffic generation will not change significantly by 1980 and that traffic volumes will continue to increase slightly in accordance with recent trends.

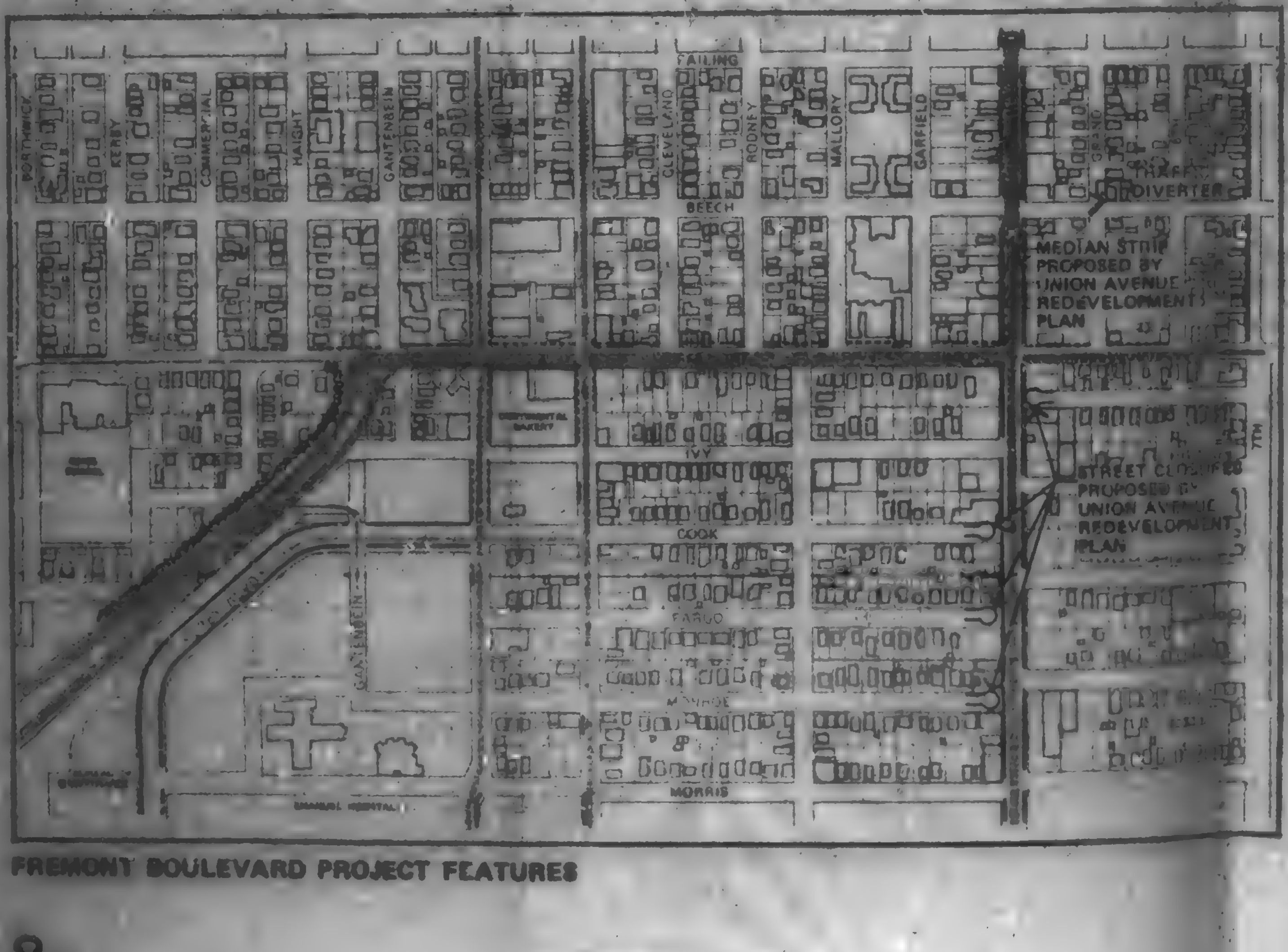
The projections for 1990 were made using a computer model which simulates traffic flow. This model takes into account projected changes in population, employment and public transit use to determine how many trips will be made between one part of the metropolitan area and all others. It then assigns these trips to the route that will take the shortest time. Each alternative was run on this model to get the projected volumes in the figures.


STREET CLOSURE AS PART OF PROJECT
GANTENBEIN
KERBY BLVD
BUREAU OF MAINTENANCE
EMANUEL HOSPITAL
MONROE
MORRIS

SHORT COOK PROJECT FEATURES


FAILING
BORTHWICK
KERBY
COMMERCIAL
HAIGHT
GANTENBEIN
VANCOUVER
WILLIAMS
CLEVELAND
RODNEY
MALLORY
GARFIELD
GRAND
TRAFFIC DIVERTER
BEECH
MEDIAN STRIP PROPOSED BY UNION AVENUE REDEVELOPMENT PLAN
IVY
STREET CLOSURES PROPOSED BY UNION AVENUE REDEVELOPMENT PLAN
7TH
COOK
FARGO
MONROE
MORRIS
KERBY BLVD
GANTENBEIN
BUREAU OF MAINTENANCE
EMANUEL HOSPITAL

COOK-FREMONT PROJECT FEATURES


FAILING
BORTHWICK
KERBY
COMMERCIAL
HAIGHT
GANTENBEIN
CLEVELAND
RODNEY
MALLORY
GARFIELD
TRAFFIC DIVERTER
BEECH
MEDIAN STRIP PROPOSED BY UNION AVENUE REDEVELOPMENT PLAN
IVY
STREET CLOSURES PROPOSED BY UNION AVENUE REDEVELOPMENT PLAN
7TH
COOK
FARGO
MONROE
GANTENBEIN
MORRIS
EMANUEL HOSPITAL

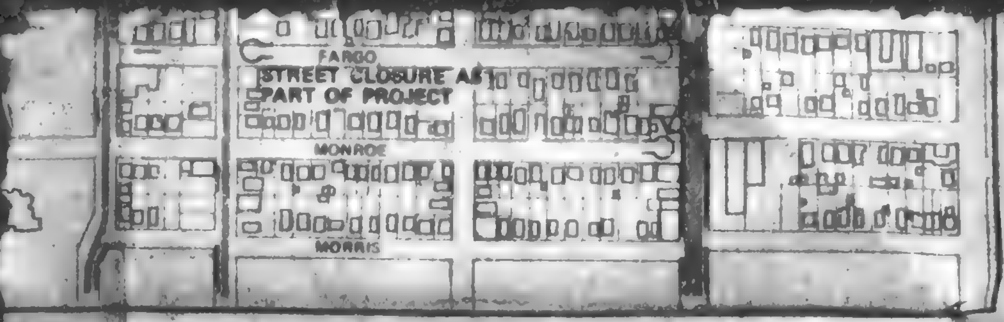
FREMONT BOULEVARD PROJECT FEATURES

In addition,
ficant impa
will be cau
traffic patte
on projectio
alternative
predictions o
will affec
levels, neig
economic con
the traffic pr
part of the s

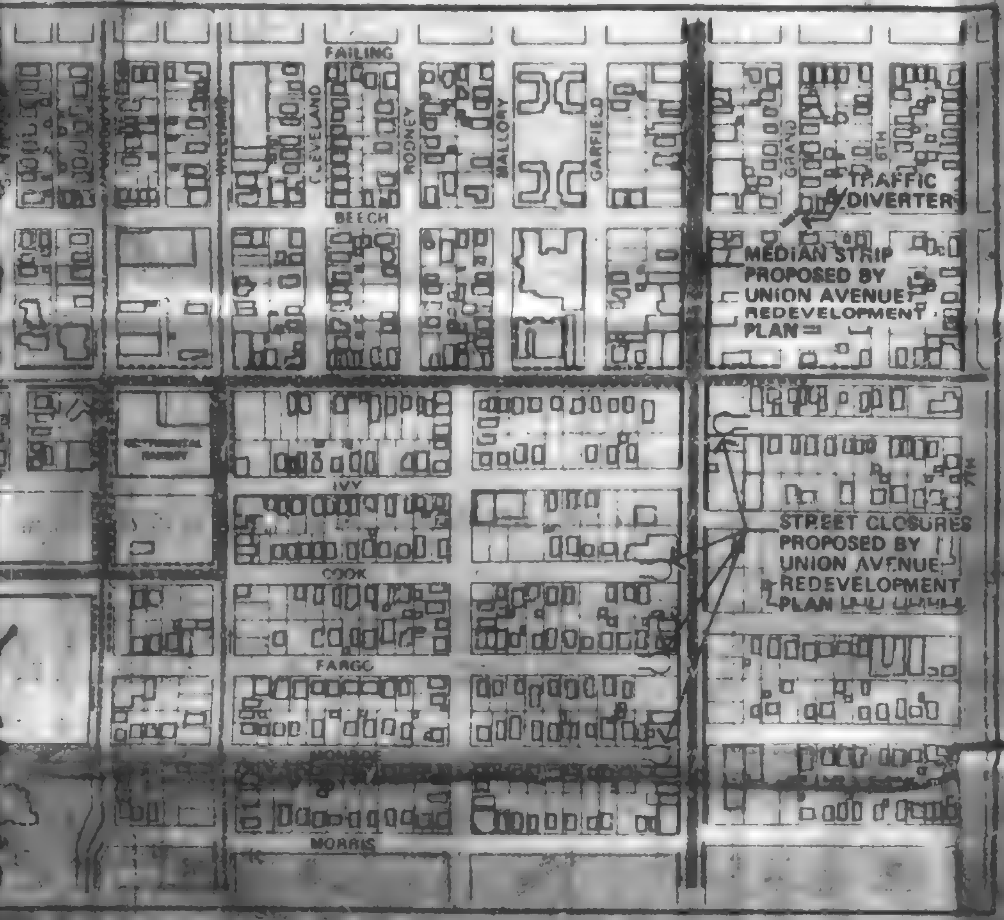
These proje
figures on th
a few except
volumes are
ed in 1980 u
native. The
the assumptio
traffic genera
significantly
volumes will
slightly in a
trends.

The projectio
using a comp
lates traffic
into account
population; e
transit use
trips will be
of the metro
It then assig
route that w
Each alterna
model to get
in the figure

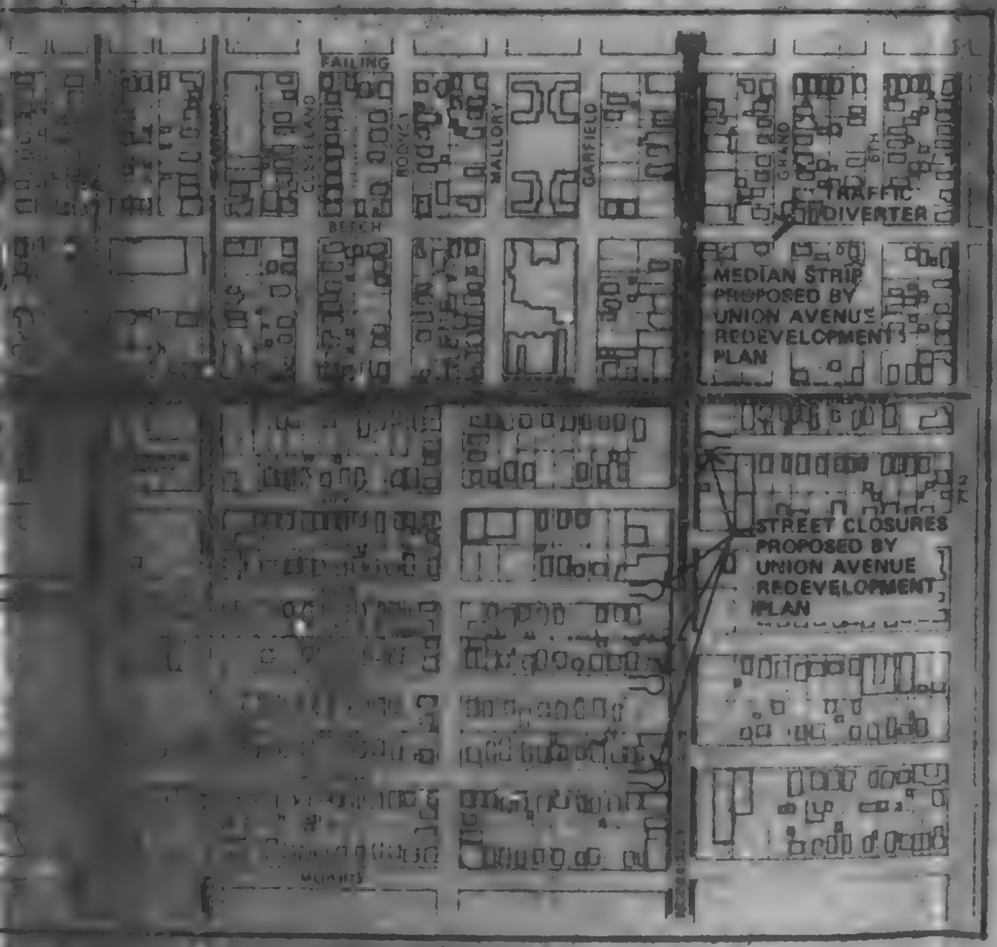
The overall
alternatives
redistributio
from: (a)
mont, (b) W
Union Avenu
(c) I-5, and
worth betwee
(a) the ramp
tween Gante
Williams; Va
of Fremont.
tionate to the
ments under
city deficien
significant d
to Williams a
Fremont, wh
1990. Propo
diversion ef
nounced in
traffic volum
Union will b
1990.


FARGO
STREET CLOSURE AS PART OF PROJECT
MONROE
MORRIS

URES


FAILING
CLEVELAND
RODNEY
MALLORY
GARFIELD
GRAND
6TH
BEECH
TRAFFIC DIVERTER
MEDIAN STRIP PROPOSED BY UNION AVENUE REDEVELOPMENT PLAN
IVY
STREET CLOSURES PROPOSED BY UNION AVENUE REDEVELOPMENT PLAN
COOK
FARGO
MONROE
MORRIS

TURES


FAILING
CLEVELAND
RODNEY
MALLORY
GARFIELD
GRAND
6TH
BEECH
TRAFFIC DIVERTER
MEDIAN STRIP PROPOSED BY UNION AVENUE REDEVELOPMENT PLAN
STREET CLOSURES PROPOSED BY UNION AVENUE REDEVELOPMENT PLAN
MORRIS

CT FEATURES

for the Fremont Bridge Access

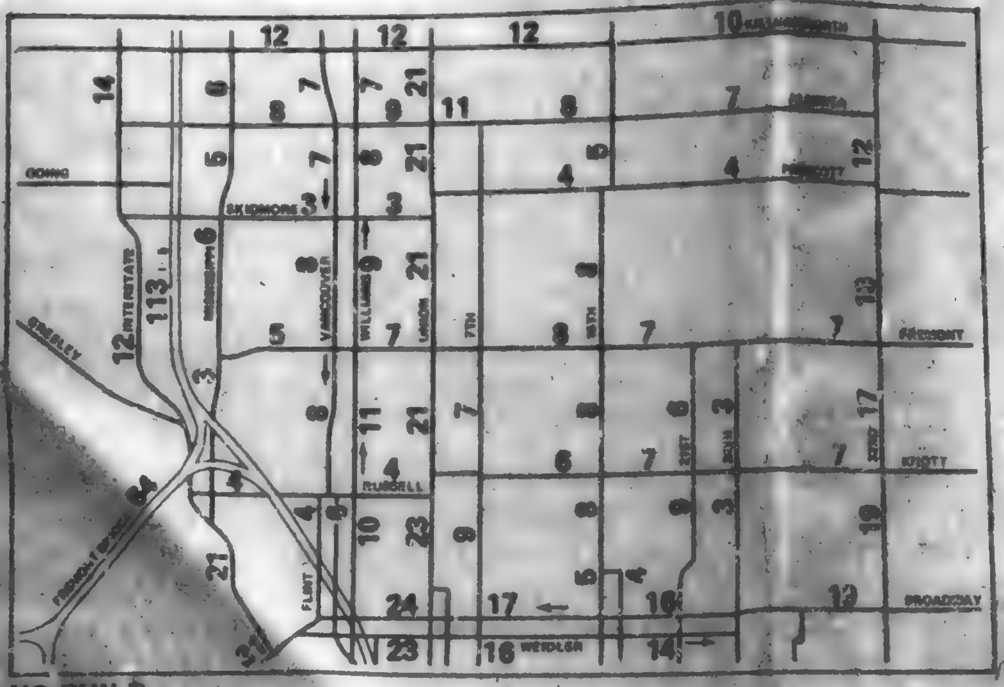
In addition, some of the most significant impacts of the build alternatives will be caused by effects they have on traffic patterns. These effects, based on projections of future traffic for each alternative, were important inputs to predictions of how the alternatives will affect air pollution and noise levels, neighborhood quality, and economic conditions. Consequently, the traffic projections are a crucial part of the study's findings.

These projections are shown in the figures on the following page. With a few exceptions, existing traffic volumes are the same as those projected in 1980 under the No Build alternative. The 1980 projections reflect the assumption that factors affecting traffic generation will not change significantly by 1980 and that traffic volumes will continue to increase slightly in accordance with recent trends.

The projections for 1990 were made using a computer model which simulates traffic flow. This model takes into account projected changes in population, employment and public transit use to determine how many trips will be made between one part of the metropolitan area and all others. It then assigns these trips to the route that will take the shortest time. Each alternative was run on this model to get the projected volumes in the figures.

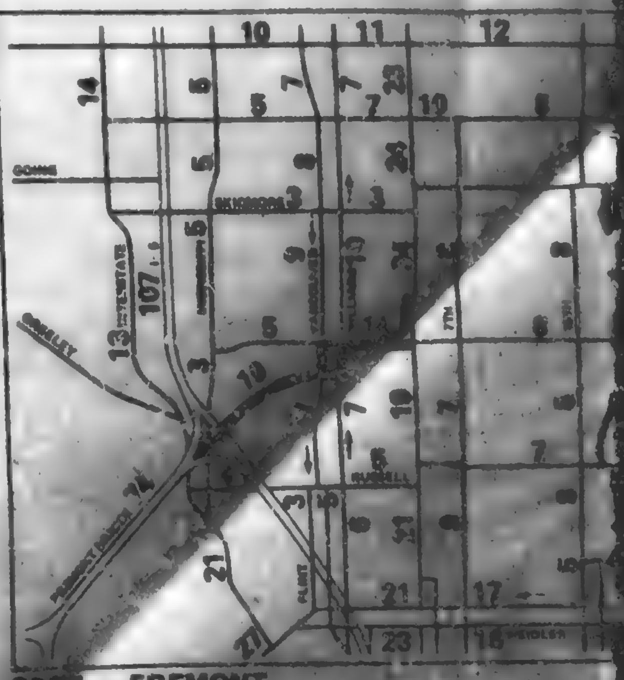
The overall traffic effect of the build alternatives can be summarized as a redistribution caused by diversion from: (a) bridges south of the Fremont, (b) Williams, Vancouver, and Union Avenue south of Fremont Street, (c) I-5, and (d) Alberta and Killingsworth between I-5 and Union, to: (a) the ramps, (b) Fremont Street between Gantenbein and Union, and (c) Williams, Vancouver, and Union north of Fremont. This effect is proportionate to the level of street improvements under each alternative. Capacity deficiencies in 1980 will cause significant diversions of ramp traffic to Williams and Vancouver north of Fremont, which will not occur in 1990. Proportionately, the overall diversion effect will be more pronounced in 1990. The effects on traffic volumes on streets east of Union will be minor in both 1980 and 1990.

PROJECTED TRAFFIC IN 1980 (Average Daily Traffic in thousand



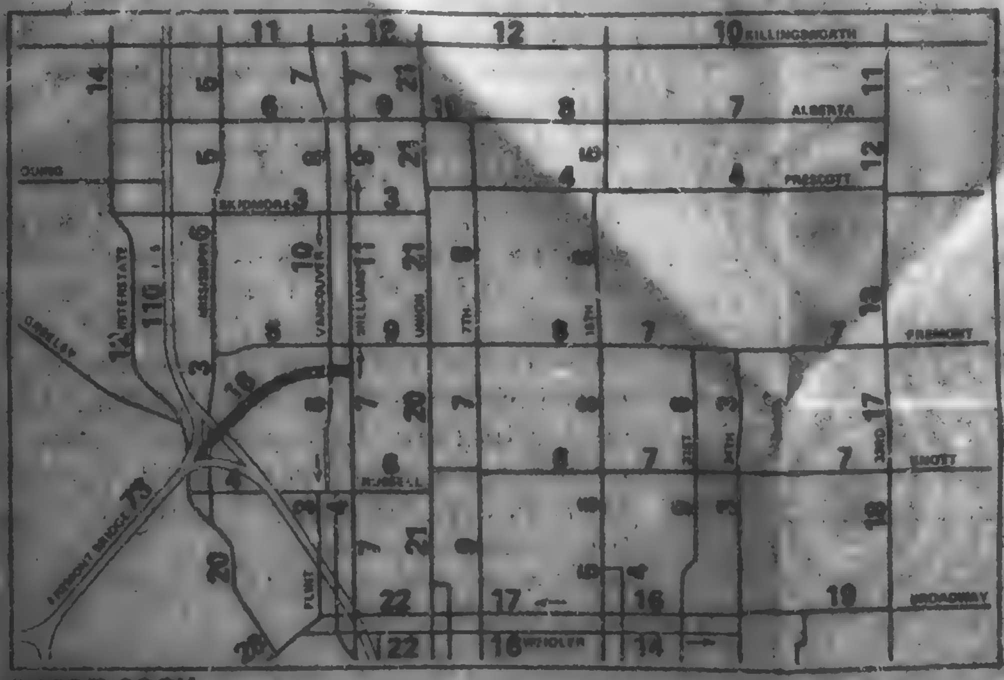
KILLINGSWORTH
ALBERTA
GOING
PRESCOTT
SKIDMORE
INTERSTATE
MISSISSIPPI
VANCOUVER
WILLIAMS
UNION
7TH
15TH
21ST
24TH
33RD
GREELEY
FREMONT
KNOTT
RUSSELL
FREMONT BRIDGE
FLINT
BROADWAY
WEIDLER
113

NO BUILD



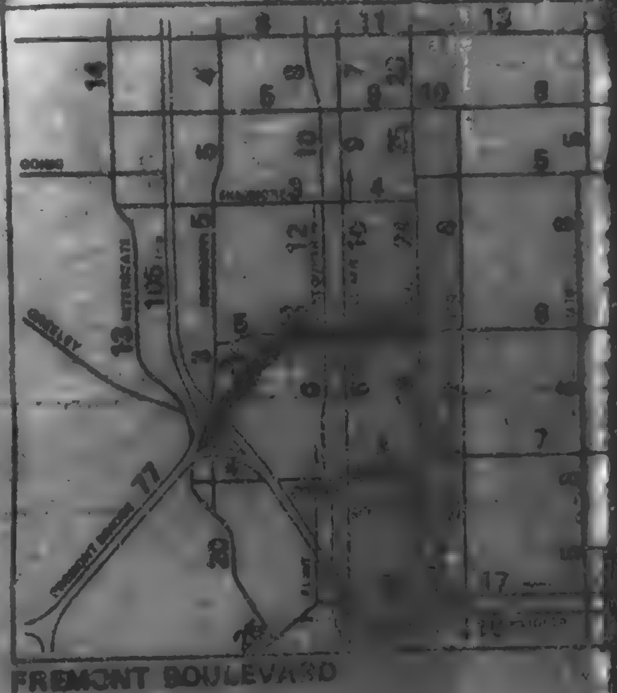
GOING
SKIDMORE
INTERSTATE
GREELEY
RUSSELL
FREMONT BRIDGE
FLINT
WEIDLER
107

COOK - FREMONT



KILLINGSWORTH
ALBERTA
GOING
PRESCOTT
SKIDMORE
INTERSTATE
MISSISSIPPI
VANCOUVER
WILLIAMS
UNION
7TH
15TH
21ST
24TH
33RD
GREELEY
FREMONT
KNOTT
RUSSELL
FREMONT BRIDGE
FLINT
BROADWAY
WEIDLER
110

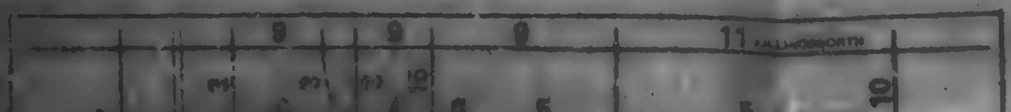
SHORT COOK



GOING
SKIDMORE
INTERSTATE
GREELEY
FREMONT BRIDGE
FLINT
106

FREMONT BOULEVARD

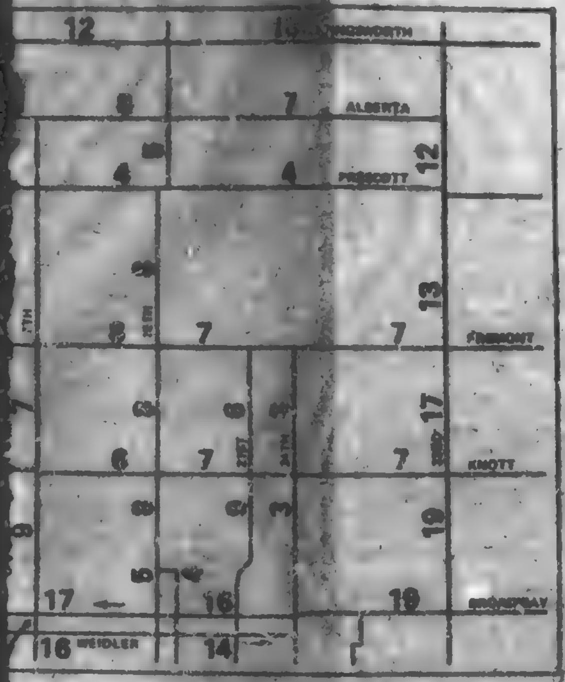
PROJECTED TRAFFIC IN 1990 (Average Daily Traffic in thousa

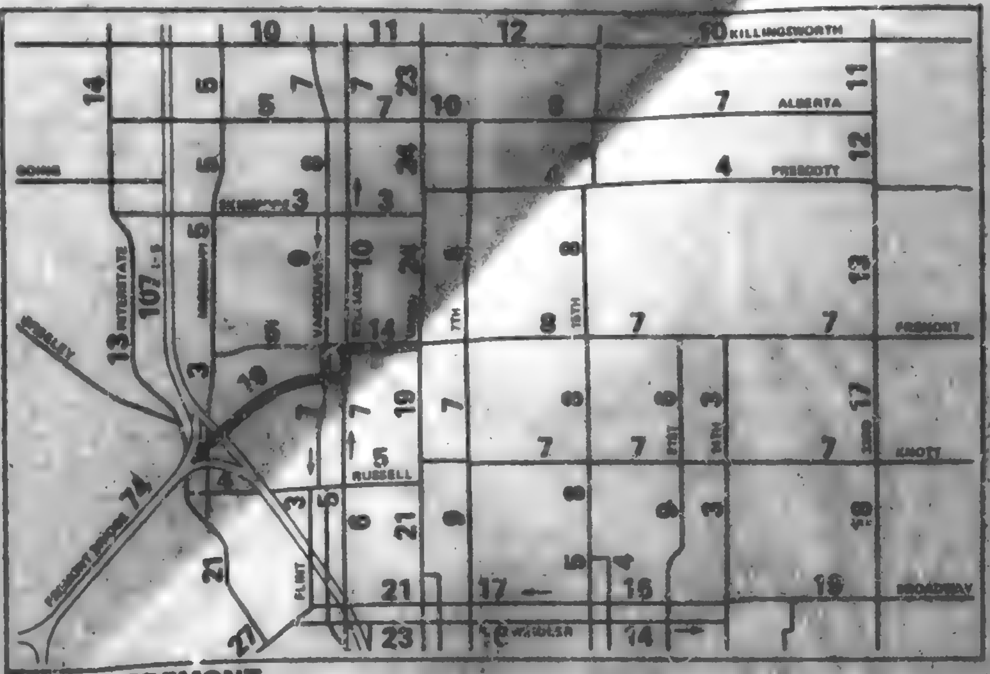


KILLINGSWORTH
ALBERTA
GOING
PRESCOTT
FREMONT
KNOTT
RUSSELL
21ST
24TH

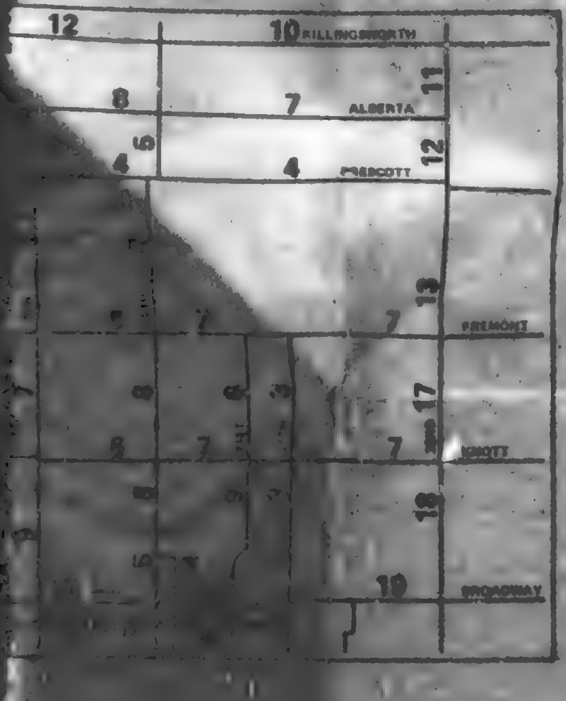
GOING
INTERSTATE
GREELEY
116

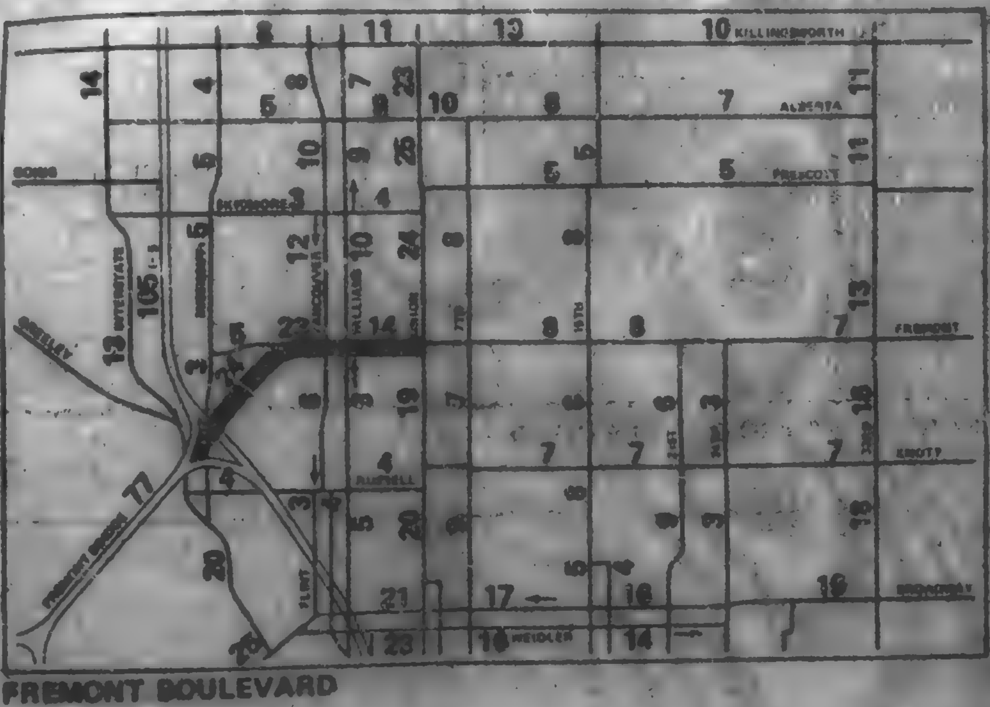
PROJECTED TRAFFIC IN 1980 (Average Daily Traffic in thousands of vehicles)


KILLINGSWORTH
ALBERTA
PRESCOTT
FREMONT
KNOTT
BROADWAY
WEIDLER


KILLINGSWORTH
ALBERTA
PRESCOTT
GOING
SKIDMORE
INTERSTATE
I-5
107
MISSISSIPPI
VANCOUVER
WILLIAMS
GREELEY
FREMONT BRIDGE
74
RUSSELL
FLINT
7TH
15TH
21ST
24TH
33RD
FREMONT
KNOTT
BROADWAY
WEIDLER

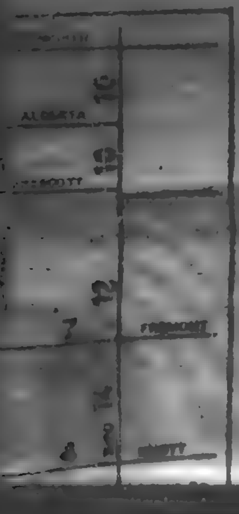
COOK – FREMONT

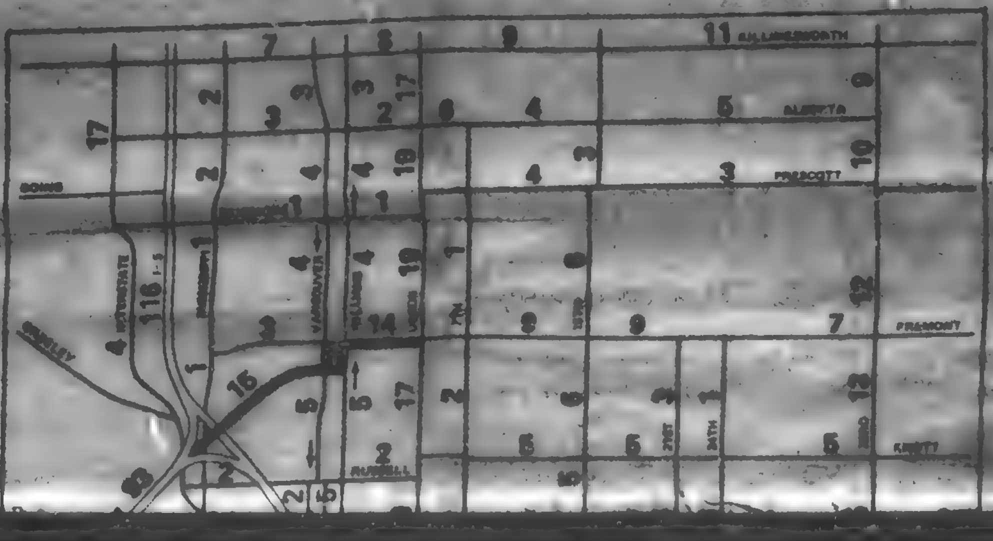

KILLINGSWORTH
ALBERTA
PRESCOTT
FREMONT
KNOTT
BROADWAY

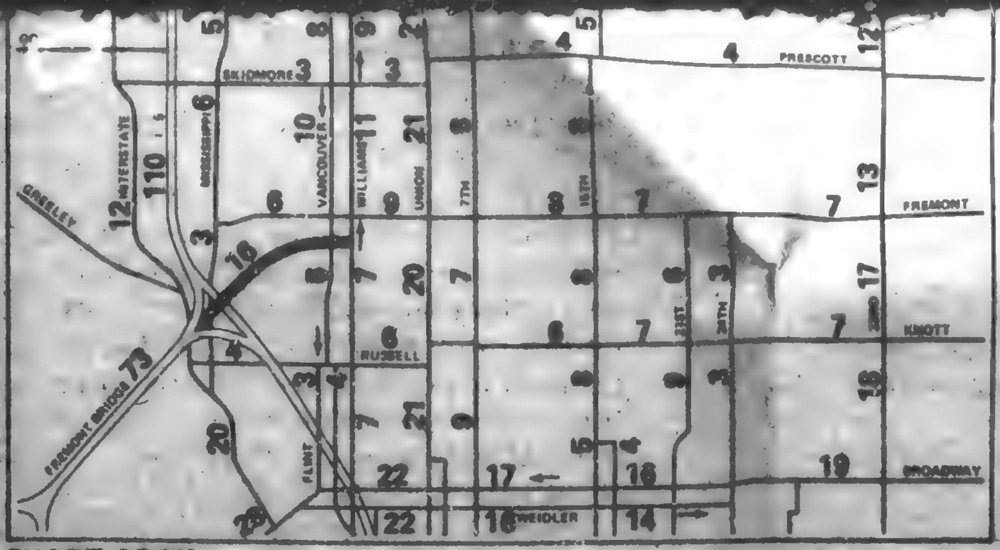

KILLINGSWORTH
ALBERTA
PRESCOTT
GOING
SKIDMORE
INTERSTATE
I-5
105
MISSISSIPPI
VANCOUVER
WILLIAMS
GREELEY
FREMONT BRIDGE
77
RUSSELL
FLINT
7TH
15TH
21ST
24TH
33RD
FREMONT
KNOTT
BROADWAY
WEIDLER

FREMONT BOULEVARD

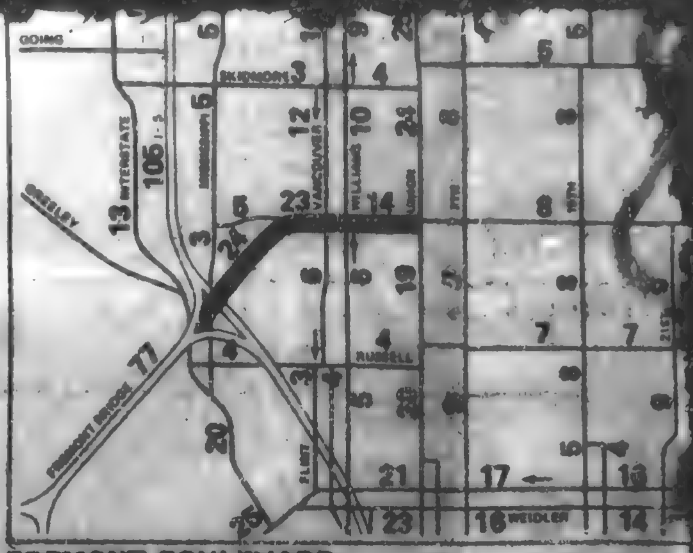
PROJECTED TRAFFIC IN 1990 (Average Daily Traffic in thousands of vehicles)


ALBERTA
PRESCOTT
FREMONT
KNOTT


KILLINGSWORTH
ALBERTA
PRESCOTT
GOING
INTERSTATE
I-5
116
VANCOUVER
WILLIAMS
GREELEY
RUSSELL
7TH
15TH
21ST
24TH
33RD
FREMONT
KNOTT

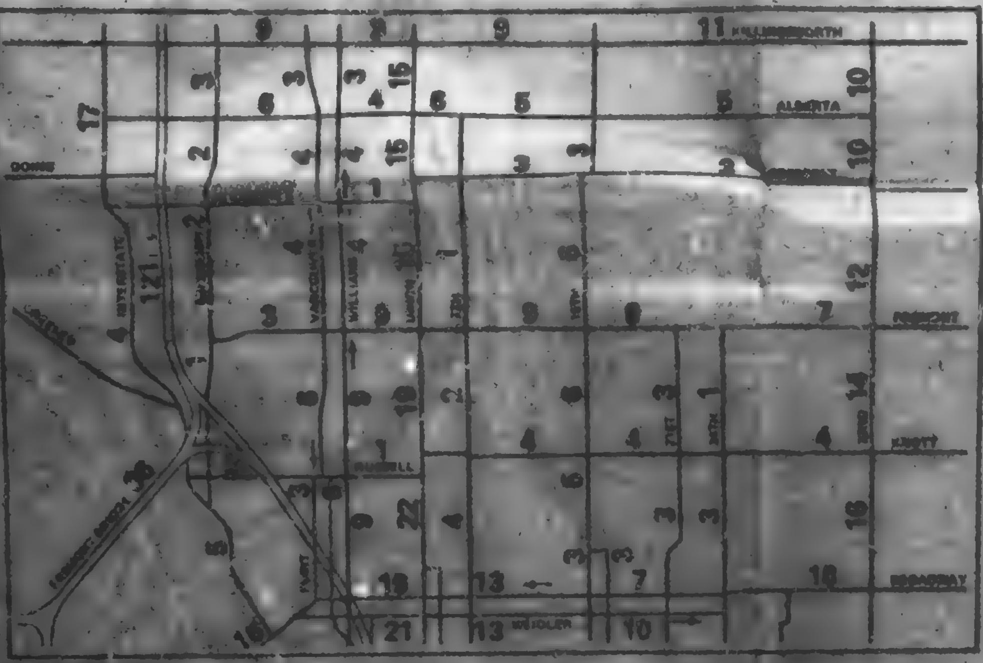

PRESCOTT
SKIDMORE
FREMONT
KNOTT
RUSSELL
BROADWAY
WEIDLER
GREELEY
INTERSTATE
MISSISSIPPI
VANCOUVER
WILLIAMS
UNION
7TH
15TH
21ST
24TH
FLINT
FREMONT BRIDGE

SHORT COOK

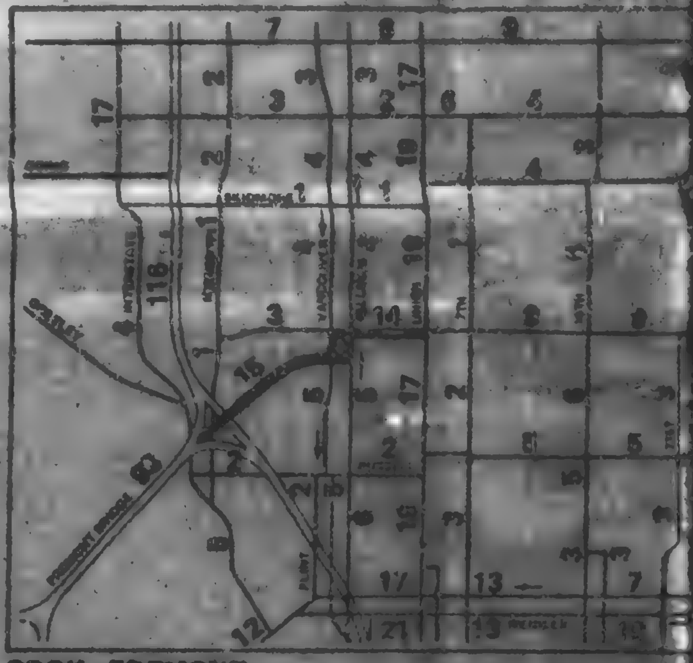

GOING
SKIDMORE
FREMONT
RUSSELL
GREELEY
INTERSTATE
MISSISSIPPI
VANCOUVER
WILLIAMS
UNION
FLINT
FREMONT BRIDGE
WEIDLER

FREMONT BOULEVARD

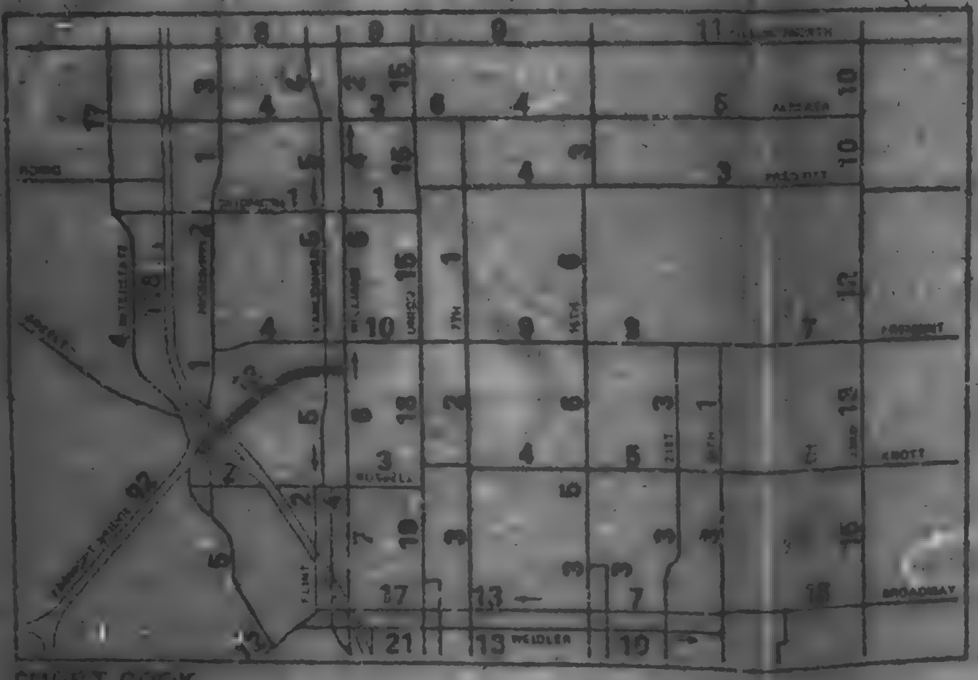
PROJECTED TRAFFIC IN 1990. (Average Daily Traffic in thousands of


KILLINGSWORTH
ALBERTA
GOING
PRESCOTT
FREMONT
KNOTT
RUSSELL
BROADWAY
WEIDLER
GREELEY
INTERSTATE
VANCOUVER
WILLIAMS
FLINT
FREMONT BRIDGE

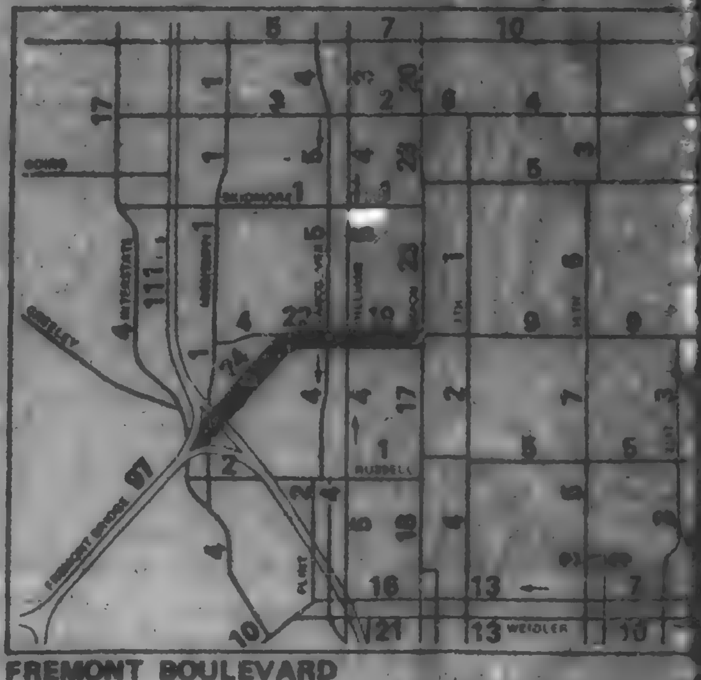
NO BUILD


GOING
SKIDMORE
GREELEY
INTERSTATE
VANCOUVER
WILLIAMS
UNION
FLINT
FREMONT BRIDGE
WEIDLER

COOK—FREMONT

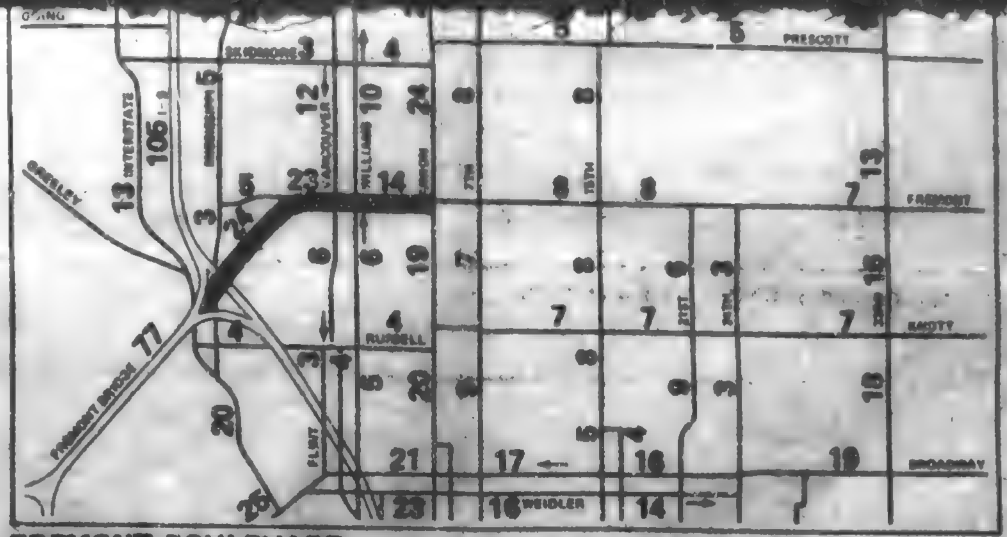

KILLINGSWORTH
PRESCOTT
GOING
SKIDMORE
FREMONT
KNOTT
RUSSELL
BROADWAY
WEIDLER
GREELEY
INTERSTATE
MISSISSIPPI
VANCOUVER
WILLIAMS
UNION
7TH
15TH
21ST
FLINT
FREMONT BRIDGE

SHORT COOK


GOING
SKIDMORE
GREELEY
INTERSTATE
MISSISSIPPI
VANCOUVER
WILLIAMS
UNION
RUSSELL
FLINT
FREMONT BRIDGE
WEIDLER

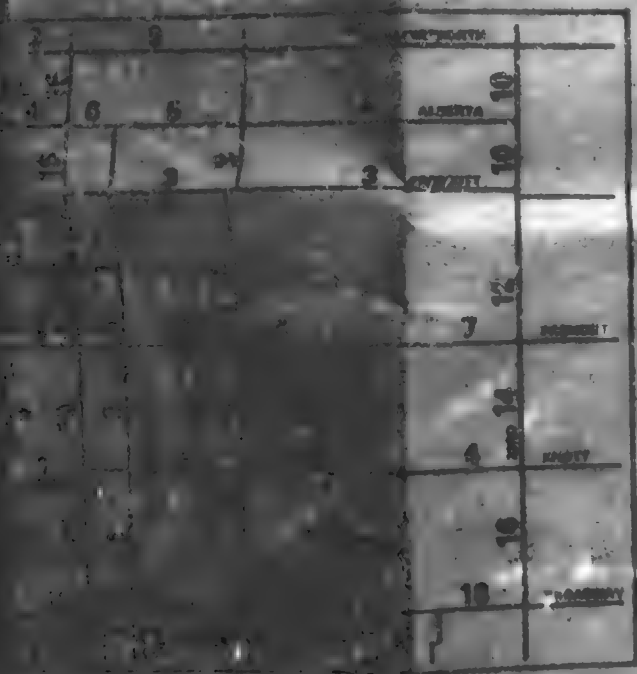
FREMONT BOULEVARD

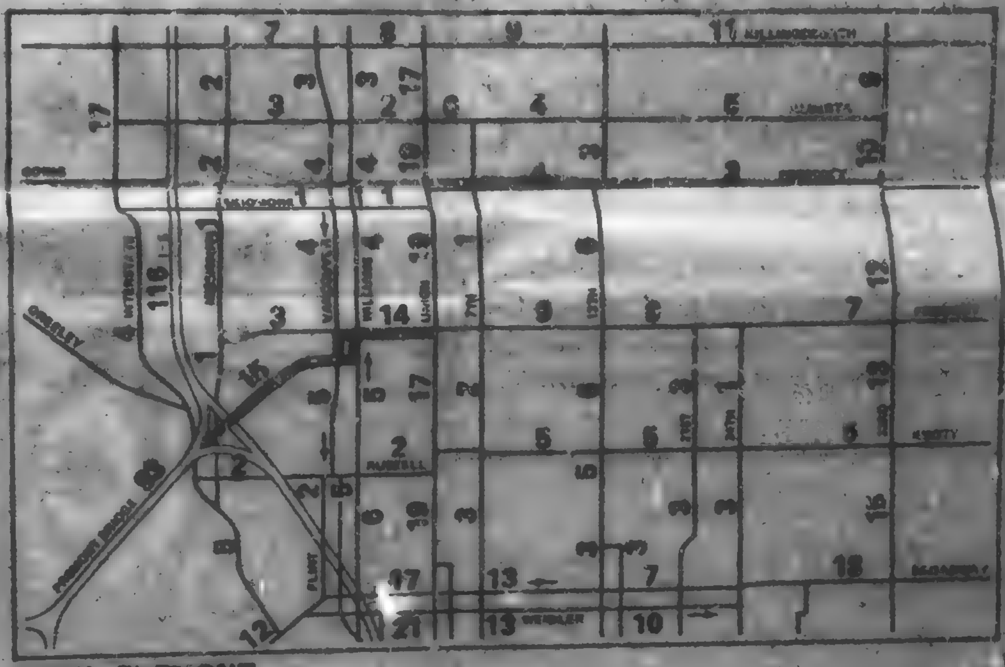
PRESCOTT
FREMONT
KNOTT
BROADWAY
WEIDLER


GOING
SKIDMORE
PRESCOTT
INTERSTATE
MISSISSIPPI
VANCOUVER
WILLIAMS
UNION
GREELEY
FREMONT
KNOTT
RUSSELL
FREMONT BRIDGE
FLINT
BROADWAY
WEIDLER

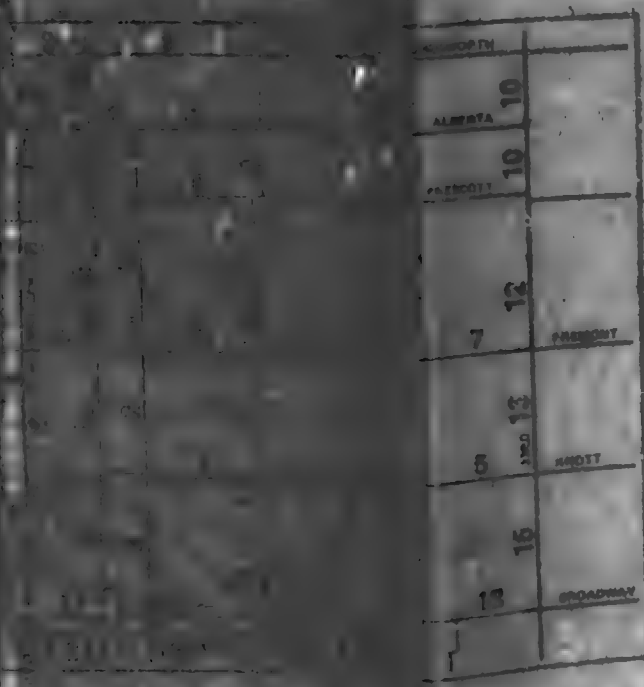
FREMONT BOULEVARD

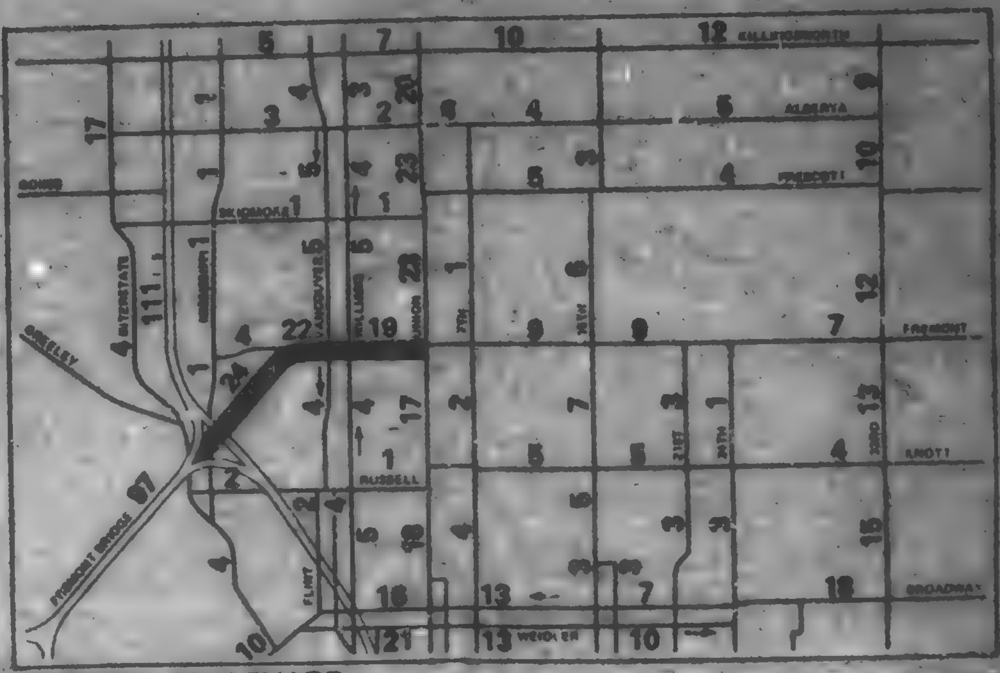
PROJECTED TRAFFIC IN 1990. (Average Daily Traffic in thousands of vehicles)


KILLINGSWORTH
ALBERTA
PRESCOTT
FREMONT
KNOTT
BROADWAY


KILLINGSWORTH
ALBERTA
GOING
PRESCOTT
SKIDMORE
INTERSTATE
MISSISSIPPI
VANCOUVER
WILLIAMS
UNION
GREELEY
FREMONT
KNOTT
RUSSELL
FREMONT BRIDGE
FLINT
BROADWAY
WEIDLER

COOK–FREMONT


KILLINGSWORTH
ALBERTA
PRESCOTT
FREMONT
KNOTT
BROADWAY


KILLINGSWORTH
ALBERTA
GOING
PRESCOTT
SKIDMORE
INTERSTATE
MISSISSIPPI
VANCOUVER
WILLIAMS
UNION
GREELEY
FREMONT
KNOTT
RUSSELL
FREMONT BRIDGE
FLINT
BROADWAY
WEIDLER

FREMONT BOULEVARD

Findings (continued)

ACCESS

Time and distance savings are measurable only for the Primary Impact Area. These savings are small--in the range of 1 to 3 minutes depending on the point of origin or destination. The total projected time savings (for all driving time in the Study Area) in 1990 under any of the build alternatives is by a factor of less than one percent. Nevertheless, because the bridge provides a visible, direct, easy-to-understand route to and from west-side parts of Portland, many people will perceive opening the ramps as a more significant improvement in access than is really the case when measured in actual travel time.

RAMP USE

The numbers in the matrix come as close as possible to answering the question "Who will use the ramp?" Where trips using the ramps will be going to or from on the west side of the Willamette River is similar under the build alternatives. The Northwest and Sunset Highway-Beaverton corridors account for most of the trips, the Southwest corridor for only a small proportion. The Central Business District will account for 10 percent of all trips in 1990 under Short Cook, 15 percent under Cook-Fremont, and 20 percent under Fremont Boulevard.

TRAFFIC CONDITIONS

The observations made in the matrix resulted from a comparison of projected traffic volumes with street capacities. Where congestion is said to occur in the matrix, projected traffic is over 100 percent of street capacity. Delays through two red lights will frequently occur during peak traffic hours and occasionally at other times.

AIR QUALITY

The impacts described in the matrix are based on predictions of carbon monoxide made using mathematical modeling. The predicted levels are compared to the Federal standard for maximum average levels over an eight-hour period. This standard is defined

NOISE

As with carbon monoxide levels, the noise impacts of the alternatives were identified using mathematical modeling. The first row of numbers in the matrix represents the total number of dwelling units in the Study Area west of 7th Avenue exposed to noise levels above 70 dBA at least 10 percent of the time during peak traffic hours. The alternatives will not affect noise levels east of 7th Avenue. The second row of numbers represents the number of dwelling units where noise levels would be below 70 dBA 10 percent of the time under the No Build alternative, but above under the build alternatives. These dwelling units are all either near the east-end ramps themselves or between the ramps and Union Avenue.

LAND USE

Opening the east-end ramps will not, in itself, result in any land use conversions except possibly as a direct result of property acquisitions for right-of-way expansion. Rather, the ramps will be only one of a number of influences on the use of land and the timing of development.

Land use along Union Avenue is particularly unstable. The matrix points out differences between the alternatives in their potential for supporting improvements in the run-down condition of properties along Union. Another area of unstable land use is Eliot neighborhood south of Russell Street. Land use here is a mixture of residential, commercial, and light industrial, and housing conditions are generally poor. However, the Eliot Neighborhood Plan calls for resi-

found for
be displac
vard alte

SOCIAL IM

Social im
are cause
umes, au
lation pat
ity, and
in the re
area west
ternatives

The envi
neighbor
with its
noisy, s
in neighb
more tim
yards, h
neighbor
day-to-d
neighbor
characte
street-wi
mix of v

PROJECT

The figu
that all
With the
moval va
ternative
funded
Urban A
currently
eligible
and Ore
will pay

ECONOM

The ove
ing the
positive
ramps
prove t
for the
Howe
be s
ta
impact

Improv
fic v
i
the
altern
ness s
the ma
the bu
busine

NOISE

As with carbon monoxide levels, the noise impacts of the alternatives were identified using mathematical modeling. The first row of numbers in the matrix represents the total number of dwelling units in the Study Area west of 7th Avenue exposed to noise levels above 70 dBA at least 10 percent of the time during peak traffic hours. The alternatives will not affect noise levels east of 7th Avenue. The second row of numbers represents the number of dwelling units where noise levels would be below 70 dBA 10 percent of the time under the No Build alternative, but above under the build alternatives. These dwelling units are all either near the east-end ramps themselves or between the ramps and Union Avenue.

LAND USE

Opening the east-end ramps will not, in itself, result in any land use conversions except possibly as a direct result of property acquisitions for right-of-way expansion. Rather, the ramps will be only one of a number of influences on the use of land and the timing of development.

Land use along Union Avenue is particularly unstable. The matrix points out differences between the alternatives in their potential for supporting improvements in the run-down condition of properties along Union. A [illegible] area of unstable land use is Eliot neighborhood south of Russell Street. Land use here is a mixture of residential, commercial, and light industrial, and housing conditions are generally poor. However, the Eliot Neighborhood Plan calls for residential redevelopment of the area. If

found for the 17 households that will be displaced by the Fremont Boulevard alternative.

SOCIAL IMPACTS

Social impacts of urban arterial projects are caused by changes in traffic volumes, automobile and pedestrian circulation patterns, noise levels, air quality, and visual quality. The analysis in the report focuses mainly on the area west of 7th Avenue where the alternatives affect traffic patterns.

The environment of the street in any neighborhood has a great deal to do with its livability. Heavy traffic is noisy, smelly, and dangerous. Even in neighborhoods where people spend more time indoors or in their backyards, heavy traffic is incongenial to neighborhood amenity. All of the day-to-day activities that go on in a neighborhood are influenced by the characteristics of traffic on the street--its volume, rate of flow, and mix of vehicle types.

PROJECT COSTS

The figures in the matrix assume that all costs are incurred in 1976. With the exception of the Ramp Removal variation of the No Build alternative, all alternatives will be funded under the Federal Aid to Urban Arterials program. This currently amounts to 86 percent of eligible costs. The City of Portland and Oregon State Highway Division will pay the remainder.

ECONOMIC IMPACTS

The overall economic impact of opening the ramps will be neither clearly positive nor negative. Opening the ramps alone will not significantly improve the long-run economic outlook for the eastern half of the Study Area. However, opening of the ramps may be supportive of other efforts that, taken together, may have a significant impact on the economy of the area.

Improved access to businesses and traffic volumes on commercial streets were important considerations in assessing the general economic impact of each alternative. The effects on net business sales and payrolls identified in the matrix reflect both instances where the build alternatives will dislocate businesses and where changes in traffic volumes will affect business sales. A major assumption is that traffic vol-

RAMP USE

The numbers in the matrix come as close as possible to answering the question "Who will use the ramp?" Where trips using the ramps will be going to or from on the west side of the Willamette River is similar under the build alternatives. The Northwest and Sunset Highway-Beaverton corridors account for most of the trips, the Southwest corridor for only a small proportion. The Central Business District will account for 10 percent of all trips in 1990 under Short Cook, 15 percent under Cook-Fremont, and 20 percent under Fremont Boulevard.

TRAFFIC CONDITIONS

The observations made in the matrix resulted from a comparison of projected traffic volumes with street capacities. Where congestion is said to occur in the matrix, projected traffic is over 100 percent of street capacity. Delays through two red lights will frequently occur during peak traffic hours and occasionally at other times.

AIR QUALITY

The impacts described in the matrix are based on predictions of carbon monoxide made using mathematical modeling. The predicted levels are compared to the Federal standard for maximum average levels over an eight-hour period. This standard is defined as the level requisite to protect public health and welfare.

Carbon monoxide can reduce the ability of blood to distribute oxygen to the body. Exposures to carbon monoxide at levels in the range of 1.5 to 2 times the standard have been observed to affect a person's ability to estimate time intervals. The violations of the standard identified in the matrix are in the range of 1.0 to 1.4 times the standard.

Metering traffic, as proposed under the Cook-Fremont and Fremont Boulevard alternatives, was found not to significantly affect carbon monoxide levels.

The effects of the alternatives on other pollutants, including lead, were also assessed, but found to be insignificant. Lead levels are a problem in the Study Area only within the I-5 right-of-way.

LAND USE

Opening the east-end ramps will not, in itself, result in any land use conversions except possibly as a direct result of property acquisitions for right-of-way expansion. Rather, the ramps will be only one of a number of influences on the use of land and the timing of development.

Land use along Union Avenue is particularly unstable. The matrix points out differences between the alternatives in their potential for supporting improvements in the run-down condition of properties along Union. Another area of unstable land use is Eliot neighborhood south of Russell Street. Land use here is a mixture of residential, commercial, and light industrial, and housing conditions are generally poor. However, the Eliot Neighborhood Plan calls for residential redevelopment of the area. If this plan is changed and conversion to commercial and light industrial uses encouraged, opening the east-end ramps under any of the build alternatives will support this change.

RELOCATION

Oregon State Highway Division policy stipulates that when property is acquired, "no family or individual will be required to vacate any dwelling without having found or been offered adequate replacement housing." The Highway Division maintains a Relocation Assistance Program to provide help, including financial compensation, to displaced households and businesses. Relocation benefits available are described in the Fremont Bridge Access Study report.

Recent experience with relocation in this part of the city suggests that adequate replacement housing can be

characteristi
street—its v
mix of vehic

PROJECT COS

The figure in
that all co
With the exce
moval variatio
ternative, all
funded under
Urban Arteria
currently amo
eligible costs.
and Oregon St
will pay the

ECONOMIC IMP

The overall ec
ing the ramps
positive nor
ramps alone
prove the lon
for the easter
However, ope
be supportive
taken togethe
impact on the

Improved acc
fic volumes o
important cons
the general ec
alternative.
ness sales an
the matrix ref
the build alte
businesses an
fic volumes wi
A major assum
umes and bus

COST-BENEFIT

A cost-benefit
quantitatively
fits or cost of
cause some co
quantifiable,
benefit analysi
only partially
effect of a pro

The decimal fr
can be read a
benefits per
They reflect
project costs
tion, construct
effect of the
and vehicle o
ness sales an
property valu
1990.

ome as
g the
amp?"
will be
side of
ar under
orthwest
on cor-
e trips,
nly a
al Busi-
10 per-
r Short
-Fremont,
t Boule-

e matrix
f projected
pacities.
occur in
is over
. Delays
requently
rs and

carbon
tatical
vels are
ndard for
an eight-
is defined
ted public

the abil-

LAND USE

Opening the east-end ramps will not, in itself, result in any land use conversions except possibly as a direct result of property acquisitions for right-of-way expansion. Rather, the ramps will be only one of a number of influences on the use of land and the timing of development.

Land use along Union Avenue is particularly unstable. The matrix points out differences between the alternatives in their potential for supporting improvements in the run-down condition of properties along Union. Another area of unstable land use is Eliot neighborhood south of Russell Street. Land use here is a mixture of residential, commercial, and light industrial, and housing conditions are generally poor. However, the Eliot Neighborhood Plan calls for residential redevelopment of the area. If this plan is changed and conversion to commercial and light industrial uses encouraged, opening the east-end ramps under any of the build alternatives will support this change.

RELOCATION

Oregon State Highway Division policy stipulates that when property is acquired, "no family or individual will be required to vacate any dwelling without having found or been offered adequate replacement housing." The Highway Division maintains a Relocation Assistance Program to provide help, including financial compensation, to displaced households and businesses. Relocation benefits available are described in the Fremont Bridge Access Study report.

Recent experience with relocation in this part of the city suggests that adequate replacement housing can be

street---its volume [illegible] mix of vehicle types.

PROJECT COSTS

The figures in the matrix assume that all costs are incurred in 1976. With the exception of the Ramp Removal variation of the No Build alternative, all alternatives will be funded under the Federal Aid to Urban Arterials program. This currently amounts to 86 percent of eligible costs. The City of Portland and Oregon State Highway Division will pay the remainder.

ECONOMIC IMPACTS

The overall economic impact of opening the ramps will be neither clearly positive nor negative. Opening the ramps alone will not significantly improve the long-run economic outlook for the eastern half of the Study Area. However, opening of the ramps may be supportive of other efforts that, taken together, may have a significant impact on the economy of the area.

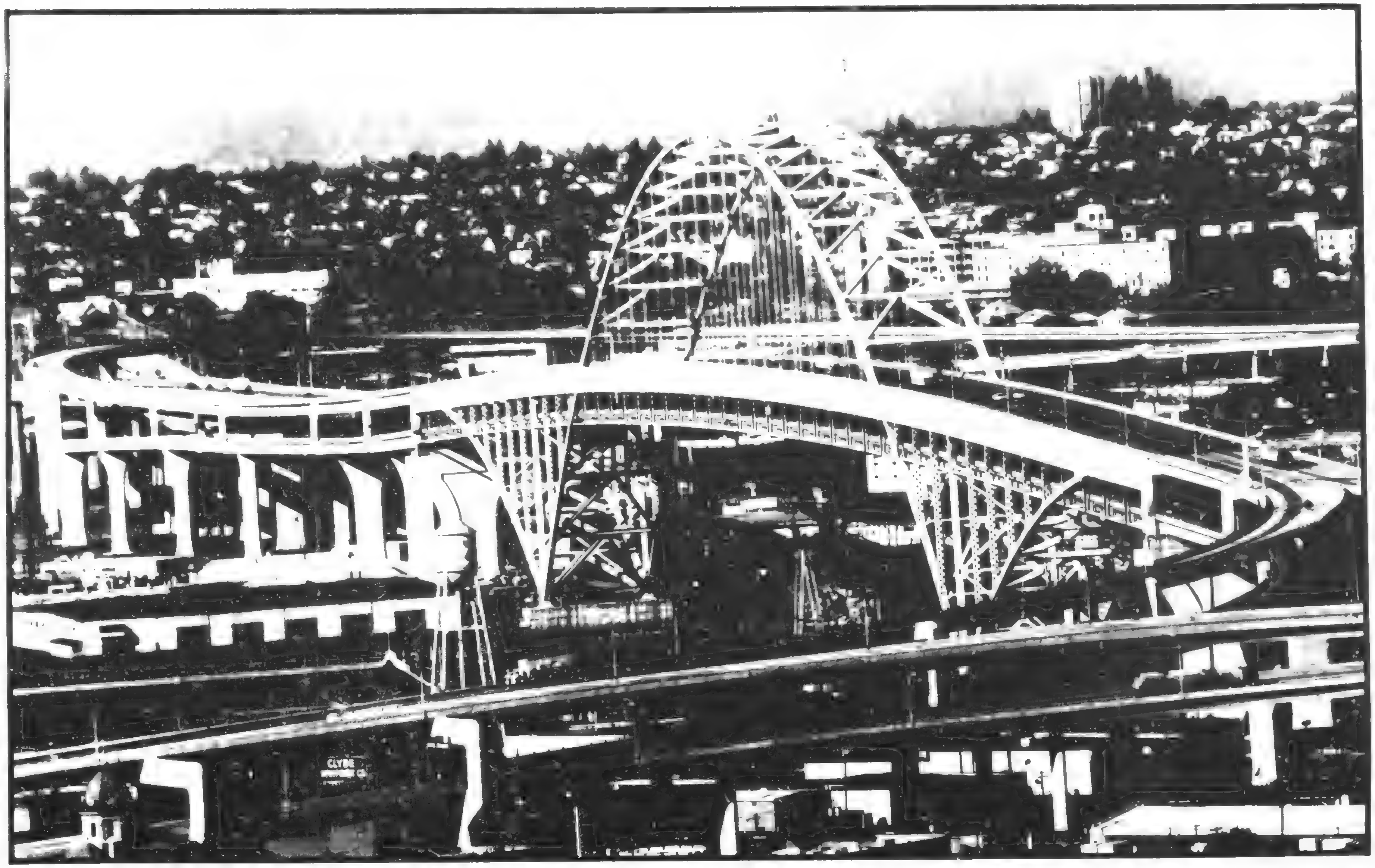
Improved access to businesses and traffic volumes on commercial streets were important considerations in assessing the general economic impact of each alternative. The effects on net business sales and payrolls identified in the matrix reflect both instances where the build alternatives will dislocate businesses and where changes in traffic volumes will affect business sales. A major assumption is that traffic volumes and business sales are related.

COST-BENEFIT COMPARISON

A cost-benefit analysis attempts to quantitatively measure the net benefits or cost of a proposed project. Because some costs and benefits are not quantifiable, the results of a cost-benefit analysis should be viewed as only partially indicative of the net effect of a project.

The decimal fractions in the matrix can be read as the value of net benefits per dollar of investment. They reflect the present value of project costs (engineering, relocation, construction, etc.) and the effect of the alternatives on time and vehicle operation costs, business sales and payrolls, and property values projected to 1990.

1979 E. Fremont Br. Conn. on 8909
FAU 9910 in Portland
(gr, pave, sign & illum.) #4



FREMONT BRIDGE ACCESS STUDY
DRAFT ENVIRONMENTAL IMPACT STATEMENT

FREMONT BRIDGE ACCESS STUDY
Draft Environmental Impact Statement

November 1976

STUDY PARTICIPANTS

CITY OF PORTLAND

Glen Pierce
PROJECT ENGINEER

OREGON STATE HIGHWAY DIVISION

Robert Bothman
ASSISTANT STATE HIGHWAY ENGINEER

FEDERAL HIGHWAY ADMINISTRATION

OREGON DIVISION

CITIZENS CONTACT COMMITTEE

Dale Dzubay
ALAMEDA NEIGHBORHOOD

James Crolley
BOISE NEIGHBORHOOD

Elmer Buehler
CONCORDIA NEIGHBORHOOD

Robert King
ELIOT NEIGHBORHOOD

John Wesley
EMANUEL HOSPITAL

Michael Hicks
GRANT PARK NEIGHBORHOOD

Brozie Lathan
HUMBOLDT NEIGHBORHOOD

Lewis Nashner
IRVINGTON NEIGHBORHOOD

Rosadelle Parker
KING NEIGHBORHOOD

Betty Walker
SABIN NEIGHBORHOOD

Elmer Weimer
UNION AVENUE BOOSTERS

TECHNICAL REVIEW COMMITTEE

Roger Budke
COLUMBIA REGION ASSOCIATION OF GOVERNMENTS

Cliff Christianson
FEDERAL HIGHWAY ADMINISTRATION

Jennifer Wilcox
OFFICE OF COMMISSIONER CONNIE McCREADY

Max Klotz
OREGON STATE HIGHWAY DIVISION

Al Berreth
PORTLAND BUREAU OF MAINTENANCE

Steve Dotterrer
PORTLAND BUREAU OF PLANNING

John Lang
PORTLAND BUREAU OF STREETS AND STRUCTURES

Don Bergstrom
PORTLAND BUREAU OF TRAFFIC ENGINEERING

Charles Olson
PORTLAND DEVELOPMENT COMMISSION

William Lieberman
TRI-MET

CONSULTANTS

CH2M HILL
EARTH METRICS, INC.

U. S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
Region 10

FHWA-OR-EIS-76-04-D

Fremont Bridge (I-405) to Union Avenue
City of Portland, Multnomah County, Oregon

ADMINISTRATIVE ACTION

DRAFT
ENVIRONMENTAL IMPACT STATEMENT

U.S. Department of Transportation
Federal Highway Administration

Oregon Department of Transportation
State Highway Division

City of Portland, Oregon
Department of Public Works

Submitted pursuant to 42 U.S.C. 4332(2)(C), 23 U.S.C. 128(a).

10-15-76
Date

Division Administrator,
for Federal Highway Administration

10-15-76
Date

Assistant State Highway Engineer,
Oregon State Highway Division

10/6/76
Date

City Engineer,
City of Portland

For additional information concerning the alternatives and this statement, contact:

City of Portland Department of Public Works

Glen R. Pierce
400 S.W. 6th Avenue
Portland, Oregon 97204

Phone: 248-4643

Federal Highway Administration

Glen L. Green
Division Administrator
Federal Highway Administration
Post Office Box 300
Salem, Oregon 97308

Phone: 378-3835

Oregon State Highway Division

Robert N. Bothman
Assistant State Highway Engineer
Oregon State Highway Division
5821 N.E. Glisan Street
Portland, Oregon 97213

Phone: 238-8226

Gary A. Potter
Manager
Environmental Section
Oregon State Highway Division
412 State Highway Bldg.
Salem, Oregon 97310

Phone: 378-8486

Larry W. Rulien
Project Management Engineer
Oregon State Highway Division
207 State Highway Bldg.
Salem, Oregon 97310

Phone: 378-6563

SUMMARY

Federal Highway Administration
Administrative Action
Draft Environmental Statement

The proposed Federal Highway Administration action is to participate with the Oregon Department of Transportation and City of Portland in opening a traffic connection to the east-end ramps of the Fremont Bridge (Interstate 405) in the City of Portland, Multnomah County, Oregon. The traffic connection would provide a new access route to the bridge for general use. The ramps have been built, but are now closed to general use.

A Section 4(f) statement has not been prepared for this project. None of the alternatives under consideration will require use of lands from a publicly owned park, recreation area, wildlife refuge, or waterfowl refuge. None of the properties which would be used are known to have historic significance. An investigation of historic significance of these properties has not been conducted. If an alternative which requres acquisition of improved properties is adopted, such an investigation will be conducted. If any properties are found to be historically significant, a Section 4(f) statement will be prepared and included with the Final Environmental Impact Statement.

Alternatives considered in this report include: (1) restricting general use by either removing, permanently closing, or limiting access to the ramps; (2) connecting the ramps to local collector streets to serve primarily as a neighborhood bridge access route; (3) connecting the ramps to an arterial street to serve as a community bridge access route and limiting total traffic use; and (4) connecting the ramps to the same arterial to serve as a community bridge access route but not limiting total traffic use.

The major findings contained in this report are summarized in Chapter 3 of Part I. Beneficial impacts identified include improved access, time savings, relief of traffic congestion on some streets, and possible support for urban redevelopment. Adverse impacts identified include increased traffic congestion on some streets, violations of the federal 8-hour carbon monoxide standard, and noise levels in excess of the Federal Highway Administration design standard for residences.

AGENCIES, GROUPS, AND ORGANIZATIONS BEING PROVIDED COPIES OF THIS REPORT ARE:

FEDERAL

U.S. Department of Transportation
U.S. Environmental Protection Agency
U.S. Department of Housing and Urban Development
U.S. Department of Interior, Environmental Project Review
U.S. Department of Agriculture, Soil Conservation Service
U.S. Veterans Administration

STATE

Oregon Federal Aid Coordination Unit
Department of Transportation
Public Utilities Commission
Economic Development Division
Department of Environmental Quality
Health Division
Housing Division
Local Government Relations Division
State Soil and Water Conservation Commission
Traffic Safety Commission
Governors Committee for a Livable Oregon
Oregon Roadside Council
Oregon State Library
Office of Energy Resources and Planning
Portland Community College (Cascade)
Portland State University

CITY OF PORTLAND

Planning Commission
Commissioner of Public Works
Commissioner of Public Safety
Commissioner of Finance and Administration
Commissioner of Public Utilities
Commissioner of Public Affairs
City Auditor
City Traffic Engineer
Police Bureau
Fire Bureau
Portland Development Commission
Bureau of Planning

MULTNOMAH COUNTY

Public Works Department
Planning Commission
County Libraries

OTHER AGENCIES

School District No. 1
Tri-Met
Columbia Region Association of Governments
Pacific Northwest River Basins Commission
Port of Portland

INTERESTED PRIVATE GROUPS

Oregon Environmental Council
Oregon Trucking Association
Oregon Council of Architects
Sensible Transportation Options for People
Portland League of Women Voters
End Needless Urban Freeways
Western Environmental Trade Association
Portland Chamber of Commerce
Portland Metropolitan Steering Committee
Associated General Contractors
Associated Oregon Industries
Northwest Environmental Defense Center
National Association for Advancement of Colored People
Urban League of Portland
Alameda Neighborhood Association
Boise Neighborhood Association
Concordia Neighborhood Association
Eliot Neighborhood Association
Grant Park Neighborhood Association

Humboldt Neighborhood Association
Irvington Neighborhood Association
King Neighborhood Association
Sabin Neighborhood Association
Union Avenue Boosters
Emanuel Hospital

NEWSPAPERS

The Oregonian
Oregon Journal
Daily Journal of Commerce
The Community Press
Oregon Labor Press
Oregon Times
Portland Observer
The Scanner
Willamette Week

TELEVISION

KATU
KGW
KPTV
KOIN
KOAP

This Draft Environmental Impact Statement was made available to the Council on Environmental Quality and the public on NOV 8 1976 1976. Receipt of comments is requested no later than forty-five (45) days from the above date to insure inclusion in the Final Environmental Impact Statement.

Table of Contents

Page

PART I. INTRODUCTION, DESCRIPTION OF ALTERNATIVES, AND SUMMARY OF ANALYSIS

Chapter 1. Introduction 1
Setting 1
Study Objectives 3
Project Definition 7
Project Need and Justification 7
Purpose of the Report 7
History of the Project 8
Study Design 10
Organization 10
Steps to Date 11
Further Action 11
Footnotes 12
References 13

Chapter 2. Description of Alternatives 15
No Build Variations 15
Ramp Removal 18
Permanent Closure 18
Limited Bridge Access 18
Hospital and Stanton Yard Only 18
Short Cook Alternative 18
Cook-Fremont Alternative 19
Fremont Boulevard Alternative 21
Other Alternatives 21
Short Ivy Alternative 21
Cook-Ivy Couplet Alternative 22
Cook Boulevard Alternative 22
Ivy Boulevard Alternative 22
References 23

Chapter 3. Summary of Analysis 33

Page

PART II. ANALYSIS

Chapter 1. Transportation 37
Travel Patterns 38
Projected Future Traffic Volumes 38
Significant Features 38
Total Traffic in 1980 and 1990 38
Streets West of 7th Avenue 38
Fremont Street West of Union 43
Fremont Street East of Union 43
Other Streets East of Union 43
I-5 44
Summary 44
Traffic Under the Hospital and Stanton Yard Only Variation of the No Build Alternative 44
Distribution of Through and Local Trips 45
Origin and Destination of Ramp Traffic 45
Willamette River Crossings 48
Access 48
Total Travel Distance and Travel Time 48
Access to Primary Impact Area 48
Emanuel Hospital 48
Bureau of Maintenance Facilities 50
Continental Bakery 50
Primary Impact Area East of Williams 51
Access to Rest of Study Area and Outside the Study Area 52
Operational Characteristics 52
Traffic Metering under Cook-Fremont and Fremont Boulevard 52
Effectiveness of Traffic Controls 55

Page

- Impacts 56
  - Parking 56
  - Traffic Congestion 57
    - No Build Variations 61
    - Short Cook 61
    - Cook-Fremont 61
    - Fremont Boulevard 61
    - 1980 Congestion and Mitigating Measures 61
    - 1990 Congestion and Mitigating Measures 63
  - Emergency Services 64
    - Ambulance 64
    - Police and Fire Protection 64
  - Public Transportation 65
    - Existing Public Transit 65
    - Transit Use of Ramps 65
    - Effect of Alternatives on Transit Service 66
- Transportation Planning 68
  - Regional Transportation Plan 68
  - Portland Arterial Streets Program 68
  - Union Avenue Redevelopment Plan 72
  - Bicycle Planning 73
- Footnotes 74
- References 74

Chapter 2. Air Quality and Noise 77

- Air Quality 77
  - Nitrogen Dioxide and Photochemical Oxidants 78
  - Carbon Monoxide 79
    - Significance 79
    - Existing Levels 79
    - Future Levels 79
    - Impact Analysis 81
      - Outside the Fremont Bridge to Union Avenue Corridor 82
      - Fremont Bridge to Union Avenue Corridor 82
      - Secondary Effects 84
  - Lead 86
    - Significance 86
    - Existing Levels 86
    - Future Levels 86
    - Impact Analysis 87
  - Suspended Particulate 87
  - Hydrocarbons 88
  - Effect of the Metering 88
  - Summary Comparison of Alternatives 89
  - Mitigating Measures 89
  - Coordination of the Air Quality Analysis with the Department of Environmental Quality 90
  - Consistency with State Implementation Plan 90
- Noise 91
  - Existing Levels 94
  - Future Levels 94
  - Impact Analysis 99
    - Predicted Noise Levels and Exposures 99
    - Effects of Predicted Noise Levels 101
      - Fremont Bridge to Union Avenue Corridor 102
      - Boise School 102
      - Eliot School 102
  - Mitigating Measures 103
    - Noise Barriers 103
    - Other Mitigating Measures 103
- Footnotes 104
- References 104

Page

Chapter 3. Land Use, Redevelopment, and Urban Design 107
  Land Use 107
    Union Avenue 110
    Eliot Neighborhood 111
  Redevelopment 112
    Redevelopment on Fremont near Williams and Vancouver (Fremont Boulevard) 112
    Redevelopment of the McDonald's Restaurant (Cook-Fremont and Fremont Boulevard) 113
    Redevelopment if the Ramps are Removed 114
    The Emanuel Hospital Urban Renewal Project 116
    The Bureau of Maintenance and the Greeley Avenue Ramps 117
  Urban Design 118
    Visual Impact and Design Considerations 118
    Urban Form 119
  Footnotes 120
  References 120

Chapter 4. Relocation 121
  Properties Affected by Project Impacts 121
  Who Will be Relocated 122
  Relocation Benefits 124
    Individual and Family Moving Expenses 125
    Storage of Personal Property 125
    Replacement Housing 125
    Business and Nonprofit Organizations 126
  Availability of Replacement Housing 126
  Footnotes 128

Page

  References 128

Chapter 5. Social Conditions and Impacts 129
  Existing Conditions 129
  Social Impacts 130
    No Build Variations 132
    Short Cook 133
    Cook-Fremont 133
    Fremont Boulevard 133

Chapter 6. Engineering and Construction 135
  Design Characteristics 135
    Compliance with Design Standards 135
    Design Problems 135
  Utility Relocation 136
  Construction 136
    Duration 136
    Construction Impacts 136
      Circulation and Access 136
      Air Quality and Noise 138
      Water Quality 138
      Utility Disruption 139
  Project Costs 139

Chapter 7. Economics 143
  Impacts 143
    General 143
    Commercial Activity 144
      Eliot Neighborhood 144
      Boise and Humboldt Neighborhoods 145
      Other Areas 145
    Industry 146
      General 146
      Eliot and Boise Neighborhood 146
    Public Services 146

Page

Property Values 147
Residential 147
Commercial 148
Cost-Benefit Analysis 148
Assumptions 149
Findings 151

Chapter 8. Other Impacts 153
Short-Term Use Versus Long-Term Productivity 153
Ramp Removal 153
Limited Bridge Access and Stanton Yard Only 153
Build Alternatives 153
Irreversible Commitment of Resources 154
Historical and Cultural Resources 155
References 156

Chapter 9. Adverse Impacts That Cannot be Avoided 157

LIST OF FIGURES

Project Setting 2
Study Area 4
Regional Setting 5
Primary Impact Area 6
Project Alternatives 16
Ramp Use 17
No Build Alternative 25
Short Cook Street Improvements 26
Cook-Fremont Street Improvements 27
Fremont Boulevard Street Improvements 28
Short Cook Project Features 29
Cook-Fremont Project Features 30
Fremont Boulevard Project Features 31
Major Traffic Streets and Traffic Controls 39

Page

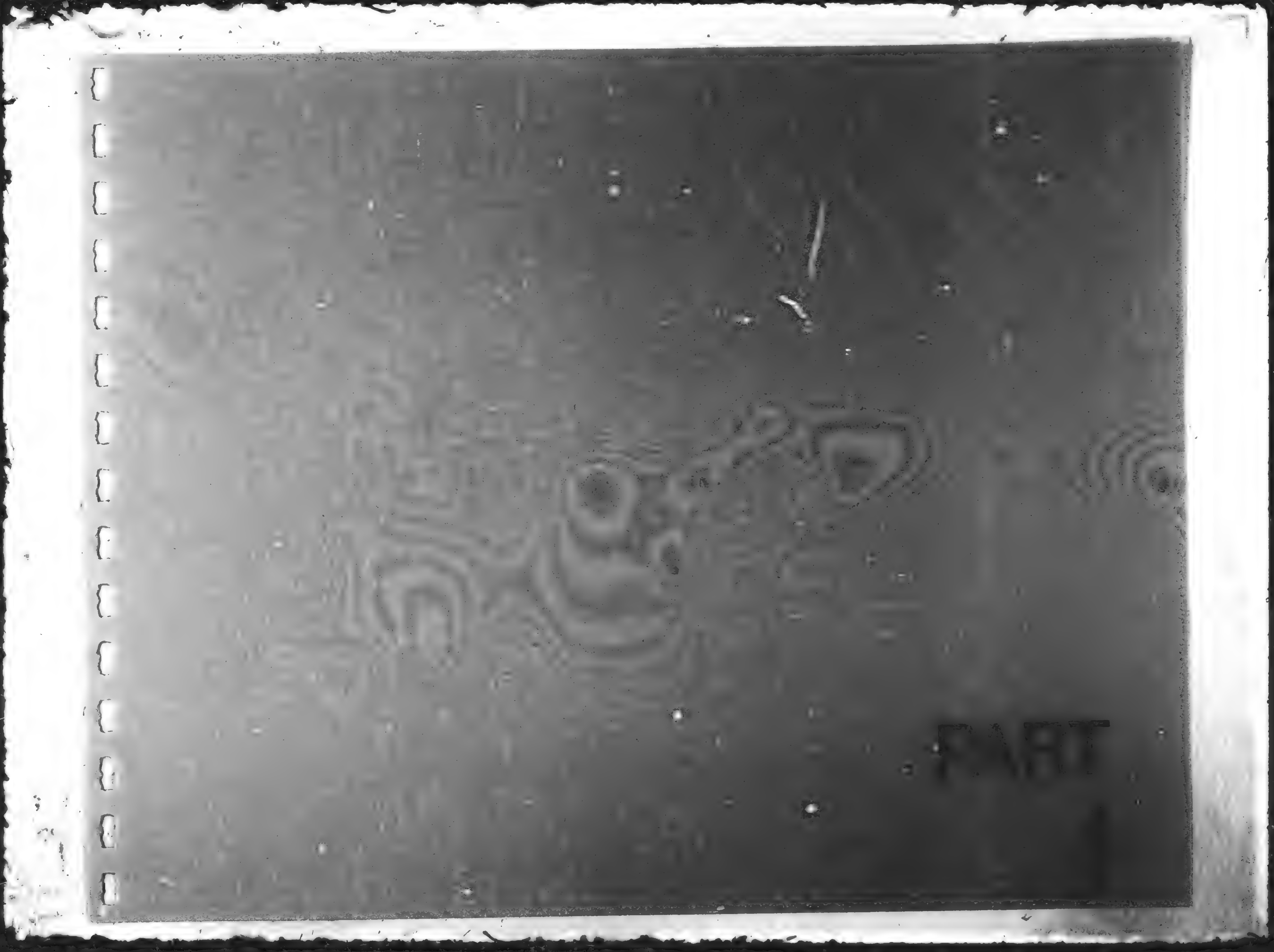
Existing Traffic 40
Projected Traffic in 1980 41
Projected Traffic in 1990 42
Existing Congestion (Capacity Deficiencies) 58
Projected Congestion (Capacity Deficiencies) in 1980 59
Projected Congestion (Capacity Deficiencies) in 1990 60
Existing Public Transit Lines 67
Interim Regional Tranpsportation Plan 70
Proposed Arterial Street Classifications 71
No Build Alternative Carbon Monoxide 80
Carbon Monoxide in 1980 83
Carbon Monoxide in 1990 85
Existing Noise 95
No Build Alternative Noise 96
Noise in 1980 97
Noise in 1990 98
Study Area Land Use 108
Primary Impact Area Land Use 109
Possible Redevelopment at Fremont and Williams/Vancouver 113
Possible Redevelopment of McDonald's 114
Possible Redevelopment with Ramps Removed 115
Location of Households and Businesses Eligible for Relocation Benefits, Fremont Boulevard Alternative 121
Portland Historical Landmarks 155

LIST OF TABLES

Through and Local Trips in 1990 46
Origin and Destination of Projected 1990 Ramp Traffic 47
Sound Levels and Effects of Illustrative Noises 92

Page

Federal Highway Administration Exterior Noise Standards 93
Dwelling Units Exposed to L_{10} Noise Above 70 dBA by Alternatives 100
Units Exposed to L_{10} Noise From 60 to 70 dBA and Above 70 dBA, Study Area West of 7th Avenue 101
Social Characteristics of Residents Directly Impacted 131
Duration of Construction 136
Estimated 1976 Project Costs 140
Cost-Benefit Analysis Summary 150


PART

Chapter 1
INTRODUCTION

The Fremont Bridge Access Study provides a comparative analysis of alternatives for connecting the east-end ramps of the Fremont Bridge to the city street system. The two ramps under study were designed and built to connect the Fremont Bridge to a future east-west freeway that city planners had projected through northeast Portland in the 1960's. The freeway is no longer part of the regional transportation plan.

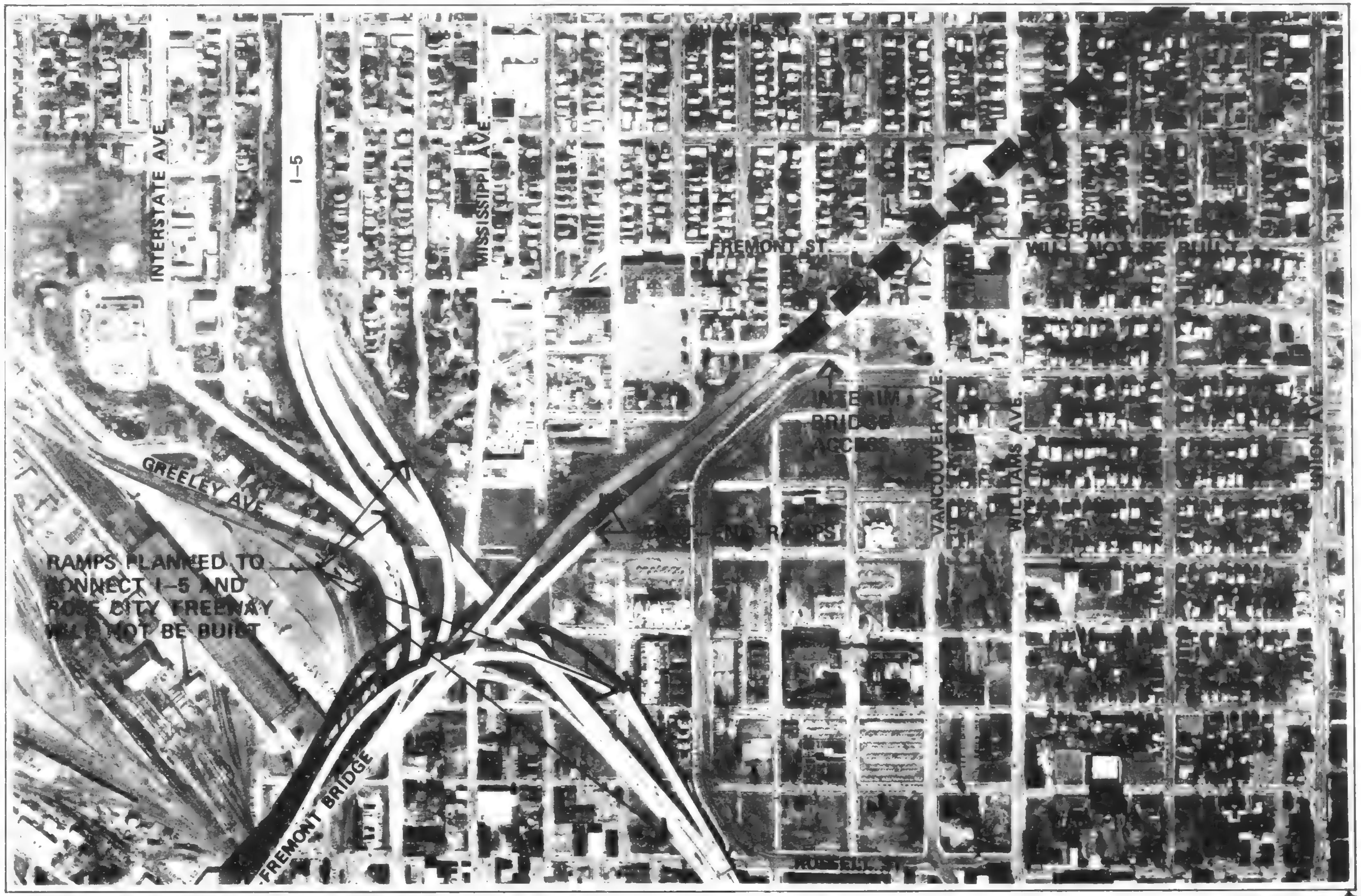
The east-end ramps have remained closed except for a limited connection to the on-ramp. This study is intended to provide a basis for deciding their ultimate disposition. It is part of the preliminary engineering studies for a project under the Federal Aid Urban System program. The project would be jointly sponsored by the Federal Highway Administration, the Oregon State Highway Division, and the City of Portland.

SETTING

The figure on the following page shows the circumstances creating the need for this study. The Fremont Bridge crosses the Willamette River and intersects with I-5. When the interchange connecting the Fremont Bridge and I-5 was designed, the Rose City Freeway was planned from I-5 through northeast Portland. When the interchange was constructed, the east-end ramps to connect the Fremont Bridge to the Rose City Freeway were built. Ramps to connect I-5 with the Rose City Freeway had been planned, but were not built. In the meantime, it was decided that neither the Rose City Freeway nor the ramps planned to connect it with I-5 would be built.

The east-end ramps were built to connect to the city street system until construction of the Rose City Freeway. A connection to Union Avenue, which is a 4-lane major arterial, was envisioned. When plans for the Rose City Freeway were abandoned, it became apparent that if the ramps were connected with city streets, it would be on a permanent basis. Possible advantages of this connection to Union Avenue, which is physically and economically depressed, coupled with concerns about the effects of traffic on neighborhoods in the area, created the need for this study.

The off-ramp has remained closed since construction of the east-end ramps. The on-ramp is open on an interim basis to provide access from the Emanuel Hospital campus via Gantenbein Avenue and Kerby Boulevard. Access from Cook Street is prohibited to discourage


INTERSTATE AVE.
I–5
MISSISSIPPI AVE.
FREMONT ST.
WILL NOT BE BUILT
GREELEY AVE.
RAMPS PLANNED TO CONNECT I–5 AND ROSE CITY FREEWAY WILL NOT BE BUILT
END RAMPS
INTERIM BRIDGE ACCESS
VANCOUVER AVE.
WILLIAMS AVE.
UNION AVE.
FREMONT BRIDGE
RUSSELL ST.
1"=600' North

PROJECT SETTING

use by traffic from outside the hospital campus. Few vehicles use the ramp.

The figure on page 4 shows the Study Area for this report. As the figure on page 5 shows, the Study Area is in the central Portland metropolitan area. The Fremont Bridge completes a freeway loop which surrounds Portland's Central Business District and links the major transportation corridors radiating from the city's core. For north and northeast portions of Portland, the bridge serves as an access route to northwest Portland, to the Sunset Highway corridor and, to a lesser extent, to the Central Business District.

The Study Area dates to the late nineteenth century. It contains both the most depressed and some of the most affluent and healthy inner-city neighborhoods in Portland. Much of the city's black population lives in neighborhoods in the western half of the Study Area; a few of these neighborhoods are predominantly black. Although primarily residential, land use is mixed west of Union Avenue. Relative to the eastern portion of the Study Area and the city as a whole, incomes here are low, unemployment high, and housing conditions poor. Nevertheless, most of this part of the Study Area remains a viable residential community.

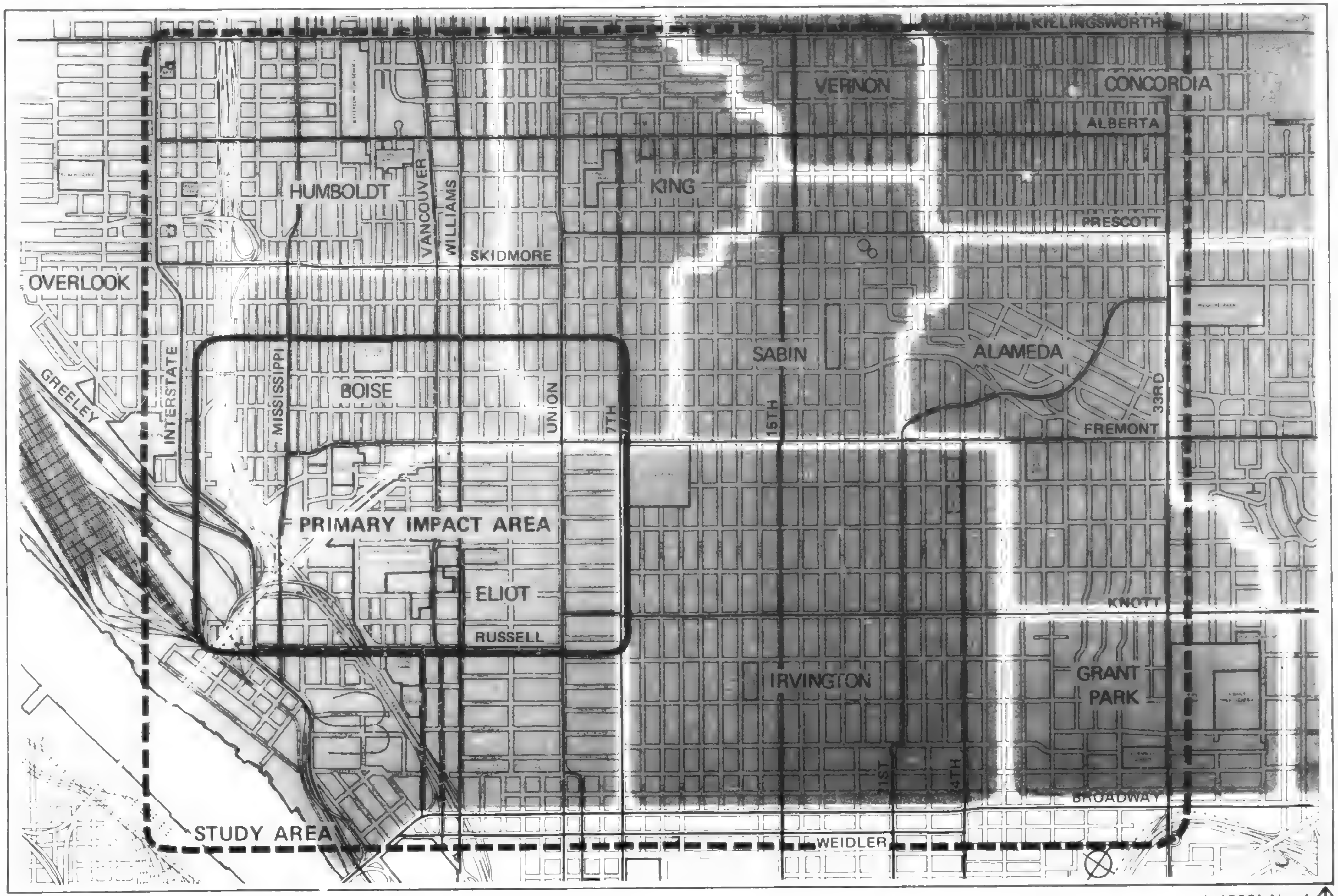
The population of the eastern portion of the Study Area is middle- and upper-income. The neighborhoods are well-preserved and the quality of housing is high. Significant nonresidential uses are located only along the southern perimeter.

The figure on page 4 identifies the "Primary Impact Area." Significant features of the Primary Impact Area are shown on the figure on page 6. The only significant physiographic feature is a sharp drop in elevation located beneath the Fremont Bridge/I-5 interchange.

Current public policy is to maintain the Study Area as a residential community. The Draft Model Cities Comprehensive Plan, which covers all or portions of Eliot, Boise, Humboldt, King, Vernon, Sabin, and Irvington neighborhoods, calls for efforts to improve housing, transportation, neighborhood conditions, and social services and to promote local economic development. The proposed Union Avenue Redevelopment Program seeks to revitalize Union Avenue as an important step in improving conditions in adjacent neighborhoods.

STUDY OBJECTIVES

In charging the Department of Public Works to undertake this study, the Portland City Council accepted


KILLINGSWORTH
VERNON
CONCORDIA
ALBERTA
HUMBOLDT
VANCOUVER
WILLIAMS
KING
PRESCOTT
SKIDMORE
OVERLOOK
GREELEY
INTERSTATE
MISSISSIPPI
BOISE
UNION
7TH
SABIN
15TH
ALAMEDA
33RD
FREMONT
PRIMARY IMPACT AREA
ELIOT
RUSSELL
KNOTT
IRVINGTON
GRANT PARK
21ST
24TH
BROADWAY
STUDY AREA
WEIDLER

1"=1800' North↑

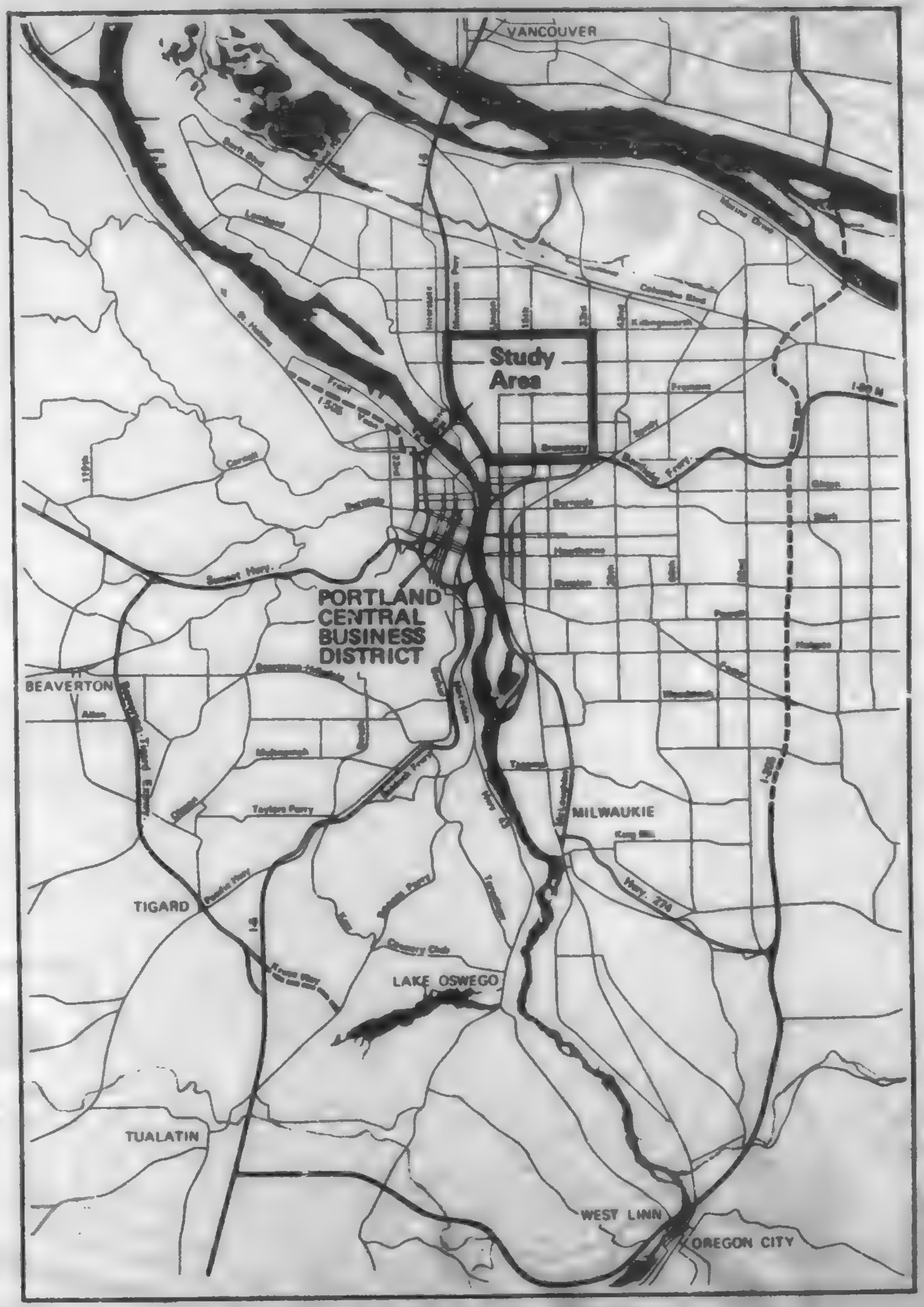
STUDY AREA

Note: Neighborhood boundaries are as shown on map entitled, "Boundaries Adopted by Neighborhood Association" prepared by the Portland Planning Commission and Office of Neighborhood Associations, Sept. 1975.

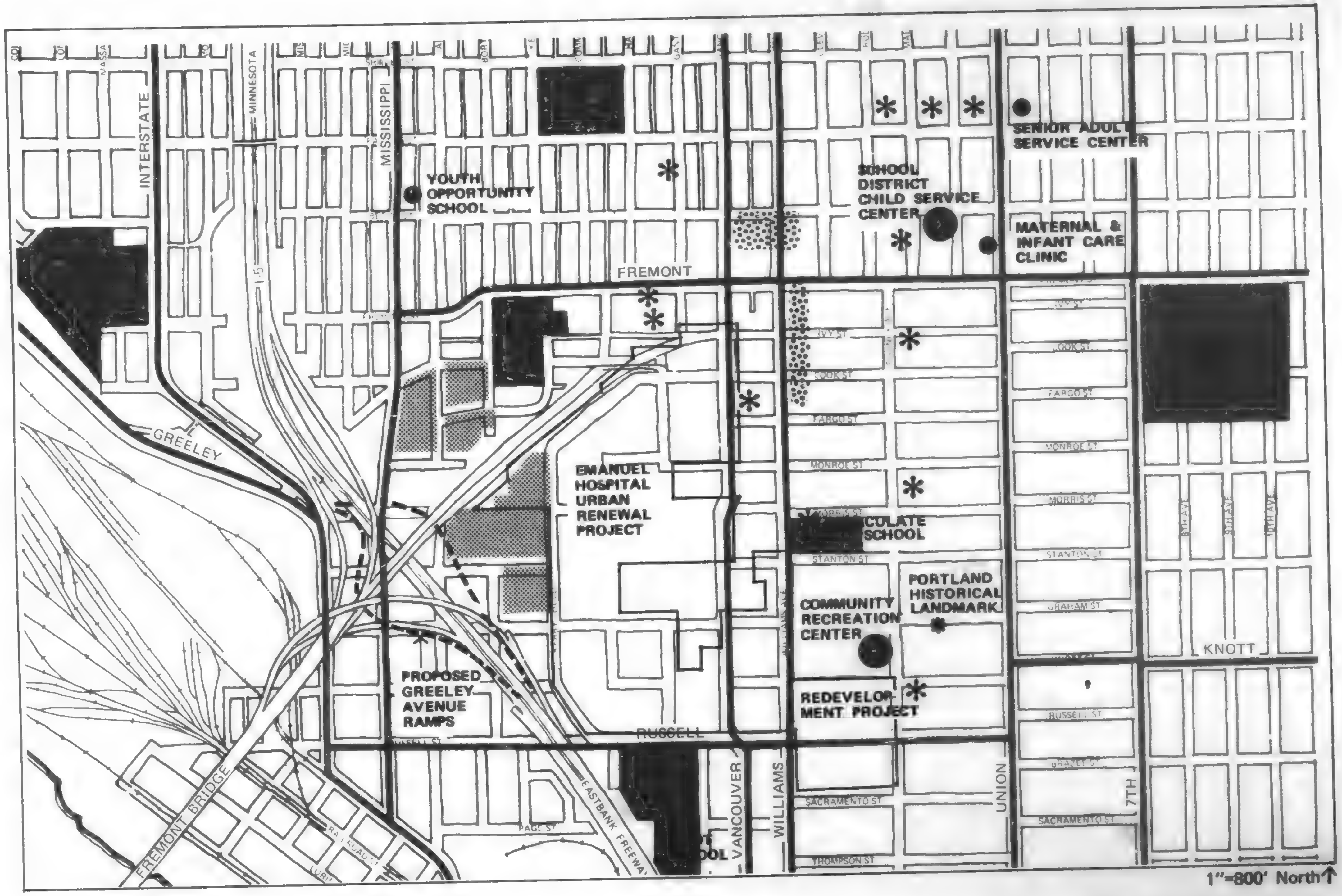
the recommendation of the Office of Planning and Development committing the Council to "a long-range solution linking the bridge ramps to Union Avenue." The Council set the following as "objectives to be met by the (alternative) long-range solutions" (Ref. 1):

> Ensure compatibility between the long-range solution and the design of the Union Avenue Redevelopment Program;
>
> Ensure that traffic to and from the ramps will be encouraged to use Union Avenue rather than Fremont or other east-west streets;
>
> Ensure that significant additional traffic will not be generated by the solution; and
>
> Ensure adequate access is provided to Emanuel Hospital, Stanton Yard, and the immediate neighborhood.

The Fremont Bridge Access Study also considers all reasonable alternatives in accordance with the policy of the Oregon State Highway Division and Federal Highway Administration. These alternatives include limited access and a "No Build" solution.


VANCOUVER
Study Area
PORTLAND CENTRAL BUSINESS DISTRICT
BEAVERTON
MILWAUKIE
TIGARD
LAKE OSWEGO
TUALATIN
WEST LINN
OREGON CITY

REGIONAL SETTING


INTERSTATE
MINNESOTA
I-5
MISSISSIPPI
GREELEY
FREMONT
FREMONT BRIDGE
EASTBANK FREEWAY
RUSSELL
VANCOUVER
WILLIAMS
UNION
7TH
KNOTT
YOUTH OPPORTUNITY SCHOOL
SENIOR ADULT SERVICE CENTER
SCHOOL DISTRICT CHILD SERVICE CENTER
MATERNAL & INFANT CARE CLINIC
EMANUEL HOSPITAL URBAN RENEWAL PROJECT
PROPOSED GREELEY AVENUE RAMPS
CULATE SCHOOL
COMMUNITY RECREATION CENTER
PORTLAND HISTORICAL LANDMARK
REDEVELOPMENT PROJECT
IVY ST
COOK ST
FARGO ST
MONROE ST
MORRIS ST
STANTON ST
GRAHAM ST
RUSSELL ST
SACRAMENTO ST
THOMPSON ST
8TH AVE
9TH AVE
10TH AVE
PAGE ST
1"=800' North↑

PRIMARY IMPACT AREA

Neighborhood Commercial
Bureau of Maintenance
Church

PROJECT DEFINITION

The "project" is defined as the connection of the east-end ramps of the Fremont Bridge to the city street system for use by general vehicular traffic. Two of the alternative solutions connect the ramps to Union Avenue. One connects the ramps to the local streets but not to Union Avenue. A fourth alternative is to not implement the project as defined. Each alternative is described in detail in the following chapter.

PROJECT NEED AND JUSTIFICATION

The east-end ramps were designed and constructed to connect the Fremont Bridge with a freeway through the northeast section of the city. Since that freeway is no longer included in the regional transportation plan, the original need for the ramps no longer exists. Consequently, the need for the project is for an alternative use of the ramps that will provide a return in public benefits on the investment made in their construction. Benefits from using the ramps to connect the Fremont Bridge to the local street system would include improved cross-river access, reduced travel time, vehicle operation cost savings, relief of congestion on certain streets and support for redevelopment in areas near the ramps. This report assesses the magnitude of these benefits and of adverse project impacts.

The need to avoid or minimize disruption caused by traffic using the ramps is equally as important as the need to realize benefits from use of the ramps. Substantial public and private resources have been expended to maintain and improve the affected neighborhoods. Either because they are economically and socially depressed or because they are healthy and stable, the neighborhoods are critical policy concerns of the city. There is a need to end the long-standing uncertainty over use of the ramps. This uncertainty discourages investment in the neighborhoods and is a cause of community concern and dispute.

PURPOSE OF THE REPORT

The report serves a multiple purpose. First, it describes alternatives for the use of the ramps and describes the advantages and disadvantages of each course of action to inform interested members of the public and enable the City Council to make a final decision on the disposition of the ramps.

Second, the report serves the Oregon Department of Transportation as a Preliminary Location Study Report and Environmental Statement as required by the Department's Action Plan for Transportation Planning (Ref. 2). The plan states that in the project development process the Department will:

> Utilize a systematic interdisciplinary approach;
>
> Consider appropriate alternatives--both type and scale;
>
> Ensure cooperation among citizens, as individuals and as groups, technical personnel and public officials;
>
> Ensure that planning information is available to other governmental organizations in a clear and comprehensive manner to facilitate participation in an open exchange of views and that transportation planning will be conducted with the participation of other agencies, recognizing their policies and goals, and based upon areawide and comprehensive plans.

Third, the report serves as the location study and draft environmental impact statement required by the Federal Highway Administration. The National Environmental Policy Act of 1969 requires the preparation of an environmental impact statement for all "major federal actions significantly affecting the quality of the human environment" (Ref. 3). Federal actions include actions by state and local agencies that are paid for from federal funds.[1]

HISTORY OF THE PROJECT

A new bridge on an alignment with Fremont Street is found in city plans that date back to the early 1900's. In 1927 the City Planning Commission issued a "Major Traffic Street Report" which proposed, among other projects, that a bridge be built in the general location of the present Fremont Bridge and that Fremont Street be designated as a "street for major traffic," with a right-of-way at least 120 feet wide (Ref. 4). An "improved" Fremont Street would relieve Sandy Boulevard, provide an alternate route for northeast residents going downtown, and serve as a primary route between northeast neighborhoods and the industrial areas that were building up along the river.

The Moses Report of 1943 proposed a river crossing in the vicinity of the present Fremont Bridge, connecting with a "throughway" north to Vancouver along Vancouver Avenue (Ref. 5). Moses did not recommend an east-west "throughway" through Northeast Portland.

In 1955 the Oregon State Highway Department issued its report, Freeway and Expressway System, Portland Metropolitan Area (Ref. 6). The report recommended a "Fremont Freeway" paralleling Fremont Street and connecting to the Stadium Freeway on the downtown side of the river and to the Banfield Freeway on the east.

Three years later the City Planning Commission adopted a map titled "Comprehensive Development Plan," which showed, instead of the Fremont route, a "Rose City Freeway" from a "Fremont Bridge" to

Prescott Street, along Prescott to about 42nd Avenue, then jogging north and paralleling Killingsworth to the proposed I-205 Freeway.

The Oregon State Highway Department completed the design of the Fremont Bridge in about 1964. It was assumed that ramps planned for the east-end interchange would be connected with the Minnesota Freeway (I-5) and, eventually, with the proposed Rose City Freeway.

In 1966 the City Planning Commission revised the Comprehensive Development Plan map, but kept the Rose City Freeway. In the same year the Portland City Council agreed with the Oregon Highway Department on arrangements for a temporary connection between the Fremont Bridge east-end ramps and the local street system (Ref. 7). The on-ramp would connect to Fremont Street by way of Commercial Avenue. The off-ramp would connect to Vancouver Avenue by way of Ivy Street.

Three years later, in 1969, the Columbia Region Association of Governments (CRAG) adopted the Portland-Vancouver Metropolitan Area Transportation System plan (PVMATS). The plan included the Rose City Freeway, which was shown in a 1971 report (Ref. 8) as a six-lane facility between the Fremont Bridge and 33rd Avenue, with a capacity of 90,000 vehicles per day. Beyond 33rd Avenue the freeway was designed as a four-lane facility with a capacity of 60,000 vehicles per day.

Public concern over the proposed Rose City Freeway was first expressed in planning for the Model Cities neighborhoods. A Traffic Circulation Plan prepared for Model Cities by a consultant in 1971 noted that CRAG and the Oregon Highway Division "have indicated that construction of the Rose City Freeway...in all probability will not occur within the next 20 years, if ever" (Ref. 9). The study projected traffic volumes on a Fremont-Ivy couplet connecting the bridge with Union Avenue, and recommended instead that the ramps be connected to a widened Fremont Street, on the grounds that the intersection at Union would be simpler and the impact on the neighborhood would be lessened.

On Labor Day, 1971, a rally on the bridge ramps attracted a number of people from the neighborhood and others in the city who were questioning the need for another freeway. A draft Model Cities Comprehensive Plan was adopted by the Citizens Advisory Board in 1973. Transportation Policy No. 1 stated that "The Rose City Freeway will not be built until after 1990, if ever. Therefore, present transportation and land use planning must be predicted on the assumption that it does not and will not exist" (Ref. 10).

Meanwhile persons active in neighborhood planning in the Model Cities area were expressing concern about the traffic impact caused by connecting the bridge with the city street system. Both the Irvington and Eliot Neighborhood Plans had emphasized the need to protect residential areas from unnecessary traffic. The Fremont Bridge was opened to traffic November 15, 1973. Faced with a lack of agreement on how to open the east-end ramps, the City Council voted to delay their use as originally agreed with the Highway Division. The ramps connecting to Interstate 5 were opened, but the ramps connecting to the surface streets remained closed.

In January 1974, following a public hearing, the City Council adopted an "interim solution" to the use of the east-end ramps (Ref. 1). The off-ramp would be left closed, and a one-lane connector would allow access to the bridge from Kerby Boulevard northbound for Stanton Yard (City Bureau of Maintenance) traffic, and from Gantenbein Avenue for Emanuel Hospital traffic. At the same time the City Council authorized the present study to assist the city in arriving at a long-range solution to the disposition of the two bridge ramps.

In June 1975 CRAG adopted the Interim Transportation Plan for the Portland-Vancouver Metropolitan Area (Ref. 11). This officially deleted the Rose City Freeway from the regional transportation plan, confirming that any use of the east-end ramps would be for local rather than regional access.

STUDY DESIGN

This section of the report describes how the study is organized, how it has been carried out, and what steps will be taken in the future.

ORGANIZATION

There are a number of participants in the study. The consultant team is made up of professional engineers, city planners, economists, and environmental scientists. The staff of the Portland Department of Public Works has administered and monitored the work of the consultant team. A "Citizens Contact Committee" has acted as liaison between the consultant team and the Study Area community. A Technical Review Committee, made up of staff representatives from federal, state, and local government agencies, has also had the responsibility to review and comment on the work of the consultant team.[2] The general public has been invited to talk with consultants at community meetings.

STEPS TO DATE

The study to date has consisted of four steps. The first step assessed background conditions. The consultants identified existing traffic and transportation patterns, social and economic conditions, air pollution and noise levels, land use, and the prospects for future economic conditions in the Study Area. Their findings were summarized in working papers (Refs. 12, 13, 14, and 15), which were submitted to the Citizens Contact and Technical Review Committees and made available for public review.

The second step consisted of evaluating preliminary alternatives based on the City Council's objectives (discussed earlier in this chapter) and on the working papers. With input from the Citizens Contact Committee, these alternatives were gradually refined and reduced to nine, which were then described and evaluated in another working paper (Ref. 16).

This working paper was submitted to the Citizens Contact and Technical Review Committees for review to initiate the third step, selection of final alternatives. A series of meetings was held and written comments were solicited. On the basis of comment by the committees and the study team's evaluation, a new alternative was developed and a set of final alternatives was selected. A record was made of the consultation on selection of the final alternatives (Ref. 17), and the alternatives were presented at a public meeting.

Finally, the consultants made a detailed analysis of the final alternatives and prepared this report. This process was guided by a set of analysis criteria prepared earlier in the study process and reviewed by the Citizens Contact and Technical Review Committees (Ref. 18). Written and verbal comments received during the selection process and at preceding community meetings were reviewed to insure that the report would address public and agency concerns. The Citizens Contact and Technical Review Committee then reviewed the preliminary drafts of the report.

In addition to coordination with the governmental agencies represented on the Technical Review Committee, there has been ongoing contact with the Oregon Department of Environmental Quality throughout the study.

FURTHER ACTION

Copies of this report will be sent to concerned public agencies and other interested organizations (listed on pp. vi-vii) and made available for public review, and a summary will be distributed to the public. The findings of the report will be presented at a community meeting for the general public.

After a reasonable amount of time for public review, a formal public hearing will be held. A transcript of this hearing will be combined with written comments submitted to the city in an official record. The report will also be considered by the Board of the Northeast Coalition of Neighborhoods and the Portland Planning Commission for their recommendation.

Following these steps, the City Council will hold hearings and make a decision on a final course of action. The Council will then request assistance from the Oregon Department of Transportation (ODOT) and the Federal Highway Administration (FHWA) for funding to construct whatever improvements are required to implement its decision.

A Final Environmental Impact Statement (FEIS) will be prepared once the City Council decides on a course of action. The FEIS will focus on the solution adopted and respond to comments made during public review. It will be considered by ODOT and FHWA when they take action on the city's request for assistance.

FOOTNOTES

1. This report has been prepared in conformance with Sections 2, 3, and 9 of Chapter 7, Volume 7 of the Federal-Aid Highway Program Manual. These interpret Federal Highway Administration regulations for highway design and environmental impact analysis (Federal Highway Administration, U.S. Department of Transportation, "Design Approval and Environmental Impact," 23 CFR Part 771.62, 39 Federal Register 41809, 2 December 1974) which implement the requirements of the President's Council on Environmental Quality (40 CFR Part 1500, 38 Federal Register, 1 August 1973) for compliance with the National Environmental Policy Act of 1969, (P.L. 91-190, 42 USC 4321-4347), and the procedures established by the Advisory Council on Historic Preservation (36 CFR Part 800, 39 Federal Register, 25 January 1974) for protection of historic and cultural properties pursuant to the National Historic Preservation Act of 1966 (P.L. 89-663, 16 USC 470) and Executive Order 11593, "Protection and Enhancement of the Cultural Environment" (16 USC 470, 36 Federal Register 8921).

2. Members of these committees are listed in the front of this report.

REFERENCES

1. City of Portland Ordinance No. 137707, 16 January 1974.
2. Highway Division, Oregon Department of Transportation, Oregon Action Plan for Transportation Planning, May 1974, pp. 3-9.
3. The National Environmental Policy Act of 1969, P.L. 90-190, 42 USC §4321, et. seq.
4. Portland City Planning Commission, Major Traffic Street Report, 1927, p. 24.
5. Robert Moses, et. al., Portland Improvement, November 1943.
6. Oregon State Highway Department, Freeway and Expressway System, Portland Metropolitan Area, June 1955, pp. 76-79.
7. City of Portland Ordinance No. 122925, 21 July 1966.
8. Portland-Vancouver Metropolitan Area Transportation Study, 1990 Transportation Plan, Interim Report, March 1971, p. 11.
9. DeLeuw Cather & Co., Model Cities Traffic Circulation Plan, December 1971, pp. 17-18, 29, and 43-45.
10. Draft Model Cities Comprehensive Plan, June 1973, p. 34.
11. Columbia Region Association of Governments, Interim Transportation Plan for the Portland-Vancouver Metropolitan Area, June 1971.
12. CH2M HILL, Working Paper No. 2, Study Area Conditions, Fremont Bridge Access Study, June 1975.
13. ________, Working Paper No. 4, Future Economic Conditions, Fremont Bridge Access Study, September 1975.
14. ________, Working Paper No. 5, Traffic and Transportation, Fremont Bridge Access Study, October 1975.
15. ________, Working Paper No. 6, Existing Air Quality and Noise Conditions, Fremont Bridge Access Study.
16. ________, Working Paper No. 7, Evaluation of Preliminary Alternatives, Fremont Bridge Access Study, December 1975.
17. ________, Record of Consultation on Selection of Final Alternatives, unpublished.
18. ________, Working Paper No. 3, Analysis Criteria, Fremont Bridge Access Study, October 1975.

Chapter 2

DESCRIPTION OF ALTERNATIVES

This chapter describes the four alternatives analyzed in this report. They are shown schematically on the following page. Three alternatives connect the east-end ramps of the Fremont Bridge and the city street system for use by general vehicular traffic. These are the "build" alternatives. The fourth alternative is to not make a connection with the city street system for general vehicular use. This is the "No Build" alternative. There are four variations of the No Build alternative, ranging from limited use of the ramps to their removal.

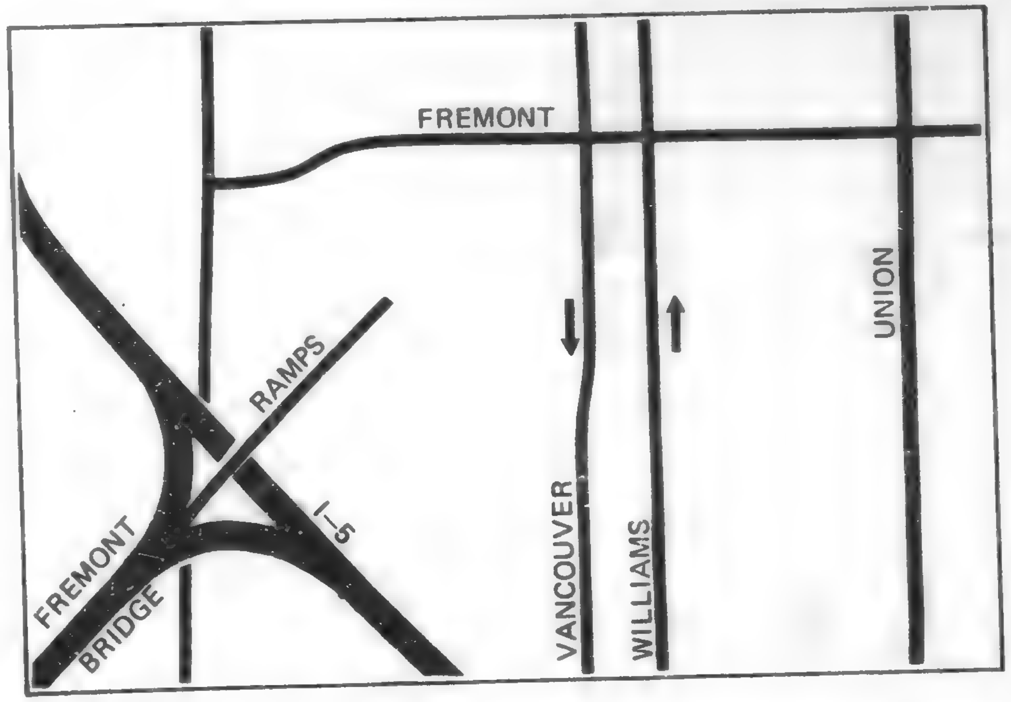
In addition to responding to the study objectives in Chapter 1, the alternatives were developed to: (1) provide a range of choice in the use of the ramps (defined in terms of the level of access afforded and amount of traffic projected to use them) and in the type and magnitude of impacts associated with the different uses; and (2) minimize adverse impacts.

Each alternative consists of the street improvements necessary to accommodate the intended use of the ramps on the basis of expected traffic flow in the design year 1990. Each also involves additional measures to minimize expected adverse effects directly or indirectly associated with anticipated traffic volumes. These relate primarily to traffic circulation impacts.

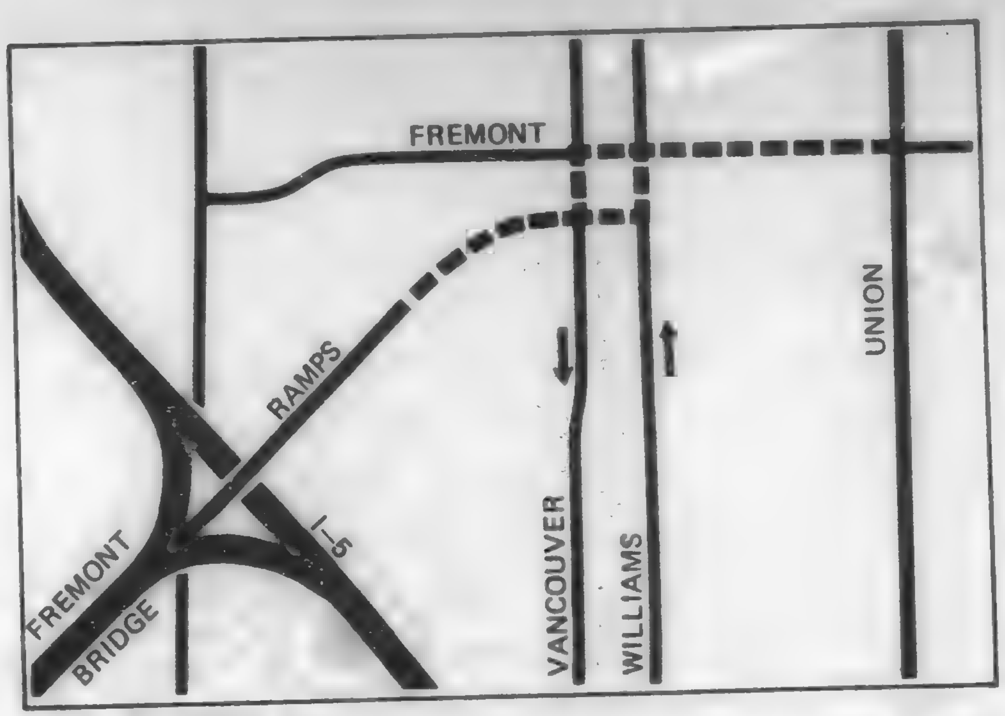
The four alternatives are No Build, Short Cook, Cook-Fremont, and Fremont Boulevard. The alternatives reflect three basic concepts for use of the ramps, shown graphically on page 17. Under the No Build alternative, one or both of the ramps will either not be used at all or used only for certain special-purpose trips. Under the Short Cook alternative, the ramps will be used primarily by traffic going to or from the neighborhoods in the immediate vicinity. Under the Cook-Fremont and Fremont Boulevard alternatives, the ramps will be used by traffic going to or from a larger area that comprises a significant portion of Northeast Portland. The area for the Cook-Fremont alternative is smaller than the area for Fremont Boulevard because Cook-Fremont limits total traffic using the ramps.

NO BUILD VARIATIONS

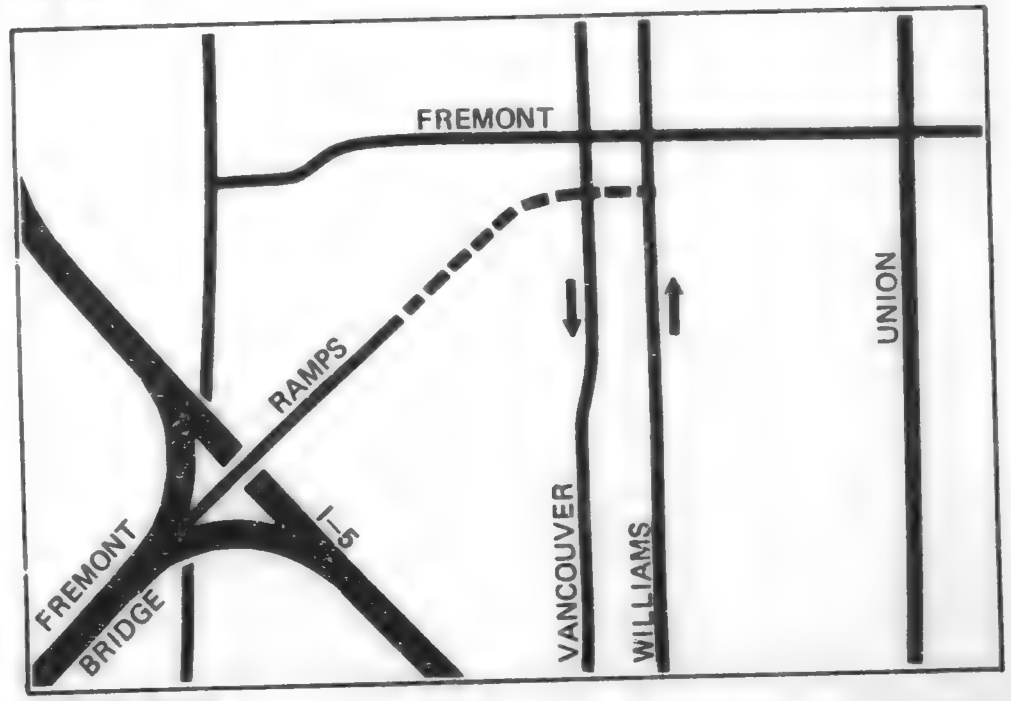
The four variations of the No Build alternative are shown in the figure on page 25.


FREMONT
RAMPS
FREMONT BRIDGE
I–5
VANCOUVER
WILLIAMS
UNION

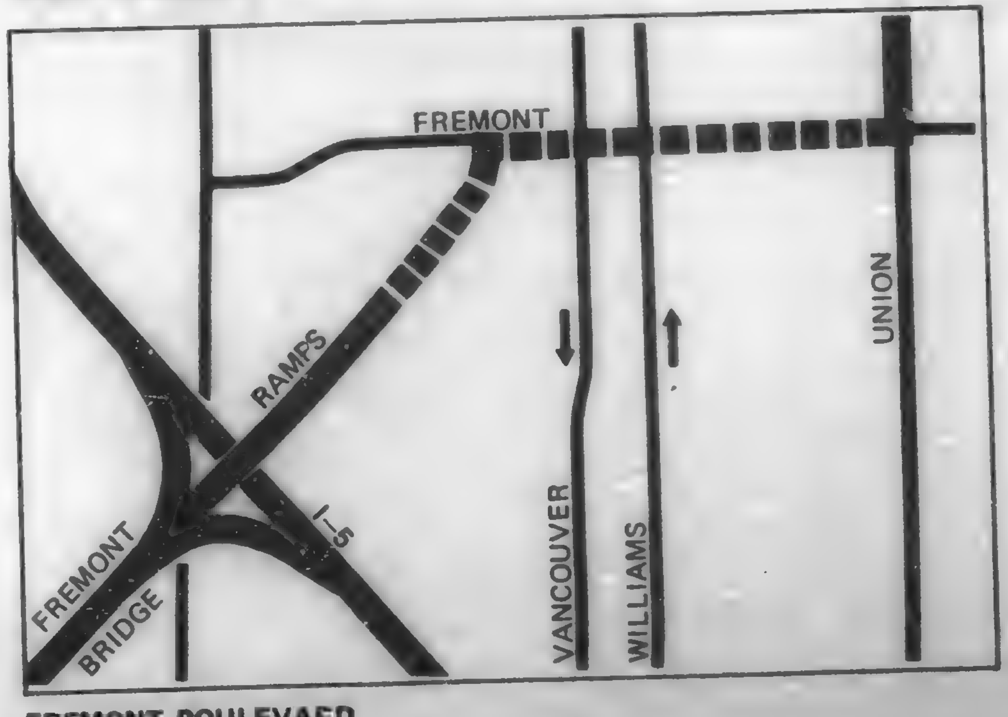
NO BUILD


FREMONT
RAMPS
FREMONT BRIDGE
I–5
VANCOUVER
WILLIAMS
UNION

COOK–FREMONT

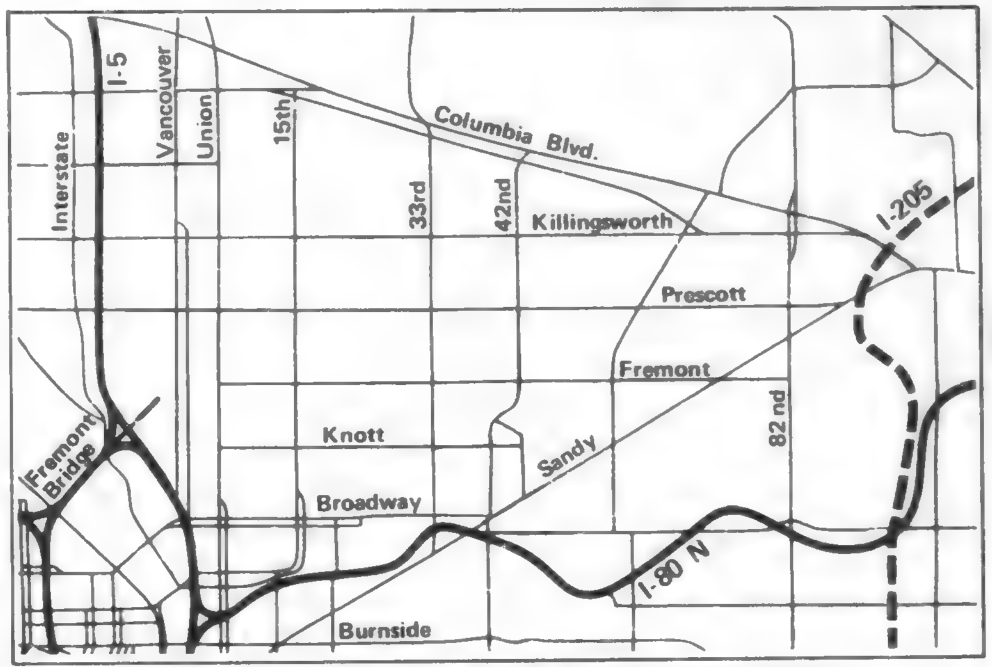

FREMONT
RAMPS
FREMONT BRIDGE
I–5
VANCOUVER
WILLIAMS
UNION

SHORT COOK

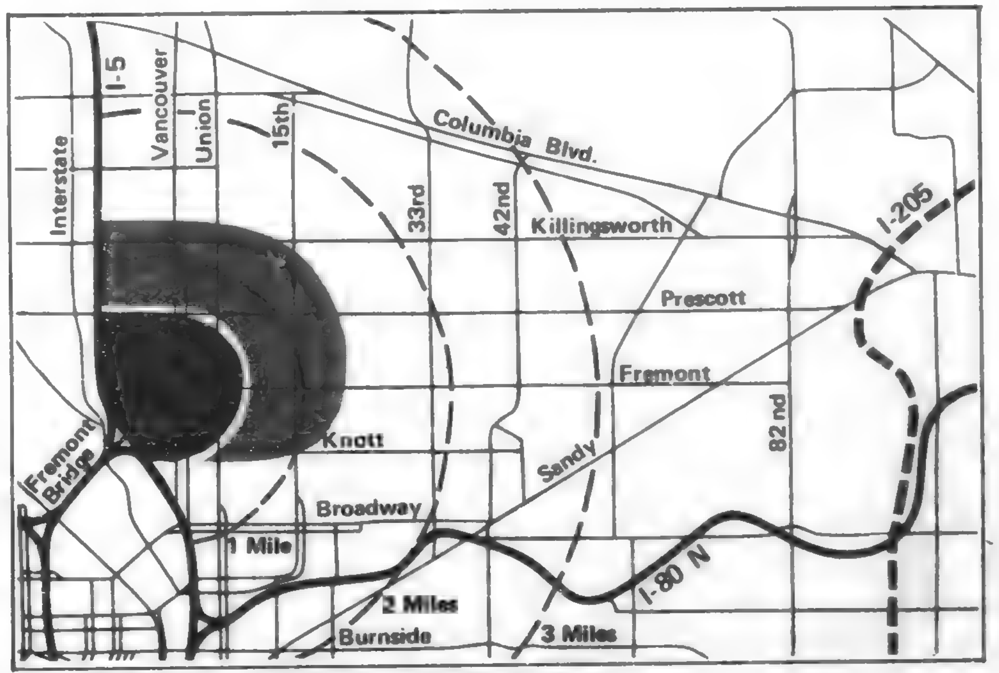

FREMONT
RAMPS
FREMONT BRIDGE
I–5
VANCOUVER
WILLIAMS
UNION

FREMONT BOULEVARD

PROJECT ALTERNATIVES


Interstate
I-5
Vancouver
Union
15th
Columbia Blvd.
33rd
42nd
Killingsworth
Prescott
Fremont
Knott
Sandy
82nd
I-205
Fremont Bridge
Broadway
I-80 N
Burnside

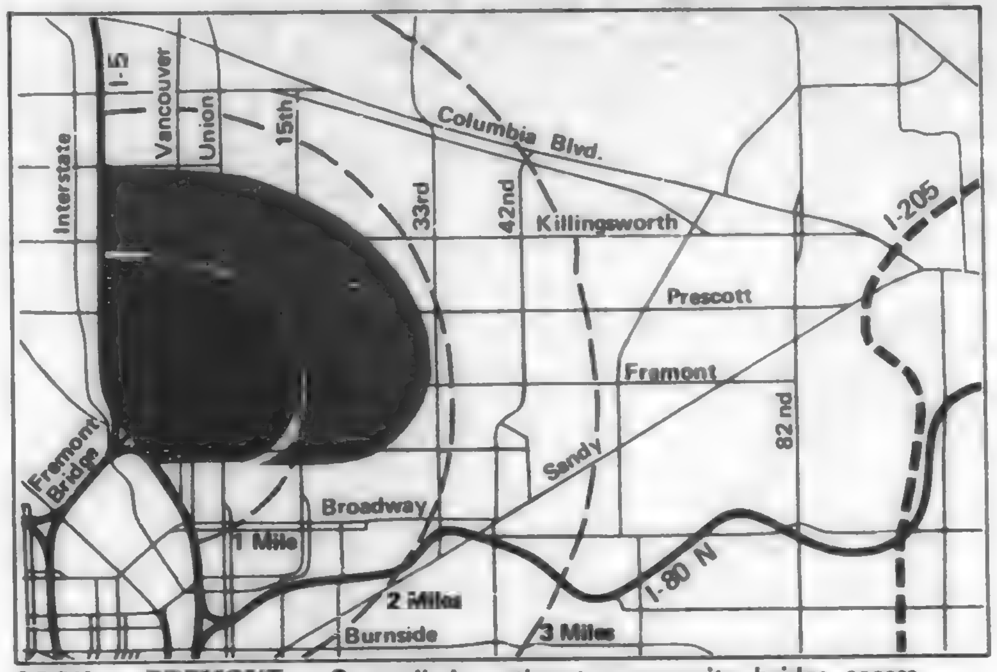
NO BUILD - No bridge access or special purpose access only.


Interstate
I-5
Vancouver
Union
15th
Columbia Blvd.
33rd
42nd
Killingsworth
Prescott
Fremont
Knott
Sandy
82nd
I-205
Fremont Bridge
Broadway
1 Mile
2 Miles
3 Miles
I-80 N
Burnside

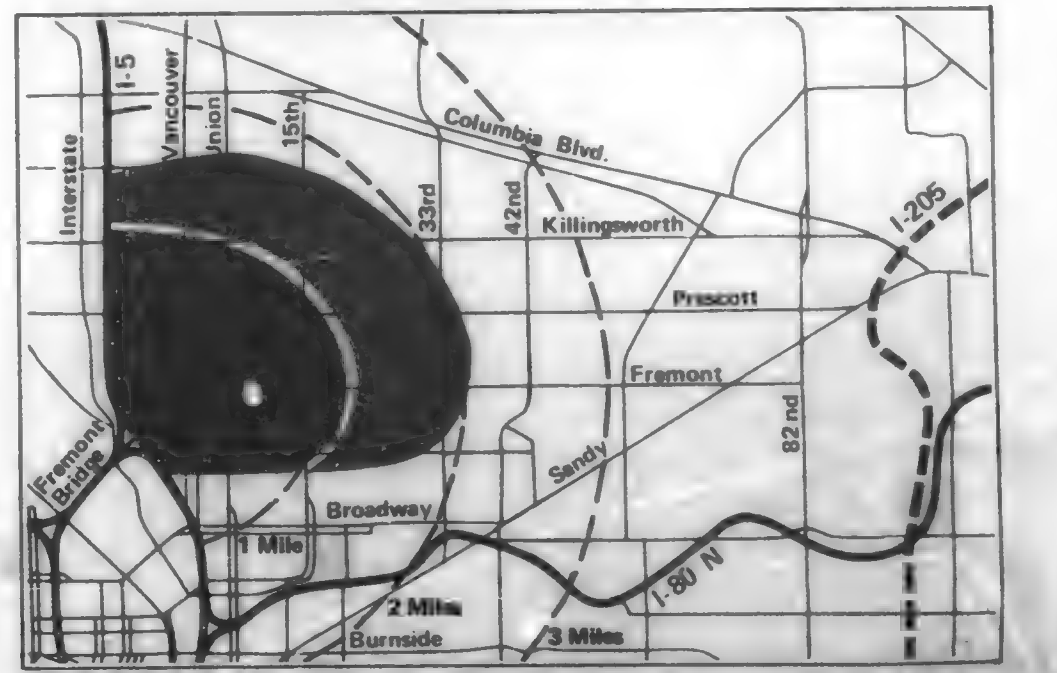
SHORT COOK - Neighborhood bridge access.

■ Approximate area of origin or destination of 50 percent of trips projected to use the ramps in 1990.

▨ Approximate area of origin or destination of 25 percent of trips projected to use the ramps in 1990.


Interstate
I-5
Vancouver
Union
15th
Columbia Blvd.
33rd
42nd
Killingsworth
Prescott
Fremont
Sandy
82nd
I-205
Fremont Bridge
Broadway
1 Mile
2 Miles
3 Miles
I-80 N
Burnside

COOK — FREMONT - Controlled northeast community bridge access with flow limit.


Interstate
I-5
Vancouver
Union
15th
Columbia Blvd.
33rd
42nd
Killingsworth
Prescott
Fremont
Sandy
82nd
I-205
Fremont Bridge
Broadway
1 Mile
2 Miles
3 Miles
I-80 N
Burnside

FREMONT BOULEVARD - Controlled northeast community bridge access.

RAMP USE

RAMP REMOVAL

The portion of the east-end ramps built on ground fill will be removed and the land occupied by the ramps graded to enable reuse. Redevelopment opportunities are discussed in Chapter 3 of Part II.

Unlike other variations of the No Build alternative and the build alternatives, removal of the ramps would not be federally funded.

PERMANENT CLOSURE

The ramps will be permanently closed to general traffic. The ends of the ramps will be barricaded and the area landscaped to minimize the visual intrusion of the ramps. The existing connection between the on-ramp and Cook Street at Gantenbein Avenue could be modified to allow use of the ramps by emergency vehicles (primarily ambulances to Emanuel Hospital), or by public transit vehicles, or access for these vehicles could be provided where the ramps meet Ivy Street. Access to the on-ramp at either location would have to be controlled by signing or vehicle-operated barriers. Access to the off-ramp from the bridge would have to be similarly controlled.

LIMITED BRIDGE ACCESS

This variation makes permanent the "interim solution" now in effect. The on-ramp is open to traffic coming from either Kerby Boulevard northbound or Gantenbein Avenue, thus allowing access from the City Bureau of Maintenance's Stanton Yard and Emanuel Hospital. The right turn from Cook Street is prohibited. Some reconstruction and landscaping would be undertaken to improve the appearance of the ramp ends at Ivy Street. The existing connector between the on-ramp and Kerby Boulevard could be modified to allow emergency vehicle and/or future public transit use of the off-ramp.

HOSPITAL AND STANTON YARD ONLY

This variation connects both bridge ramps to Gantenbein Avenue where it enters the Emanuel Hospital Urban Renewal Project and to Kerby Boulevard south of Gantenbein. As with the other variations allowing use of the on-ramp, the right turn from Cook Street is prohibited. Thus, use of the ramps would be convenient for Stanton Yard and Emanuel Hospital, but not for areas outside the immediate vicinity.

SHORT COOK ALTERNATIVE

This alternative connects the bridge ramps to Williams and Vancouver Avenues for general traffic use. (See figures on pages 26 and 29.) It also allows direct access between the ramps and Kerby Boulevard and Gantenbein Avenue (Emanuel Hospital). Direct access between the ramps and Williams and Vancouver Avenues is allowed, but direct access between the ramps and Fremont Street to the east is not. Traffic using the off-ramp to Williams Avenue is prohibited from turning from Williams onto Fremont. Traffic turning from Fremont onto Vancouver is prohibited from turning onto Cook Street to reach the on-ramp.

Turning movement restrictions between Fremont, Williams, Vancouver and Cook Street to prevent direct access between Fremont and the bridge ramps are accomplished by prohibiting lane changes on Williams and Vancouver between Cook and Fremont Streets. This will be done by dividing the lanes with a raised median strip.

To discourage traffic from circumventing these controls by using side streets to get to the ramps from Fremont, Fargo Street will be closed at its intersection with Williams Avenue and the left turn from Beech to Vancouver will be prohibited. Likewise, to discourage ramp traffic from getting onto Fremont eastbound, Fargo will be made one-way westbound between Williams and Vancouver, and a traffic diverter will be placed at the intersection of Beech and Cleveland Avenue. These measures will make traffic between the ramps and Fremont to the east of Williams detour at least 4 blocks.

In addition to the measures proposed, this alternative assumes the street improvements shown in the Project Features figure on page 29, as proposed by the Union Avenue Redevelopment Plan. The median on Union Avenue will have to be unbroken at Ivy Street and at intersections north of Fremont at least to Shaver Street.

The Short Cook alternative includes street improvements on Fremont between Williams and Union to accommodate expected traffic volumes. The improvements are entirely within the existing right-of-way and consist primarily of left turn lanes at Union.

COOK-FREMONT ALTERNATIVE

This alternative will provide a connection between the bridge ramps and Union Avenue via the Williams-Vancouver couplet and Fremont Street. As shown in the Street Improvements figure on page 27, direct connections are also provided to Kerby Boulevard and the Emanuel Hospital Urban Renewal Project by way of Gantenbein Avenue.

Key aspects of this alternative are the changes to Fremont Street between Vancouver and Union Avenue and traffic metering. Parking is restricted along Fremont to allow two traffic lanes in each direction, increasing the street's carrying capacity without expanding the right-of-way. This is made possible by restricting traffic going to and from the bridge ramps. The traffic signals at the intersections of the ramp connection with Kerby Boulevard and Gantenbein will be timed to limit or "meter" the amount of traffic passing through the intersections to and from the ramps. Traffic signals would be timed to avoid congestion on Fremont and to moderate other adverse effects of traffic flow through the area.

The design of the intersection of Fremont and Union Avenue under this alternative discourages traffic flow between the bridge ramps and Fremont east of Union. All turning movements at the intersection will be unrestricted, but flow across Union on Fremont is limited to one lane in each direction. This flow will also be metered by timing the signals to limit the amount of traffic crossing Union on Fremont. The intersection design provides storage for the traffic that is delayed by the metering.

The purpose of the intersection design and traffic metering at the intersection of Union and Fremont is to "ensure that traffic to and from the ramps will be encouraged to use Union Avenue rather than Fremont or other east-west streets," as directed by the Portland City Council. Metering as a traffic control measure—how it operates, what it means to a driver, and its likely performance as applied under this alternative—is discussed in Chapter 1 of Part II.

As in the case of the Short Cook alternative, satisfactory operation of the Cook-Fremont alternative relies on implementing street improvements proposed under the Union Avenue Redevelopment Plan, as shown in the Project Features figure on page 30. These improvements are intended to discourage use of side streets to circumvent the metering at Union Avenue. The median on Union must be unbroken at Ivy Street and the intersections from Fremont to Shaver. In addition, a traffic diverter will be placed at the intersection of Grand Avenue and Beech Street.

The McDonald's restaurant at the corner of Union and Fremont will be acquired for right-of-way. No other improved properties will be acquired, and property acquisition as a whole will be limited.

FREMONT BOULEVARD ALTERNATIVE

This alternative provides a connection between the bridge ramps and Union Avenue by way of Fremont Street (see the figure on page 28). A direct link between the ramps and Fremont is constructed and Fremont is widened between Gantenbein and 6th Avenue to provide adequate capacity for the projected traffic demand in 1990. A direct connection is also made between the ramps and Kerby Boulevard at Gantenbein.

A group of houses and the Immanuel Free Methodist Church located between the ramps and Fremont will be acquired for right-of-way, as will all dwellings adjoining Fremont on the north side between Williams and 6th Avenue, the Ray Fleming auto parts store at Williams and Fremont, the building on the northwest corner of Fremont and Union, and the McDonald's restaurant across Union.

As under the Cook-Fremont alternative, the design of the intersection of Fremont and Union Avenue will discourage traffic flow between the bridge ramps and Fremont east of Union. Under projected 1990 traffic conditions, turning movements should remain easy. Flow across Union on Fremont, however, will be limited to one lane in each direction and will be metered by traffic signals. Storage for vehicles delayed by the metering is included in the design. As noted, the purpose of traffic metering at Union and Fremont is to control the amount of traffic on Fremont east of Union and to encourage the use of Union.

Measures to discourage traffic from circumventing the controls by using side streets are the same as under the Cook-Fremont alternative.

OTHER ALTERNATIVES

This section briefly describes the preliminary alternatives that were not selected for more detailed analysis in this report, and cites some of the reasons why they were not considered further. Several of these alternatives were evaluated in considerable detail and provided the basis for the Fremont Boulevard and Short Cook alternatives and the No Build variations that evolved. Each of the preliminary alternatives is graphically described and evaluated in Working Paper No. 7 of the study (Ref. 1).

SHORT IVY ALTERNATIVE

Direct access between the bridge ramps and Fremont is restricted similarly to the Short Cook alternative. This alternative connects the ramps to the Williams-Vancouver couplet by way of Ivy instead of Cook Street. The Short Cook alternative was preferred because use of Ivy would put ramp traffic immediately next to the houses on Ivy west of Vancouver Avenue, and because it would preclude the consolidation of the two blocks bounded by Fremont, Cook, Williams, and Vancouver. Both of these blocks are entirely owned by the Continental Baking Company, which has plans for expansion on the south block. Vacating Ivy Street between the two blocks would facilitate this expansion, and is shown in the Eliot Neighborhood Development Program (Ref. 2).

COOK-IVY COUPLET ALTERNATIVE

The ramps connect to Union Avenue by way of Cook and Ivy Streets, each one-way. Traffic flow between the ramps and Fremont east of Union is discouraged by lane control measures similar to those in the Short Cook alternative, but on Union as well as on Williams and Vancouver.

Because a Cook-Ivy couplet provides a direct route between the ramps and Union Avenue, with capacity for projected traffic demand in 1990 but without any direct relocation, it presents an attractive choice from the standpoint of traffic movement. This solution was not considered further because of the impact it would have on the Eliot Neighborhood, and because the Cook-Fremont alternative also provides a connection to Union with minimal relocation. Cook-Fremont was considered preferable even though it affords a less direct means of access between the ramps and Union Avenue. A detailed assessment of the advantages and disadvantages of the Cook-Ivy couplet alternative is contained in the "Record of Consultation on Selection of Final Alternatives" (Ref. 3).

COOK BOULEVARD ALTERNATIVE

This alternative connects the ramps to Union by way of a boulevard using the southern half of the block between Ivy and Cook. Lane dividers on Williams, Vancouver, and Union prevent direct access between the ramps and Fremont east of Union.

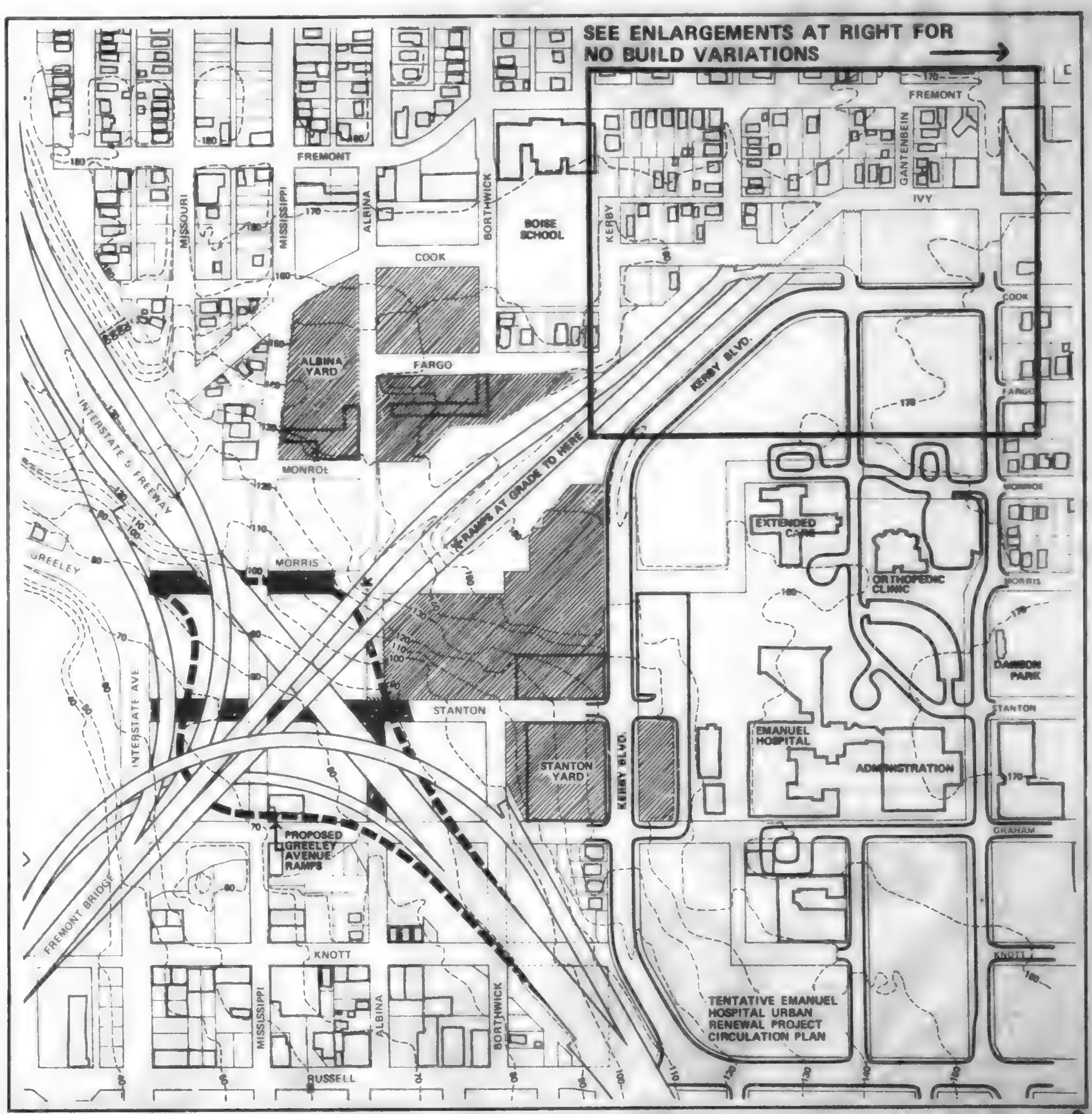
Important reasons for not further considering this alternative were its disruptive effect on the neighborhood, the amount of relocation required, and operational problems with the intersection at Union compared with the Fremont Boulevard alternative.

IVY BOULEVARD ALTERNATIVE

This would connect the ramps to Union by way of a boulevard along Ivy Street, using the southern half of the blocks between Fremont and Ivy from Williams to Union. The movement from the boulevard to Union northbound would be on a below-grade ramp. In addition to having the same disadvantages as the Short Ivy and Cook Boulevard alternatives, Ivy Boulevard would cause the greatest amount of commercial and residential relocation of all the alternatives considered.

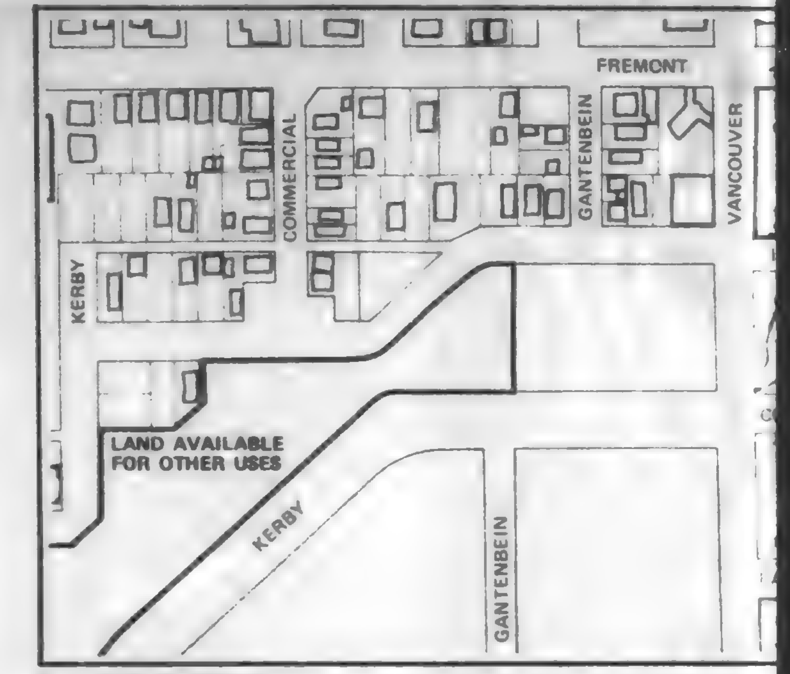
REFERENCES

1. CH2M HILL, Working Paper No. 7, Fremont Bridge Access Study, December 1975.
2. Eliot Neighborhood Development Program, August 1973.
3. CH2M HILL, Record of Consultation on Selection of Final Alternatives, February 1976.

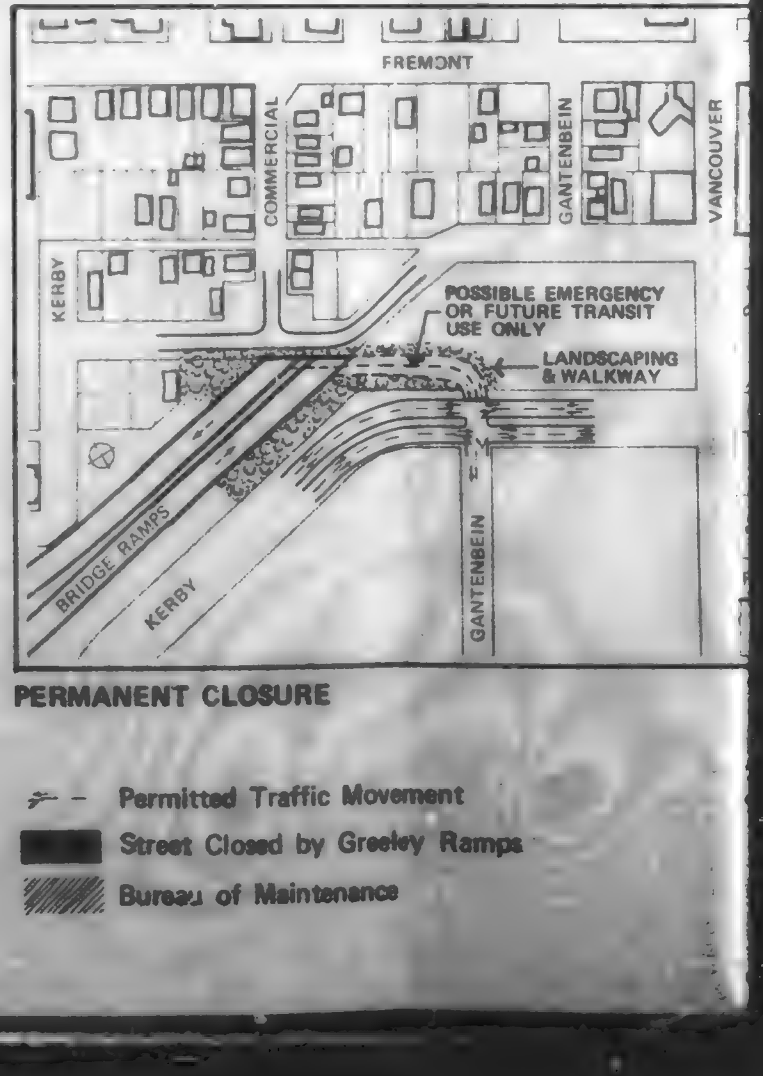

SEE ENLARGEMENTS AT RIGHT FOR
NO BUILD VARIATIONS
FREMONT
MISSOURI
MISSISSIPPI
ALBINA
BORTHWICK
COOK
FARGO
BOISE SCHOOL
ALBINA YARD
MONROE
INTERSTATE 5 FREEWAY
GREELEY
MORRIS
RAMPS AT GRADE TO HERE
KERBY BLVD.
KERBY
GANTENBEIN
IVY
EXTENDED CARE
ORTHOPEDIC CLINIC
DAWSON PARK
STANTON
STANTON YARD
INTERSTATE AVE
EMANUEL HOSPITAL
ADMINISTRATION
GRAHAM
PROPOSED GREELEY AVENUE RAMPS
FREMONT BRIDGE
KNOTT
TENTATIVE EMANUEL HOSPITAL URBAN RENEWAL PROJECT CIRCULATION PLAN
RUSSELL

VICINITY MAP

1"=400' North↑


FREMONT
KERBY
COMMERCIAL
GANTENBEIN
VANCOUVER
LAND AVAILABLE FOR OTHER USES

RAMP REMOVAL

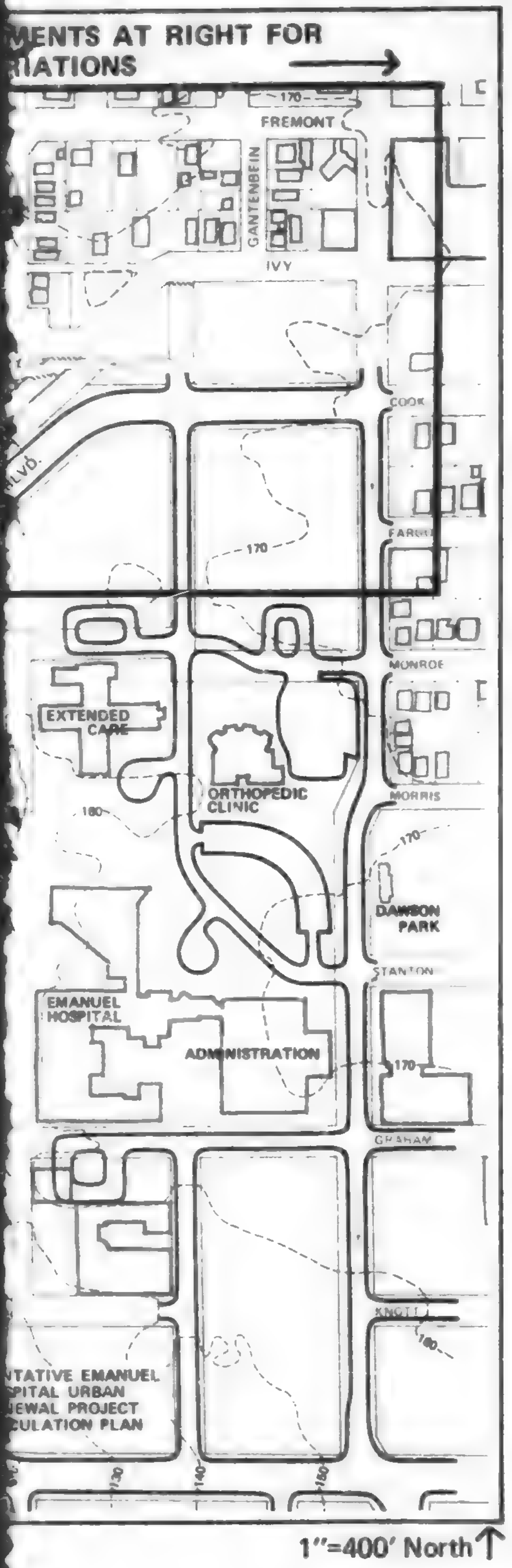

FREMONT
KERBY
COMMERCIAL
GANTENBEIN
VANCOUVER
POSSIBLE EMERGENCY OR FUTURE TRANSIT USE ONLY
LANDSCAPING & WALKWAY
BRIDGE RAMPS

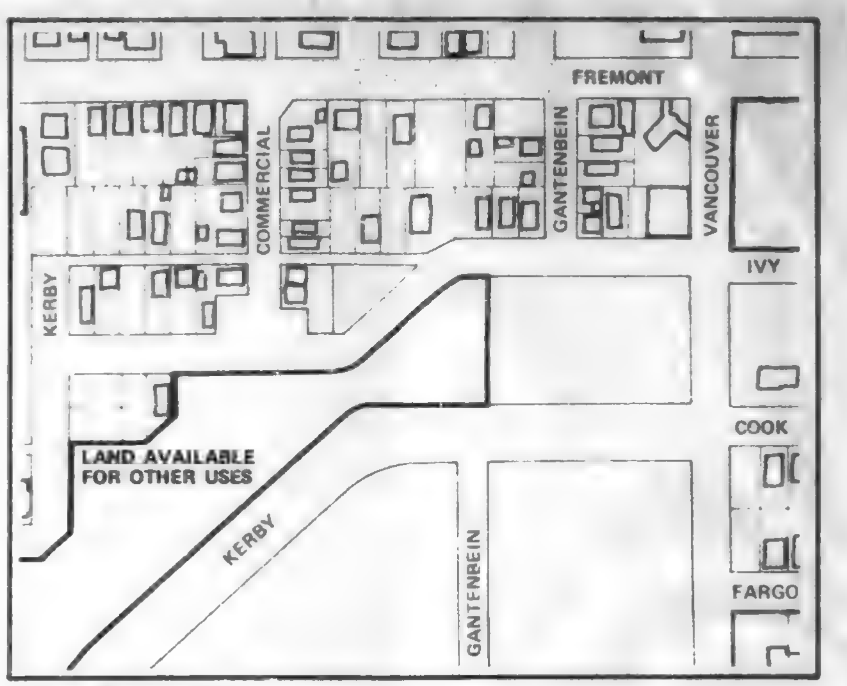
PERMANENT CLOSURE

- - Permitted Traffic Movement

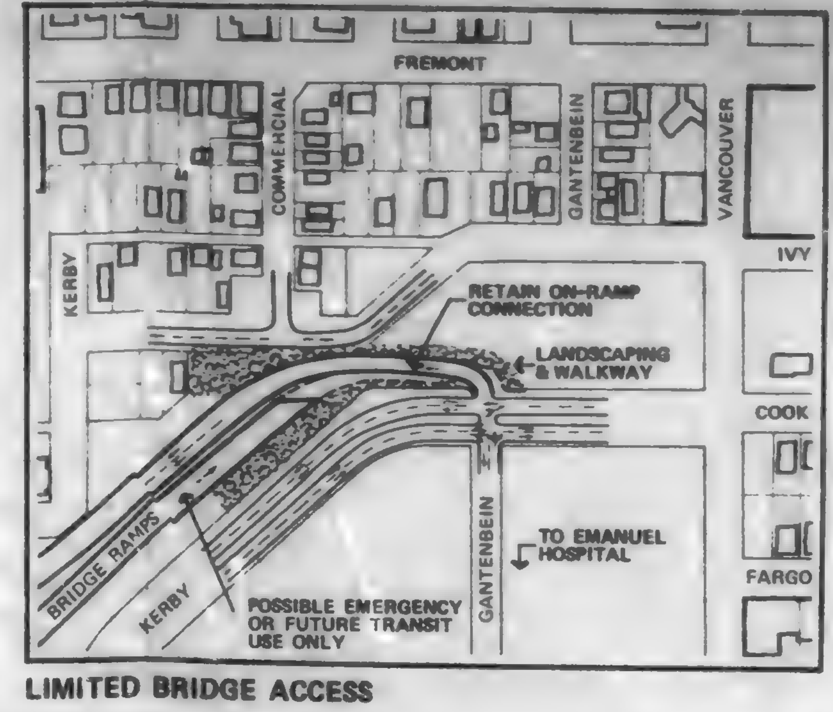
■ Street Closed by Greeley Ramps

▨ Bureau of Maintenance

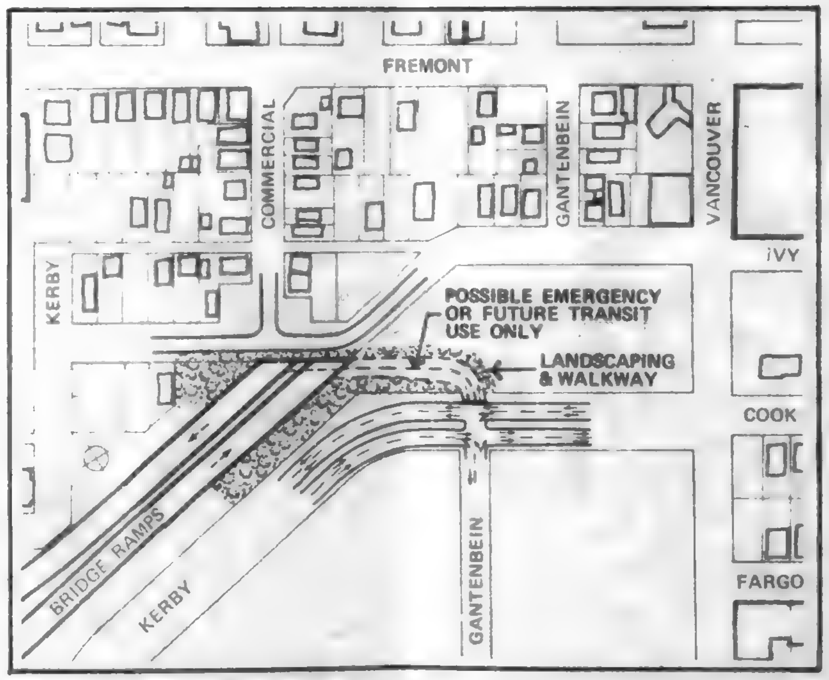

MENTS AT RIGHT FOR
IATIONS
FREMONT
GANTENBEIN
IVY
COOK
FARGO
BLVD.
170
MONROE
EXTENDED CARE
ORTHOPEDIC CLINIC
MORRIS
180
DAWSON PARK
STANTON
EMANUEL HOSPITAL
ADMINISTRATION
GRAHAM
KNOTT
NTATIVE EMANUEL
SPITAL URBAN
NEWAL PROJECT
CULATION PLAN
130
140
150
1"=400' North


FREMONT
COMMERCIAL
GANTENBEIN
VANCOUVER
IVY
KERBY
COOK
FARGO
LAND AVAILABLE FOR OTHER USES
KERBY
GANTENBEIN

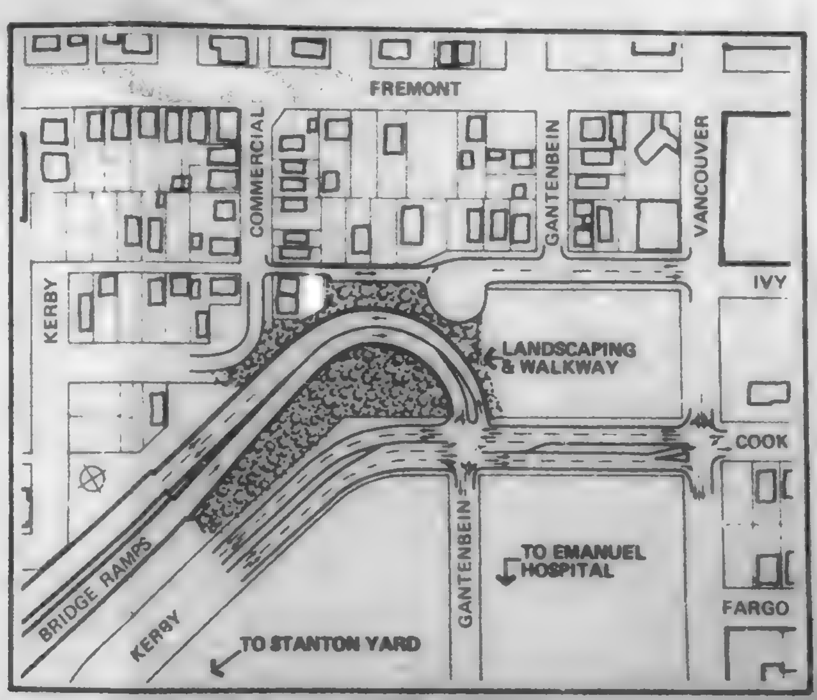
RAMP REMOVAL


FREMONT
COMMERCIAL
GANTENBEIN
VANCOUVER
IVY
KERBY
RETAIN ON-RAMP CONNECTION
LANDSCAPING & WALKWAY
COOK
FARGO
BRIDGE RAMPS
KERBY
POSSIBLE EMERGENCY OR FUTURE TRANSIT USE ONLY
GANTENBEIN
TO EMANUEL HOSPITAL

LIMITED BRIDGE ACCESS


FREMONT
COMMERCIAL
GANTENBEIN
VANCOUVER
IVY
KERBY
POSSIBLE EMERGENCY OR FUTURE TRANSIT USE ONLY
LANDSCAPING & WALKWAY
COOK
FARGO
BRIDGE RAMPS
KERBY
GANTENBEIN

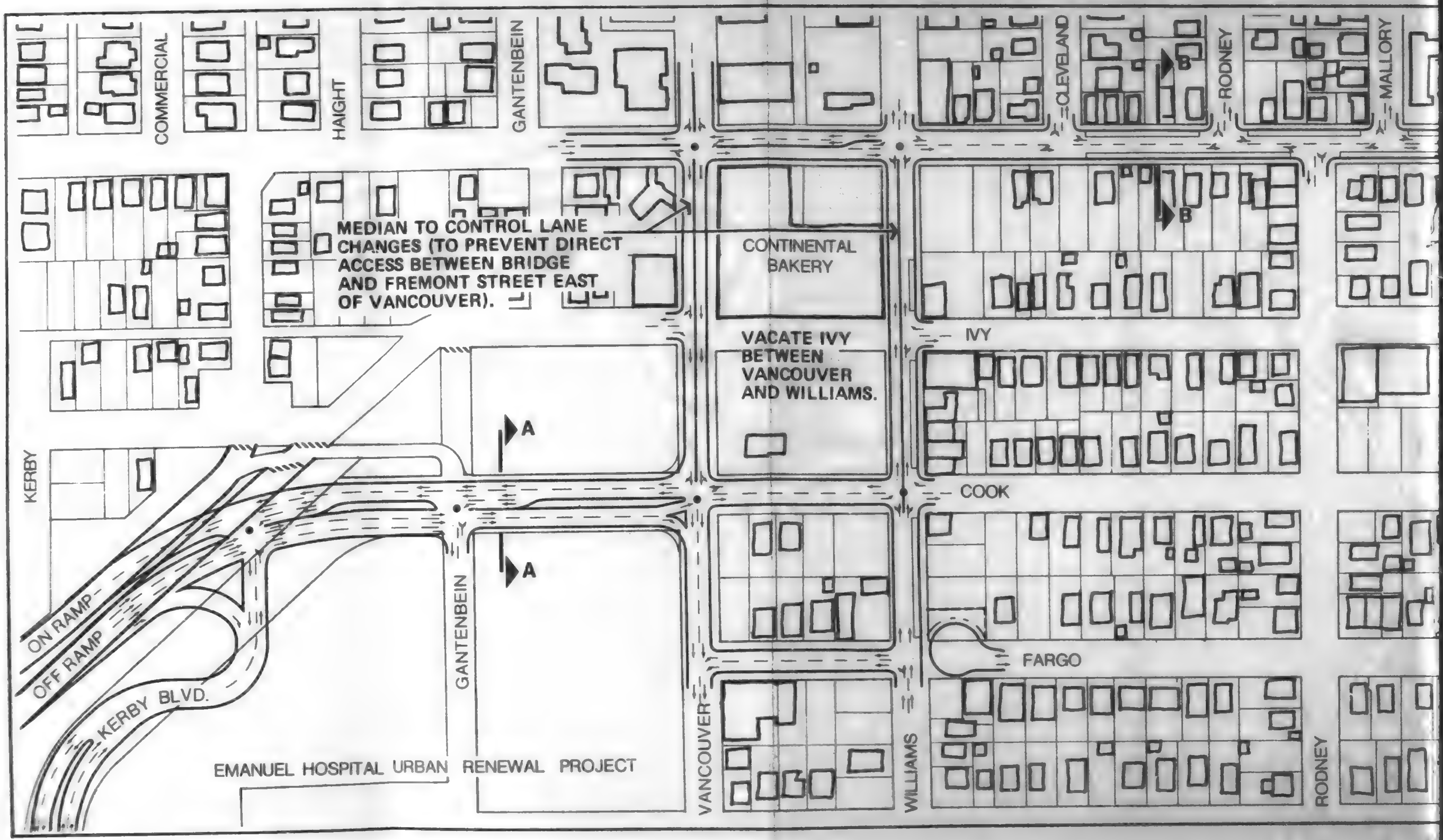
PERMANENT CLOSURE


FREMONT
COMMERCIAL
GANTENBEIN
VANCOUVER
IVY
KERBY
LANDSCAPING & WALKWAY
COOK
FARGO
BRIDGE RAMPS
KERBY
GANTENBEIN
TO EMANUEL HOSPITAL
TO STANTON YARD

HOSPITAL AND STANTON YARD ONLY

NO BUILD ALTERNATIVES

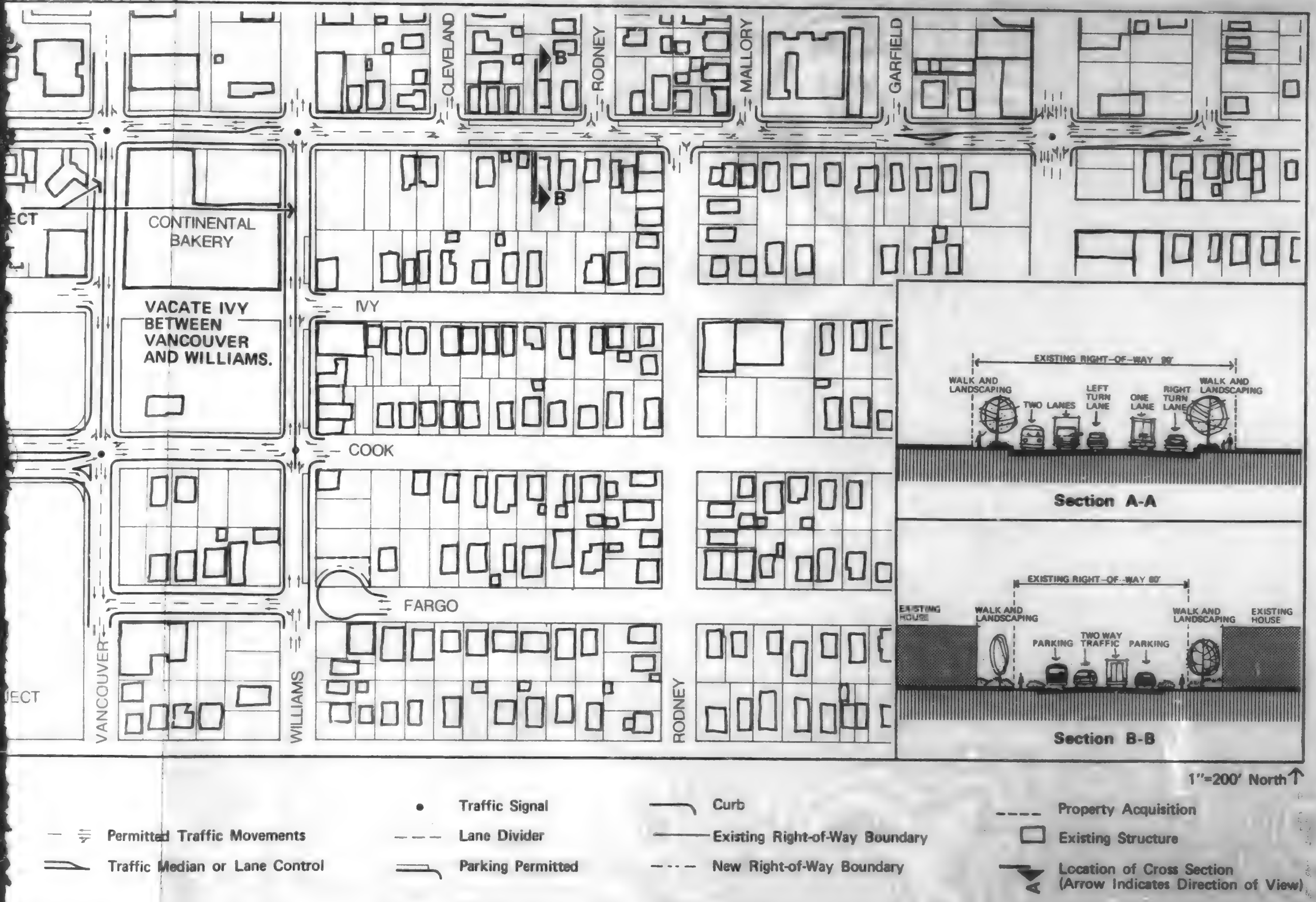
- ⇢ Permitted Traffic Movement
- ■ Street Closed by Greeley Ramps
- ▨ Bureau of Maintenance

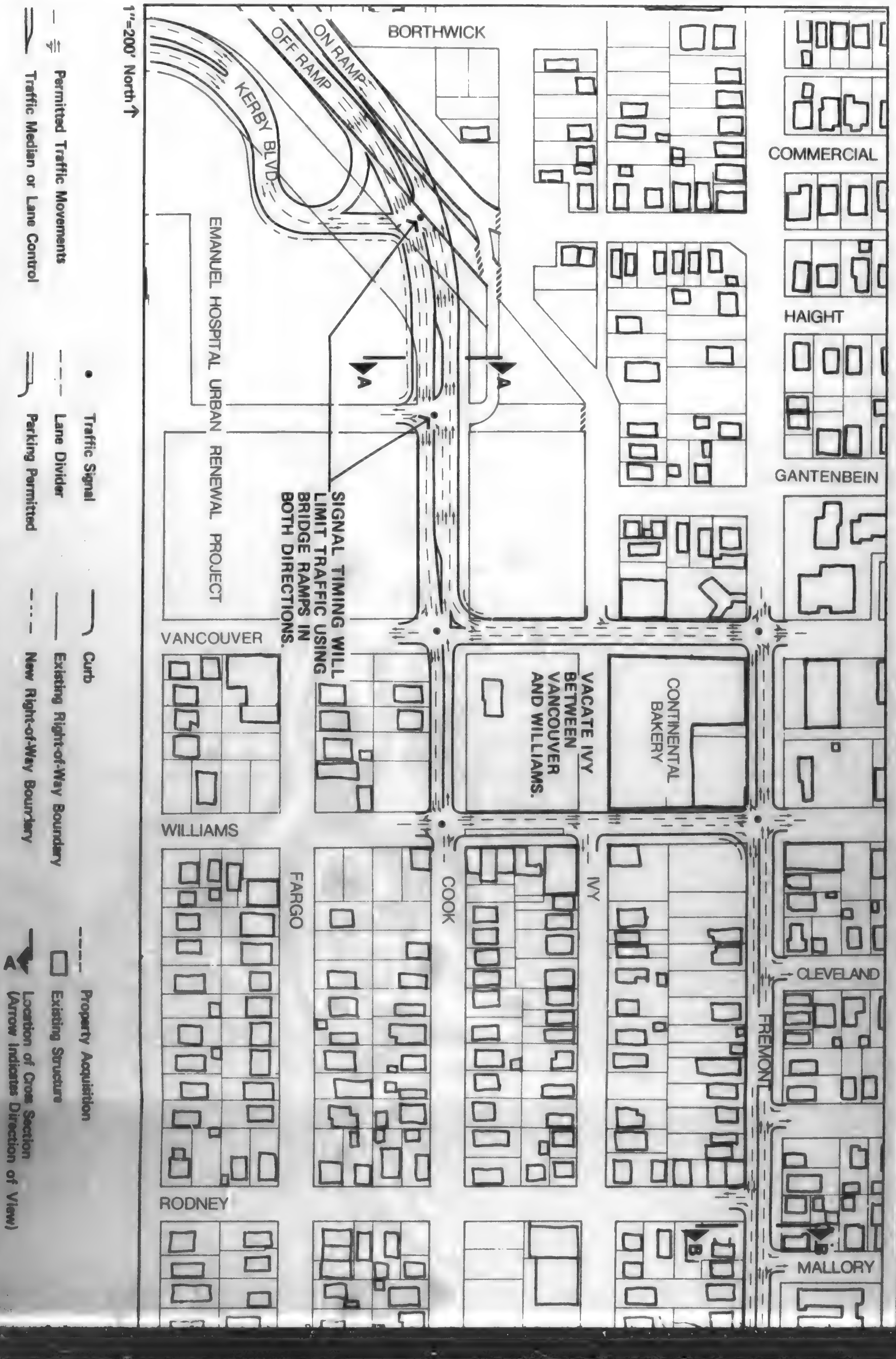


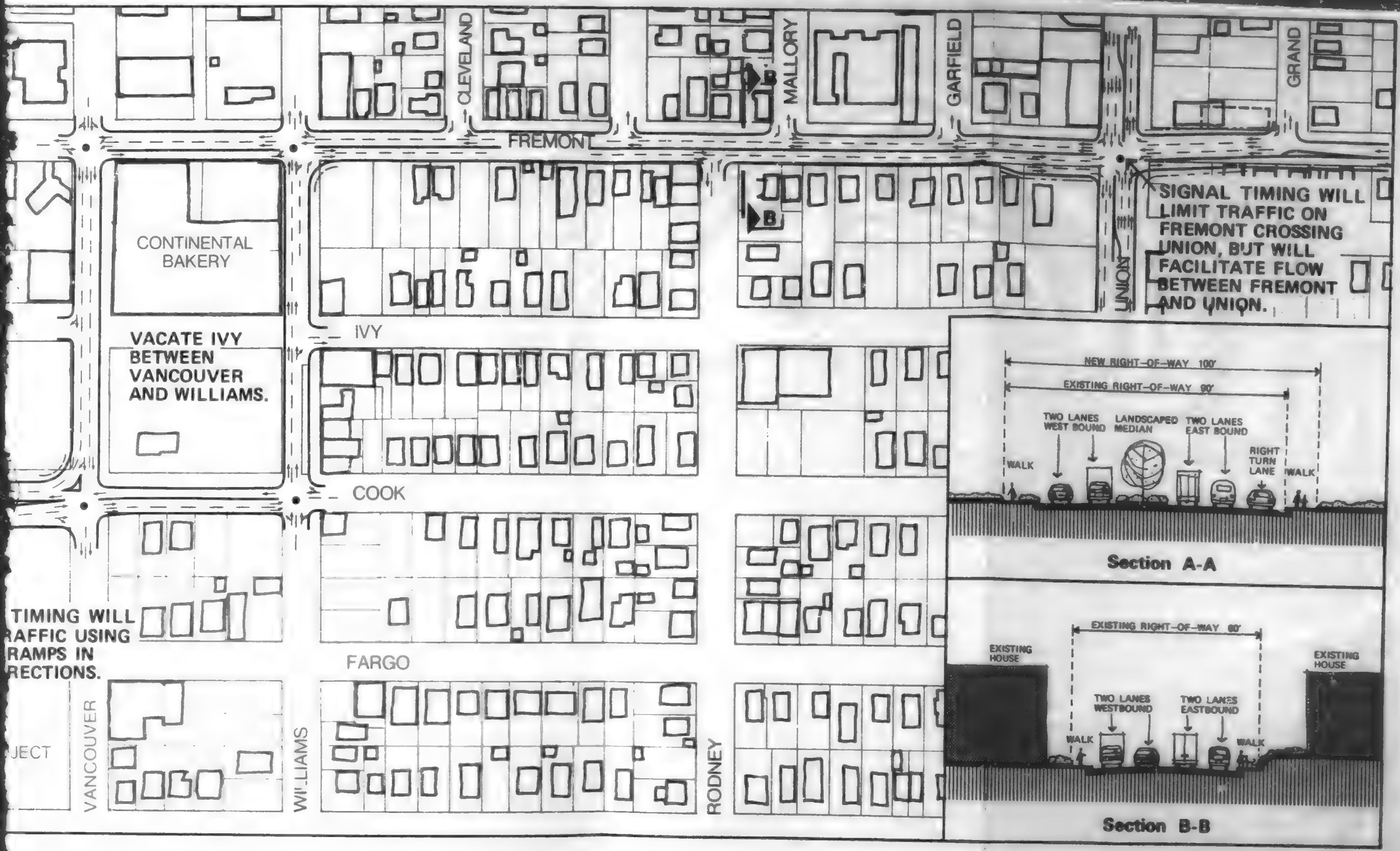
COMMERCIAL
HAIGHT
GANTENBEIN
CLEVELAND
RODNEY
MALLORY
MEDIAN TO CONTROL LANE CHANGES (TO PREVENT DIRECT ACCESS BETWEEN BRIDGE AND FREMONT STREET EAST OF VANCOUVER).
CONTINENTAL BAKERY
VACATE IVY BETWEEN VANCOUVER AND WILLIAMS.
IVY
B
B
A
A
KERBY
COOK
ON RAMP
OFF RAMP
KERBY BLVD.
GANTENBEIN
FARGO
EMANUEL HOSPITAL URBAN RENEWAL PROJECT
VANCOUVER
WILLIAMS
RODNEY

SHORT COOK STREET IMPROVEMENTS

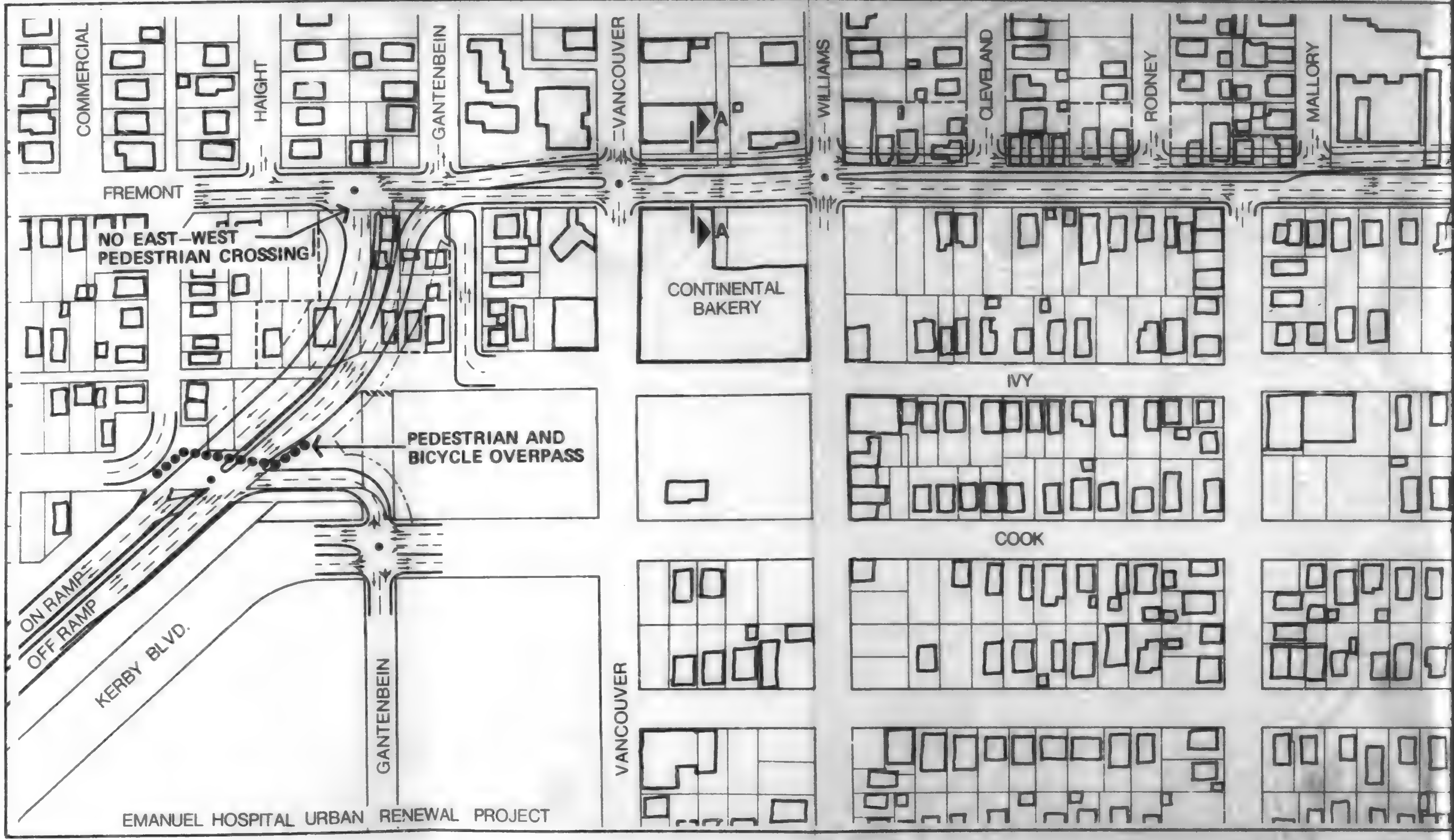
Permitted Traffic Movements
Traffic Median or Lane Control
● Traffic Signal
Lane Divider
Parking Permitted
Curb
Existing R
New Right


ECT
VANCOUVER
WILLIAMS
RODNEY
CLEVELAND
MALLORY
GARFIELD
IVY
COOK
FARGO
CONTINENTAL BAKERY
VACATE IVY BETWEEN VANCOUVER AND WILLIAMS.
B
EXISTING RIGHT-OF-WAY 80'
WALK AND LANDSCAPING
TWO LANES
LEFT TURN LANE
ONE LANE
RIGHT TURN LANE
Section A-A
EXISTING HOUSE
PARKING
TWO WAY TRAFFIC
Section B-B
1"=200' North
Traffic Signal
Curb
Property Acquisition
Permitted Traffic Movements
Lane Divider
Existing Right-of-Way Boundary
Existing Structure
Traffic Median or Lane Control
Parking Permitted
New Right-of-Way Boundary
Location of Cross Section (Arrow Indicates Direction of View)
A

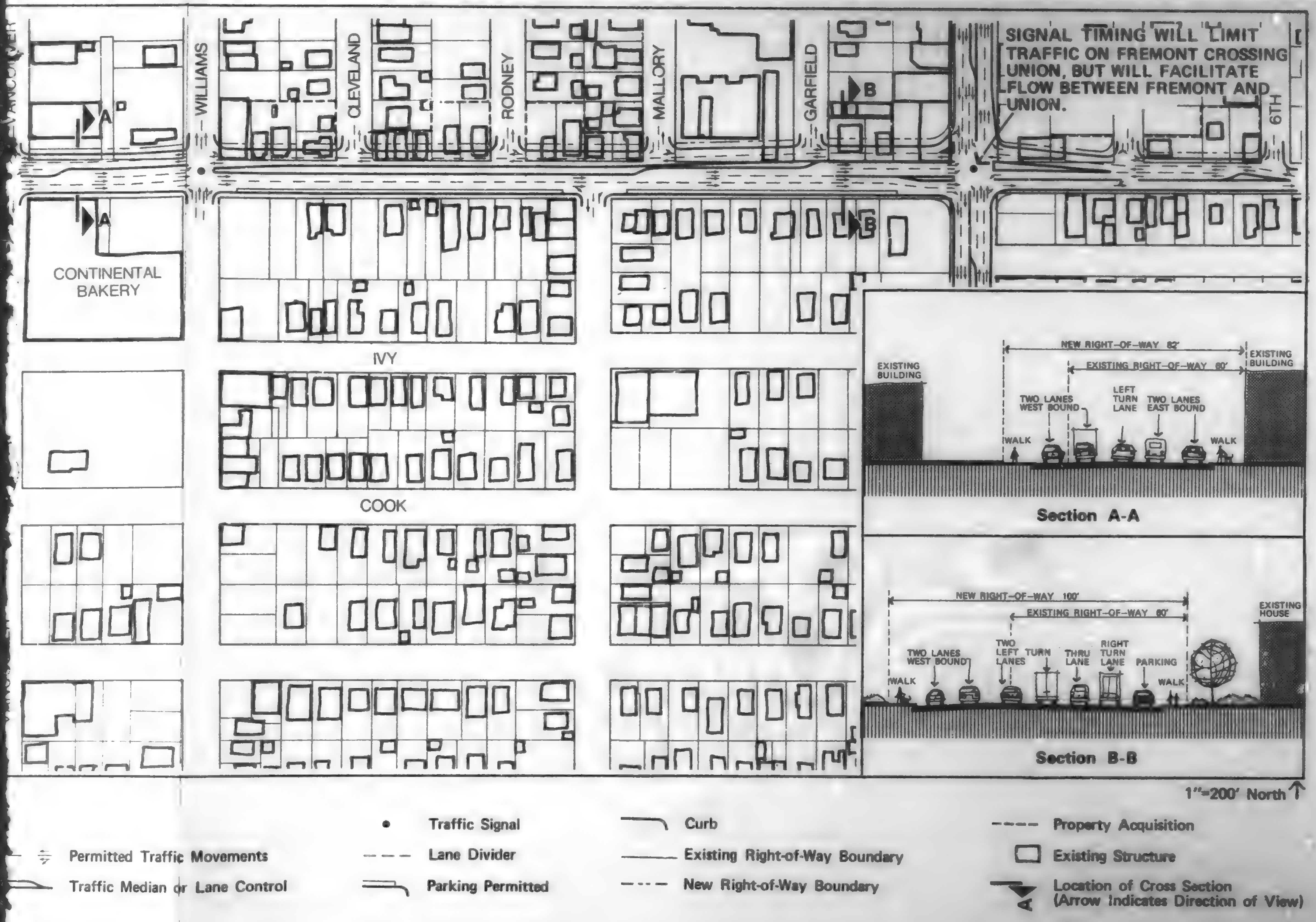

1"=200' North
Permitted Traffic Movements
Traffic Median or Lane Control
Traffic Signal
Lane Divider
Parking Permitted
Curb
Existing Right-of-Way Boundary
New Right-of-Way Boundary
Property Acquisition
Existing Structure
Location of Cross Section (Arrow Indicates Direction of View)
BORTHWICK
ON RAMP
OFF RAMP
KERBY BLVD.
EMANUEL HOSPITAL URBAN RENEWAL PROJECT
SIGNAL TIMING WILL LIMIT TRAFFIC USING BRIDGE RAMPS IN BOTH DIRECTIONS.
A
A
COMMERCIAL
HAIGHT
GANTENBEIN
VANCOUVER
CONTINENTAL BAKERY
VACATE IVY BETWEEN VANCOUVER AND WILLIAMS.
WILLIAMS
FARGO
COOK
IVY
CLEVELAND
FREMONT
RODNEY
MALLORY
B
B

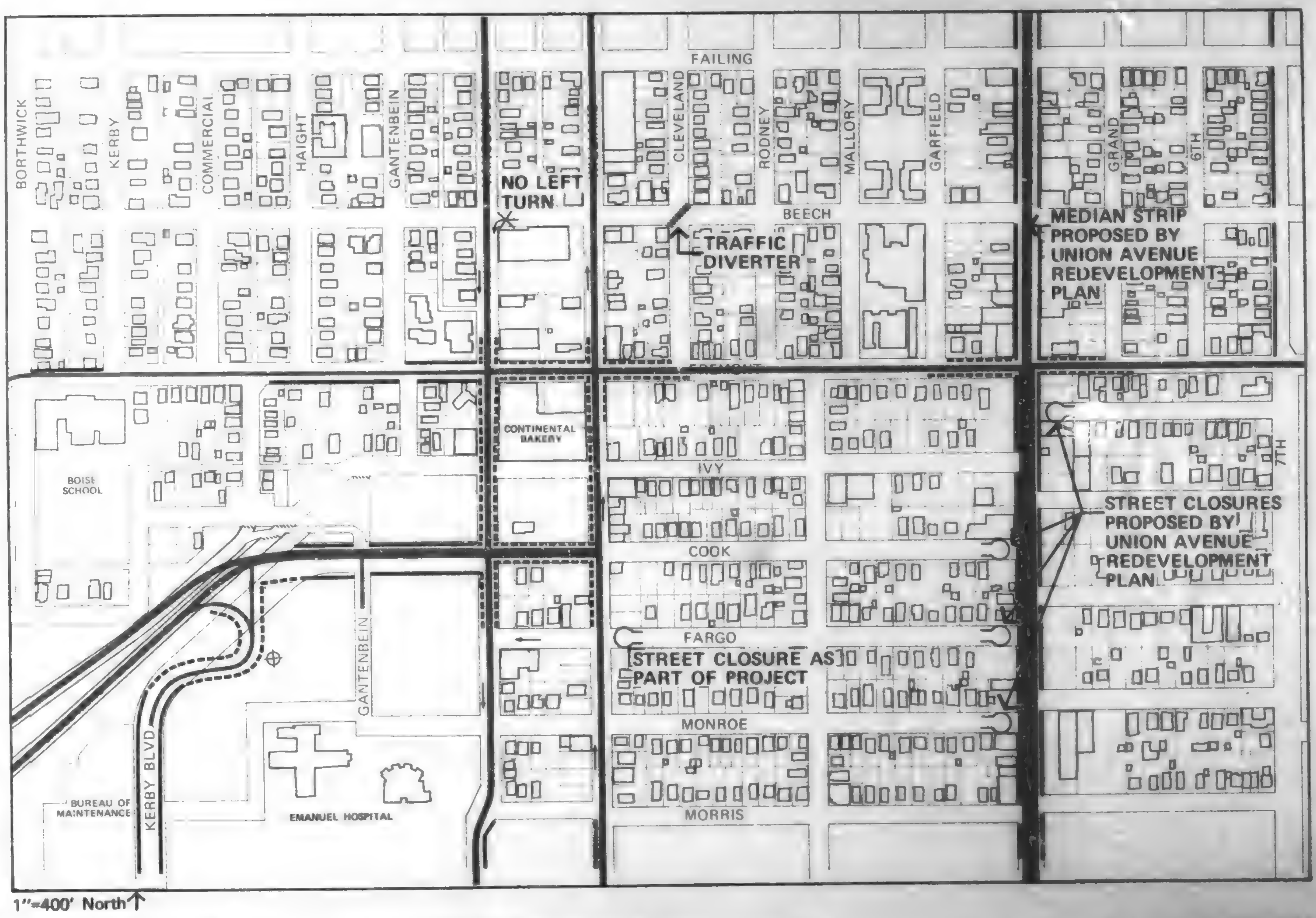

CONTINENTAL BAKERY
VACATE IVY BETWEEN VANCOUVER AND WILLIAMS.
CLEVELAND
MALLORY
GARFIELD
GRAND
FREMONT
UNION
IVY
COOK
FARGO
VANCOUVER
WILLIAMS
RODNEY
JECT
TIMING WILL
RAFFIC USING
RAMPS IN
RECTIONS.
SIGNAL TIMING WILL LIMIT TRAFFIC ON FREMONT CROSSING UNION, BUT WILL FACILITATE FLOW BETWEEN FREMONT AND UNION.
B
B
NEW RIGHT-OF-WAY 100'
EXISTING RIGHT-OF-WAY 80'
WALK
TWO LANES WEST BOUND
LANDSCAPED MEDIAN
TWO LANES EAST BOUND
RIGHT TURN LANE
WALK
Section A-A
EXISTING HOUSE
EXISTING RIGHT-OF-WAY 80'
TWO LANES WESTBOUND
TWO LANES EASTBOUND
WALK
WALK
EXISTING HOUSE
Section B-B
Curb
Existing Right-of-Way Boundary
New Right-of-Way Boundary
Property Acquisition
Existing Structure
A
Location of Cross Section
(Arrow Indicates Direction of View)

COOK-FREMONT STREET IMPROVEMENTS


COMMERCIAL
HAIGHT
GANTENBEIN
VANCOUVER
WILLIAMS
CLEVELAND
RODNEY
MALLORY
FREMONT
NO EAST-WEST PEDESTRIAN CROSSING
A
A
CONTINENTAL BAKERY
IVY
PEDESTRIAN AND BICYCLE OVERPASS
COOK
ON RAMP
OFF RAMP
KERBY BLVD.
GANTENBEIN
VANCOUVER
EMANUEL HOSPITAL URBAN RENEWAL PROJECT
Permitted Traffic Movements
Traffic Median or Lane Control
Traffic Signal
Lane Divider
Parking Permitted
Curb
Existing Right-
New Right-of-

FREMONT BOULEVARD STREET IMPROVEMENTS


VANCOUVER
WILLIAMS
CLEVELAND
RODNEY
MALLORY
GARFIELD
6TH
SIGNAL TIMING WILL LIMIT TRAFFIC ON FREMONT CROSSING UNION, BUT WILL FACILITATE FLOW BETWEEN FREMONT AND UNION.
A
B
CONTINENTAL BAKERY
IVY
COOK
EXISTING BUILDING
NEW RIGHT-OF-WAY 82'
EXISTING RIGHT-OF-WAY 60'
TWO LANES WEST BOUND
LEFT TURN LANE
TWO LANES EAST BOUND
WALK
Section A-A
NEW RIGHT-OF-WAY 100'
EXISTING RIGHT-OF-WAY 60'
EXISTING HOUSE
TWO LANES WEST BOUND
TWO LEFT TURN LANES
THRU LANE
RIGHT TURN LANE
PARKING
WALK
Section B-B
1"=200' North
Traffic Signal
Curb
Property Acquisition
Permitted Traffic Movements
Lane Divider
Existing Right-of-Way Boundary
Existing Structure
Traffic Median or Lane Control
Parking Permitted
New Right-of-Way Boundary
Location of Cross Section (Arrow Indicates Direction of View)


BORTHWICK
KERBY
COMMERCIAL
HAIGHT
GANTENBEIN
NO LEFT TURN
FAILING
CLEVELAND
RODNEY
MALLORY
GARFIELD
BEECH
TRAFFIC DIVERTER
MEDIAN STRIP PROPOSED BY UNION AVENUE REDEVELOPMENT PLAN
GRAND
6TH
7TH
CONTINENTAL BAKERY
BOISE SCHOOL
IVY
COOK
FARGO
MONROE
MORRIS
STREET CLOSURES PROPOSED BY UNION AVENUE REDEVELOPMENT PLAN
STREET CLOSURE AS PART OF PROJECT
GANTENBEIN
KERBY BLVD
BUREAU OF MAINTENANCE
EMANUEL HOSPITAL
1"=400' North

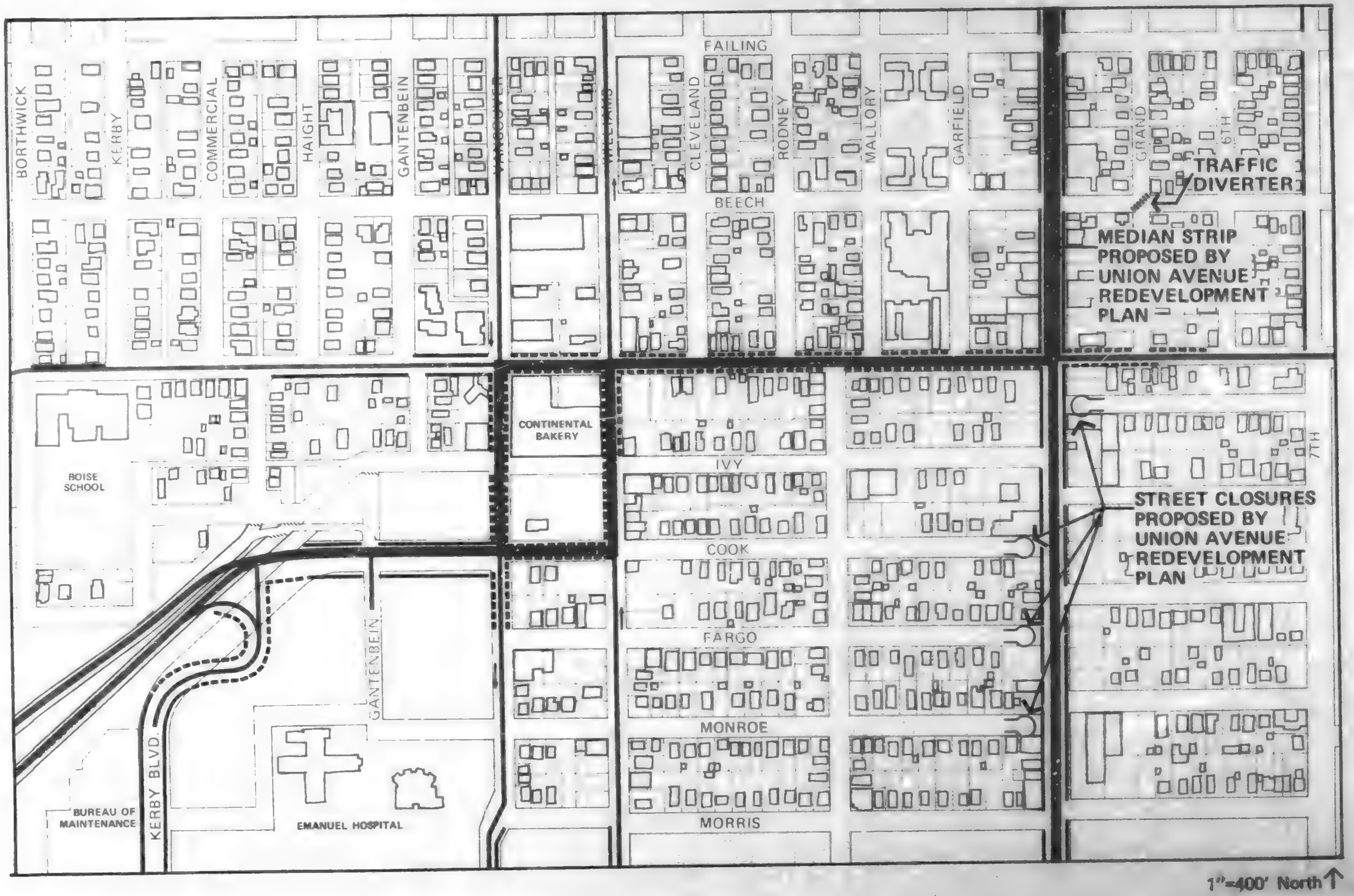
→ One-Way Traffic Flow

Traffic controls above discourage vehicles from using local streets to circumvent controls on major streets (see text).

—— Existing Parking Control and Parking Control Under the Union Avenue Redevelopment Plan

------- Parking Control as Part of Project

SHORT COOK PROJECT FEATURES


BORTHWICK
KERBY
COMMERCIAL
HAIGHT
GANTENBEIN
VANCOUVER
WILLIAMS
FAILING
CLEVELAND
BEECH
RODNEY
MALLORY
GARFIELD
GRAND
6TH
TRAFFIC DIVERTER
MEDIAN STRIP PROPOSED BY UNION AVENUE REDEVELOPMENT PLAN
BOISE SCHOOL
CONTINENTAL BAKERY
IVY
COOK
FARGO
MONROE
MORRIS
7TH
STREET CLOSURES PROPOSED BY UNION AVENUE REDEVELOPMENT PLAN
GANTENBEIN
KERBY BLVD.
BUREAU OF MAINTENANCE
EMANUEL HOSPITAL
1"=400' North

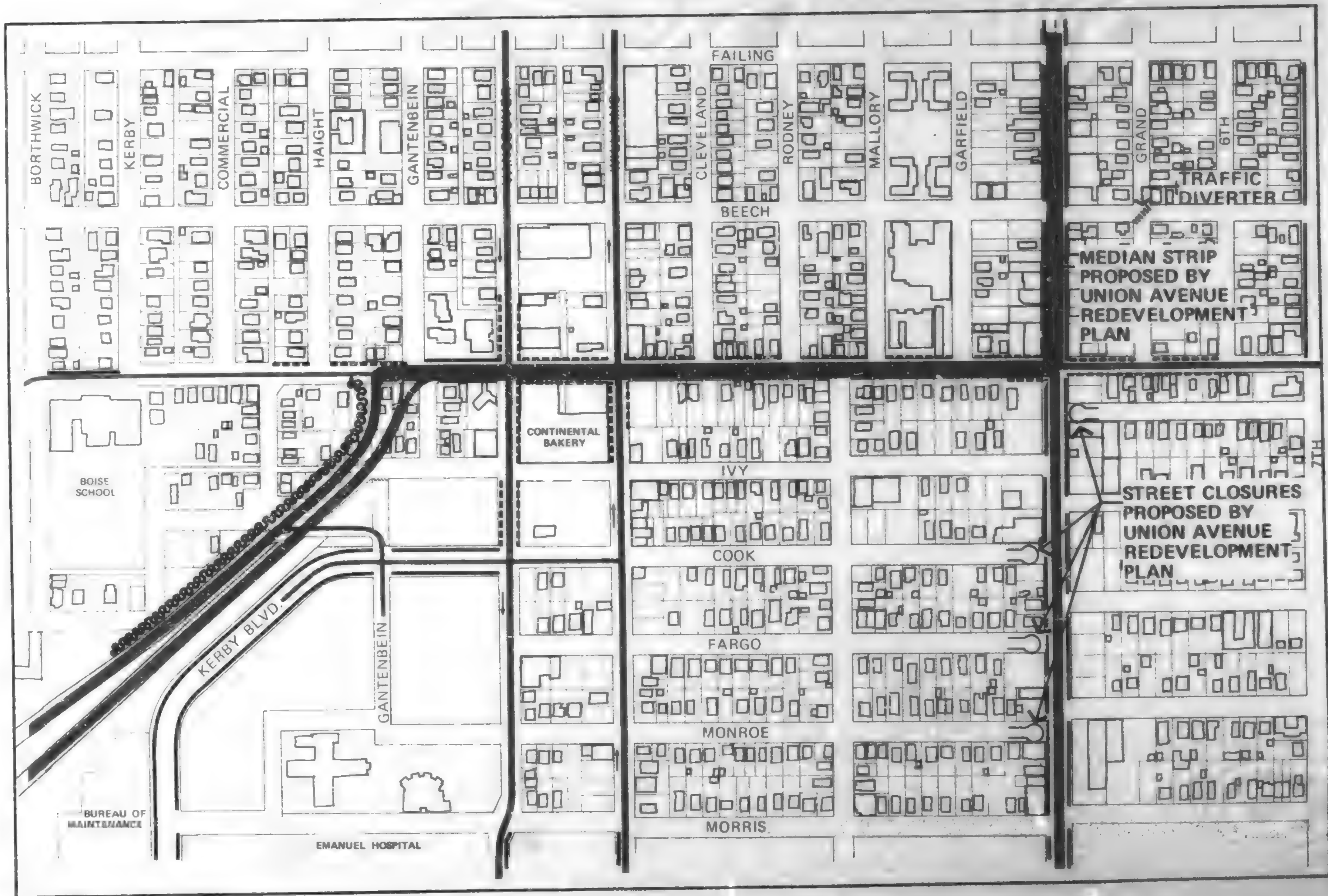
COOK-FREMONT
PROJECT FEATURES

——— Existing Parking Control and Parking Control Under the Union Avenue Redevelopment Plan

- - - - - Parking Control as Part of Project

→ One-Way Traffic Flow

Traffic controls above discourage vehicles from using local streets to circumvent controls on major streets (see text).


BORTHWICK
KERBY
COMMERCIAL
HAIGHT
GANTENBEIN
FAILING
CLEVELAND
RODNEY
MALLORY
GARFIELD
GRAND
6TH
BEECH
TRAFFIC DIVERTER
MEDIAN STRIP PROPOSED BY UNION AVENUE REDEVELOPMENT PLAN
BOISE SCHOOL
CONTINENTAL BAKERY
IVY
COOK
FARGO
MONROE
MORRIS
7TH
STREET CLOSURES PROPOSED BY UNION AVENUE REDEVELOPMENT PLAN
KERBY BLVD.
GANTENBEIN
BUREAU OF MAINTENANCE
EMANUEL HOSPITAL

1"=400' North↑

〰〰 Noise Barrier

— One-Way Traffic Flow

━━ Existing Parking Control and Parking Control Under the Union Avenue Redevelopment Plan

------- Parking Control as Part of Project

Traffic controls above discourage vehicles from using local streets to circumvent controls on major streets (see text).

FREMONT BOULEVARD PROJECT FEATURES

Chapter 3
SUMMARY OF ANALYSIS

The major findings of the analysis described in Part II of this report are briefly summarized below.

TRANSPORTATION

1. Under all of the alternatives, total traffic in the Study Area is projected to increase slightly by 1980 and to decline by 1990, owing to a projected decline in population and employment in the Study Area and a projected increase in the proportion of trips using public transit.

2. All of the build alternatives redistribute traffic in the Study Area west of 7th Avenue. They increase traffic on Fremont between Vancouver and Union, and on Vancouver, Williams, and Union Avenue north of Fremont. They decrease traffic on I-5, on Alberta and Killingsworth between I-5 and Union, and on Williams, Vancouver, and Union Avenue south of Fremont. The amount of increase or decrease is proportional to the degree of access to the bridge ramps afforded by each alternative.

3. Because they are designed to encourage traffic to use Union Avenue rather than Fremont and other east-west streets, the build alternatives will not significantly affect the amount of traffic using streets east of Union, including Fremont.

4. Opening the ramps will not significantly affect the number of trips across the Willamette River.

5. All build alternatives and the Hospital and Stanton Yard Only variation of the No Build will significantly improve access to Emanuel Hospital and its immediate vicinity. The build alternatives will afford a similar improvement in access to the Primary Impact Area.

6. The Cook-Fremont and Fremont Boulevard alternatives will afford a small savings in time and a marginal improvement in the ease and convenience of access to areas outside the Primary Impact Area, including areas north and west of the Study Area. Most of the trips that will use the ramps under Cook-

Fremont and Fremont Boulevard will be to or from areas outside the Primary Impact Area.

7. Because the Fremont Bridge is a visible, direct, easy-to-understand route to and from west side parts of Portland, many people will perceive opening the ramps as more of an improvement in access than is really the case when measured in actual travel time.

AIR QUALITY

1. Carbon Monoxide (CO) levels frequently exceed the federal standard (for 8-hour maximum average levels) near major traffic streets in the Study Area during the winter months.

2. The Cook-Fremont and Fremont Boulevard alternatives cause CO levels to exceed the federal standard at locations between the ramps and Union Avenue in 1980 where they would not under the No Build.

3. By 1990, CO levels along Fremont Street under all alternatives are expected to meet federal standards, assuming programmed emission controls are implemented.
4. Projected future airborne lead levels are well below the Oregon standard except within the I-5 right-of-way. None of the build alternatives will significantly change this condition.

NOISE

1. Noise levels near major traffic streets in the Study Area are already high.

2. All of the build alternatives increase traffic noise between the ramps and Union Avenue. Short Cook affects the fewest number of homes, Fremont Boulevard the largest number.

3. The number of homes in the Study Area exposed to noise levels above the Federal Highway Administration design standard will be highest under Fremont Boulevard and lowest under the Short Cook alternative.

LAND USE AND REDEVELOPMENT

1. Opening the ramps under any one of the alternatives will not alone cause conversions in land use.

2. Union Avenue remains physically and economically depressed. The city's Union Avenue Redevelopment Plan seeks to promote private investment in new commercial, industrial, and

residential development there. Opening the ramps will afford only a marginal improvement in access to Union Avenue. Of the alternatives, Fremont Boulevard provides the most improvement in access and is therefore the most supportive of the city's redevelopment program.

3. If the city's planning policy were revised to encourage commercial and light industrial rather than residential redevelopment in Eliot neighborhood south of Russell Street, opening the ramps would support this change.

4. Removing the ramps would leave from 6 to 8 acres of land for re-use.

5. About 20 acres of undeveloped land remains in the Emanuel Hospital Urban Renewal Project. The availability of the ramps could affect decisions to locate new medical or other facilities there.

6. From an urban design standpoint, the street improvements on Fremont under the Short Cook and Fremont Boulevard alternatives will be preferable to Cook-Fremont.

RELOCATION

1. All of the build alternatives require some property acquisition for right-of-way. Only the Fremont Boulevard alternative requires the displacement of families. Short Cook does not require the acquisition of any structures. Cook-Fremont will acquire the McDonald's restaurant at Fremont and Union Avenue. Fremont Boulevard will displace 20 dwelling units, one church, one public service agency, and five small businesses.

2. Recent experience with relocation in this part of the city suggests that adequate replacement housing can be found for the 17 households that will be displaced.

SOCIAL

1. More than one-half of the black population of Portland lives within a mile or so of the east end of the Fremont Bridge.

2. The homes that are taken by the Fremont Boulevard alternative are of generally poor quality and are already subjected to fairly heavy traffic.

3. The people living in the immediate vicinity

of the build alternatives are mostly poor and black, and are comparatively vulnerable to public intervention that is disruptive of their day-to-day lives.

ENGINEERING AND CONSTRUCTION

1. None of the alternatives involve engineering or construction problems which are unusual for this type of project.

2. Total estimated construction costs (including property acquisition and relocation) in current dollars for the alternatives are as follows:

No Build Variations	
Ramp Removal	$ 284,000
Permanent Closure and Limited Bridge Access	$ 15,000
Hospital and Stanton Yard Only	$ 195,000
Short Cook	$1,548,000
Cook-Fremont	$1,992,000
Fremont Boulevard	$2,646,000

ECONOMICS

1. The overall economic impact of opening the ramps will be neither clearly positive or negative.

2. Connecting the ramps to Union Avenue may benefit retail businesses by increasing traffic on Union north of Fremont Street. Decreases in traffic on Union south of Fremont may adversely affect retail business there.

3. Opening the ramps under either the Short Cook, Cook-Fremont, or Fremont Boulevard alternatives will benefit most retail, service, and industrial businesses in Boise neighborhood and industry in Eliot neighborhood but will adversely affect retail sales and service businesses in Eliot.

4. Residential property values in the area between the ramps and Union Avenue are low. Opening the ramps will probably not have much effect on them.

5. Cost-benefit analysis indicates that none of the alternatives will result in net economic gains. Accepting the assumptions in the analysis, the most favorable alternative is Fremont Boulevard, followed closely by the Permanent Closure and Limited Bridge Access variations of the No Build alternative.

PART
II

Chapter 1
TRANSPORTATION

This chapter evaluates how each alternative affects travel patterns, including traffic volumes, access, and congestion. The analysis also indicates how each alternative relates to city and regional transportation planning.

The basic tool used for the analysis in this chapter is a mathematical model which simulates traffic flow in 1990. The basic input is data on travel patterns in the Portland metropolitan area developed by the Oregon Department of Transportation (ODOT). These data consist of the number of daily trips between small subdivisions of the area, or zones. They were computed on the basis of population and employment projections in each zone made by the Columbia Region Association of Governments (CRAG) in cooperation with the City of Portland and other municipalities, and on the basis of assumptions about the number of trips that people and jobs generate and how many of these trips will be made by public transit and how many by private vehicles.

Data on travel patterns were adapted for use in the Fremont Bridge Access Study and used in a computer model which assigns trips from one zone to another to the route which takes the least travel time. The computer then counts the total number of trips on individual street segments, resulting in a set of projections for average daily traffic for each segment.

Although the traffic assignment model assumes that all trips between two zones will take the route which minimizes travel time, in reality other factors influence the route an individual motorist chooses. For example, some will take a route taking more time to avoid congestion on the route that takes the least time. Also, when alternative routes are nearly equal in travel time, it is unlikely that all motorists will take the shortest route.

Because of these assumptions, and because the differences in travel times between routes using or not using the east-end ramps are small (in some cases smaller than may actually be perceived by motorists), the limitations of the projections should be recognized. Nevertheless, they are the best estimate based on accepted traffic projection techniques and are adequate for the use made of them in the following analysis. A detailed discussion of the modeling procedure and other background information are contained in the Technical Appendix.

For this study, the system of major traffic streets to which trips were assigned is assumed to be the same as the present system, as shown in the figure on page 39. This is identical to the Interim Regional Transportation Plan for 1990 (Ref. 1), except that Flint and 7th Avenues are not included as major traffic streets in the plan. It is assumed that Union Avenue will be improved as shown by the Union Avenue Redevelopment Plan (Ref. 2). Beyond the Study Area, it is assumed that the street system will be as shown in the regional plan. Consequently, I-205 is included.

TRAVEL PATTERNS

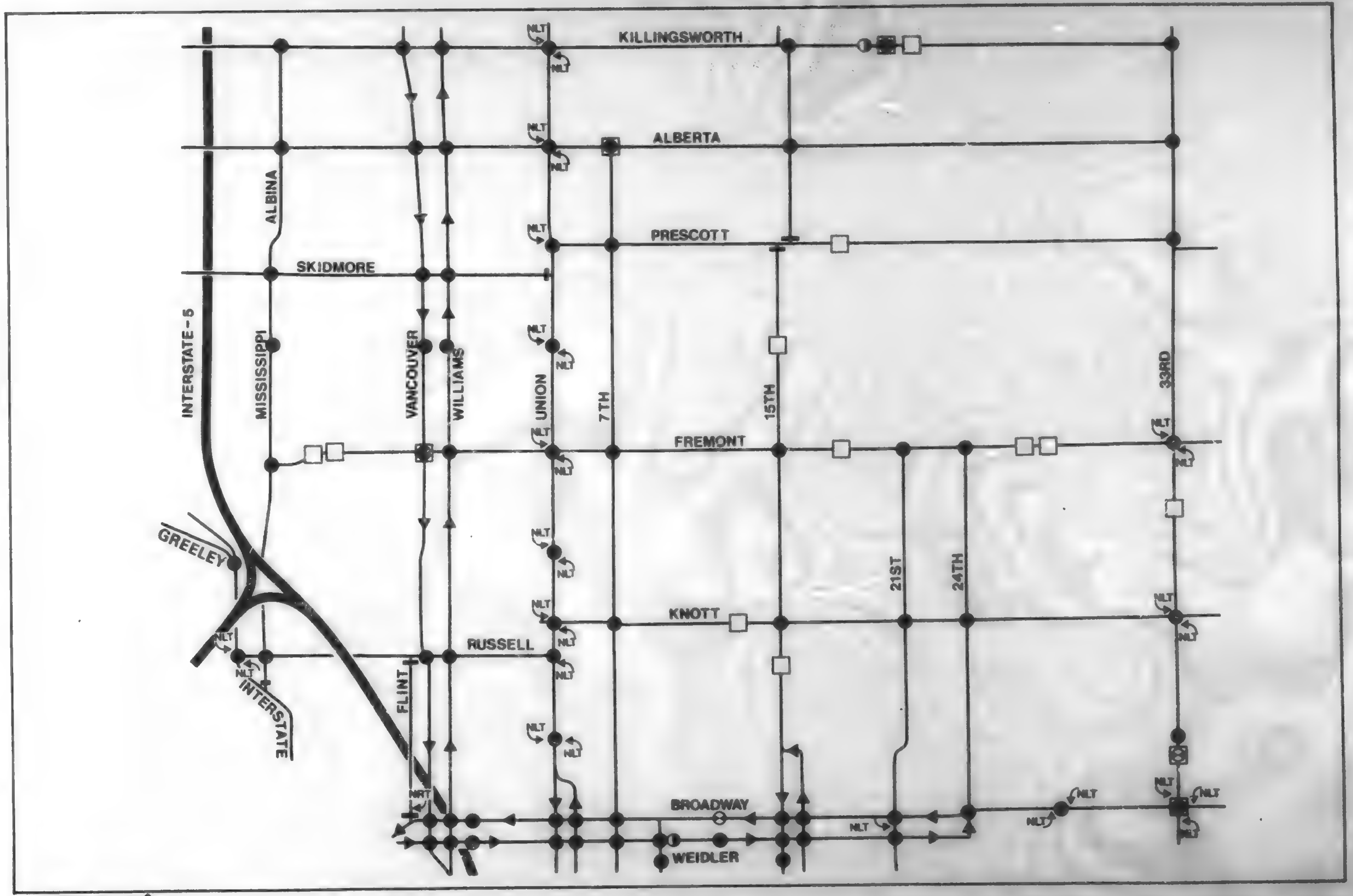
PROJECTED FUTURE TRAFFIC VOLUMES

Existing traffic volumes and volumes projected for major traffic streets in both 1980 and 1990 for all alternatives are compared in the figures on pages 40, 41 and 42. The 1990 projections are the results of the computer modeling discussed above. Because the data on travel patterns necessary for modeling traffic in 1980 is not available, the 1980 projections shown are derived from existing traffic volumes. It is assumed that the factors affecting traffic levels (population, employment and public transit use) will not change significantly between now and 1980, and that traffic volumes will continue to change in accordance with recent trends.

Significant Features

Total Traffic in 1980 and 1990. Total traffic in the Study Area is expected to increase slightly by 1980 under all alternatives. By 1990, total traffic is projected to decline from both current and 1980 levels. Therefore, traffic volumes will be at their highest levels within a few years. This is because of two important assumptions incorporated into the data on future travel patterns developed by ODOT. One is that population and employment will decline somewhat in the Study Area by 1990, especially north of Fremont Street and west of Union. The second is that public transit ridership will significantly increase in response to improvements in the transit system planned for the Study Area and the region. Changes in population and employment and the ratio of transit passenger trip-ends to total vehicle trip-ends assumed in making the traffic projections are contained in the Technical Appendix.

Streets West of 7th Avenue. In 1980 north of


KILLINGSWORTH
ALBERTA
PRESCOTT
SKIDMORE
FREMONT
KNOTT
RUSSELL
BROADWAY
WEIDLER
INTERSTATE-5
ALBINA
MISSISSIPPI
VANCOUVER
WILLIAMS
UNION
7TH
15TH
21ST
24TH
33RD
GREELEY
INTERSTATE
FLINT
NLT
NRT
1"=1800' North↑
Major Traffic Street
One-Way
Signalized Intersection
Fire Signal
Pedestrian Crossing Signal
Stop Sign¹
Patrolled School Crossing
No Left Turn
No Right Turn

Notes:

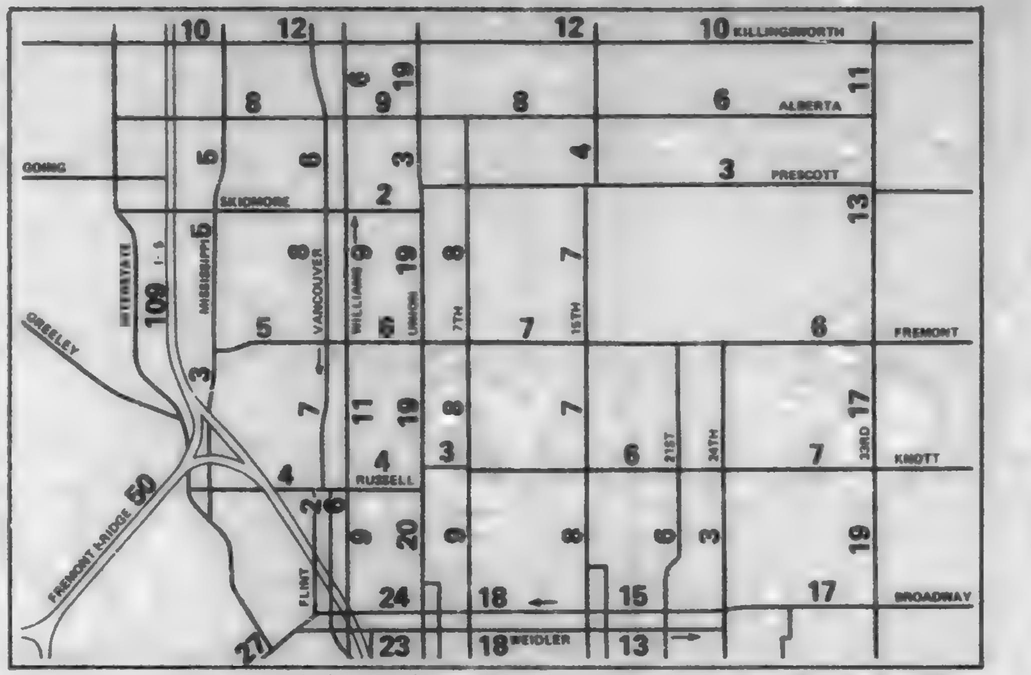
1. Stop signs are shown only where traffic on a major street is required to stop.
2. Only patrolled school crossings on major streets are shown.

MAJOR TRAFFIC STREETS AND TRAFFIC CONTROLS

Fremont, the projections for the build alternatives show moderate to major increases in volumes on north-south streets over both existing conditions and the No Build alternative. Primarily, these increases represent traffic which is diverted from I-5, but some is due to traffic increases that will occur anyway. The effect on the Williams and Vancouver couplet is greatest under the Fremont Boulevard alternative because traffic will reach the capacity of Union Avenue, causing some to divert to the couplet. This effect occurs to a lesser extent under the Cook-Fremont alternative.

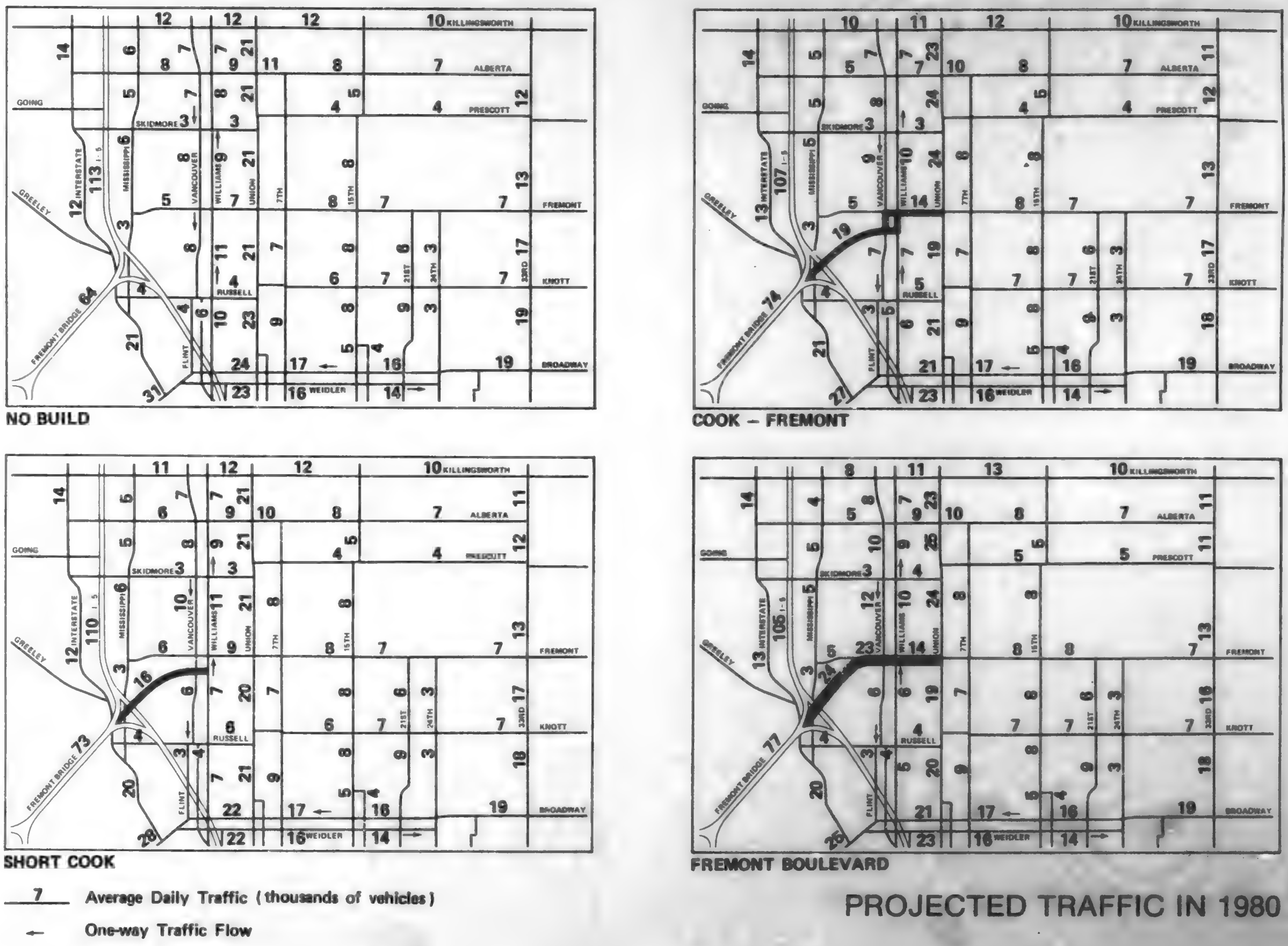
By 1990, traffic on these streets in general is projected to have declined significantly because of the decline in population and employment projected in the vicinity and to increases in transit ridership. Because projected traffic on Union Avenue will be below its capacity, major diversion to Williams and Vancouver will not occur.

The build alternatives will divert traffic from I-5 to the Fremont Bridge causing traffic on Killingsworth and Alberta between I-5 and Union Avenue to be less than under the No Build alternative.


KILLINGSWORTH
ALBERTA
PRESCOTT
GOING
SKIDMORE
INTERSTATE
I-5
MISSISSIPPI
VANCOUVER
WILLIAMS
UNION
7TH
15TH
21ST
24TH
33RD
FREMONT
KNOTT
RUSSELL
BROADWAY
WEIDLER
FLINT
GREELEY
FREMONT BRIDGE
109
50
27
24
23
18
15
13
17
19

See legend on following page.

EXISTING TRAFFIC



KILLINGSWORTH
ALBERTA
PRESCOTT
FREMONT
KNOTT
BROADWAY
WEIDLER
GOING
SKIDMORE
MISSISSIPPI
VANCOUVER
WILLIAMS
UNION
7TH
15TH
21ST
24TH
33RD
RUSSELL
FLINT
INTERSTATE
I-5
GREELEY
FREMONT BRIDGE

NO BUILD

COOK – FREMONT

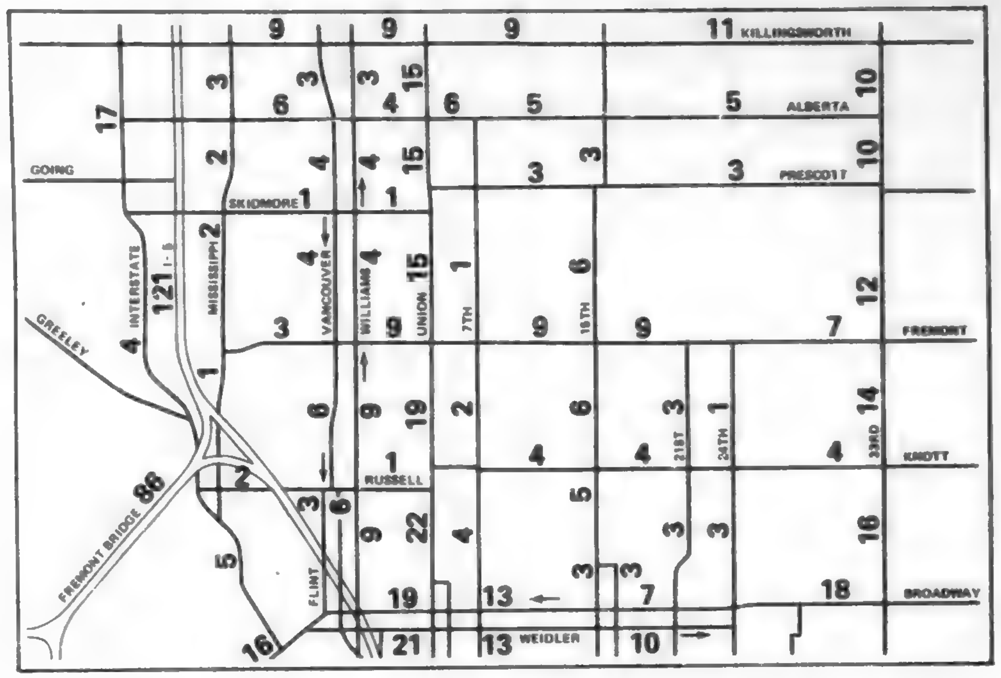
SHORT COOK

FREMONT BOULEVARD

7 Average Daily Traffic (thousands of vehicles)

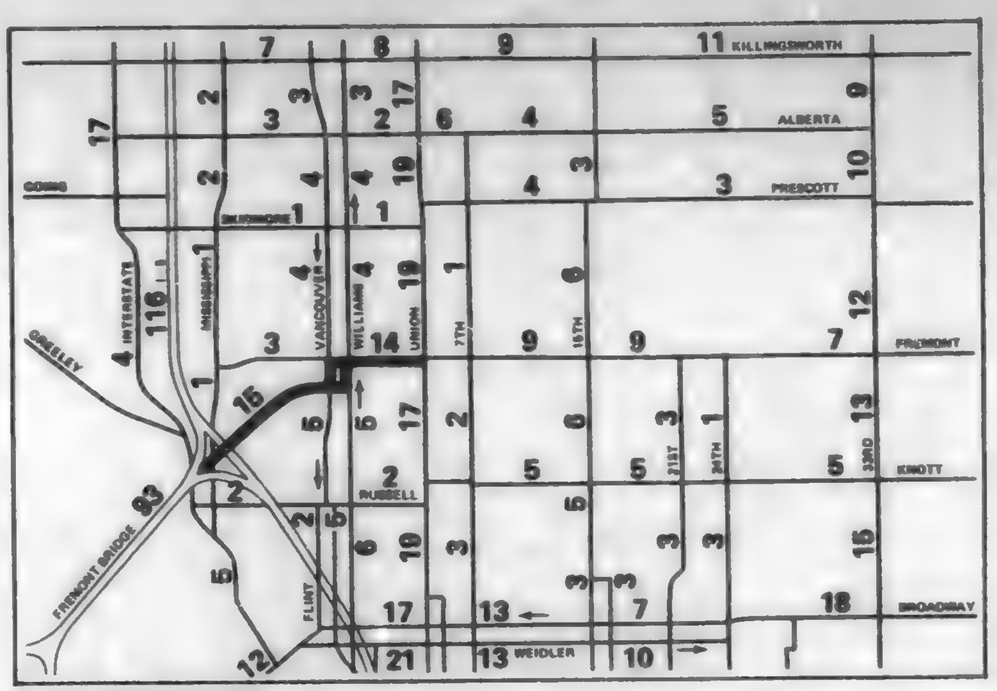
← One-way Traffic Flow

PROJECTED TRAFFIC IN 1980



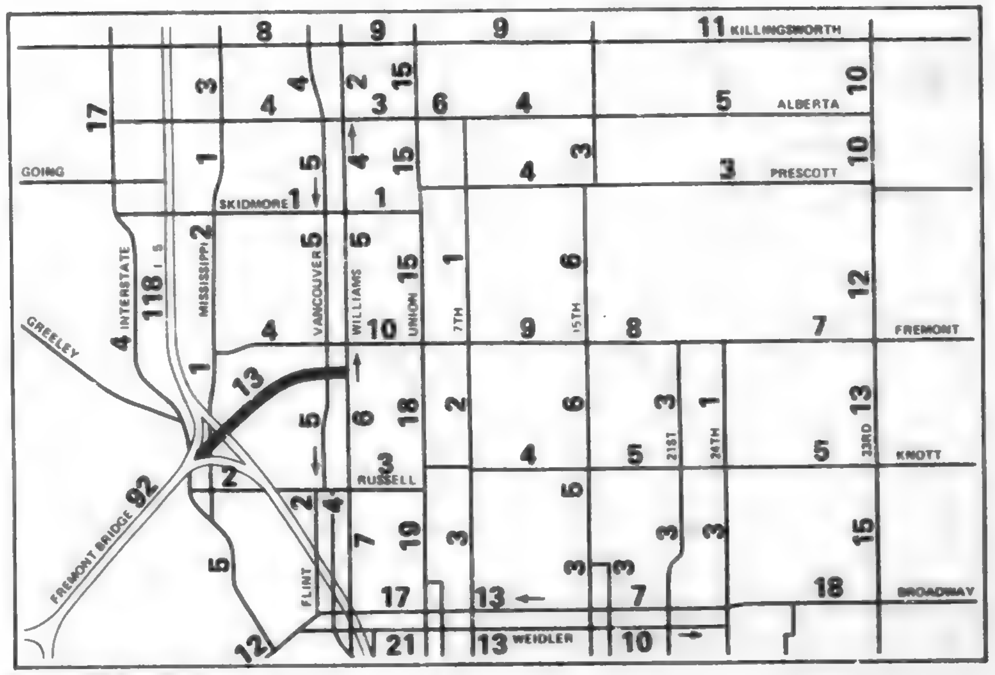
KILLINGSWORTH
ALBERTA
PRESCOTT
GOING
SKIDMORE
MISSISSIPPI
INTERSTATE
I-5
121
GREELEY
FREMONT BRIDGE
86
VANCOUVER
WILLIAMS
UNION
7TH
15TH
21ST
24TH
33RD
FREMONT
KNOTT
RUSSELL
FLINT
BROADWAY
WEIDLER

NO BUILD



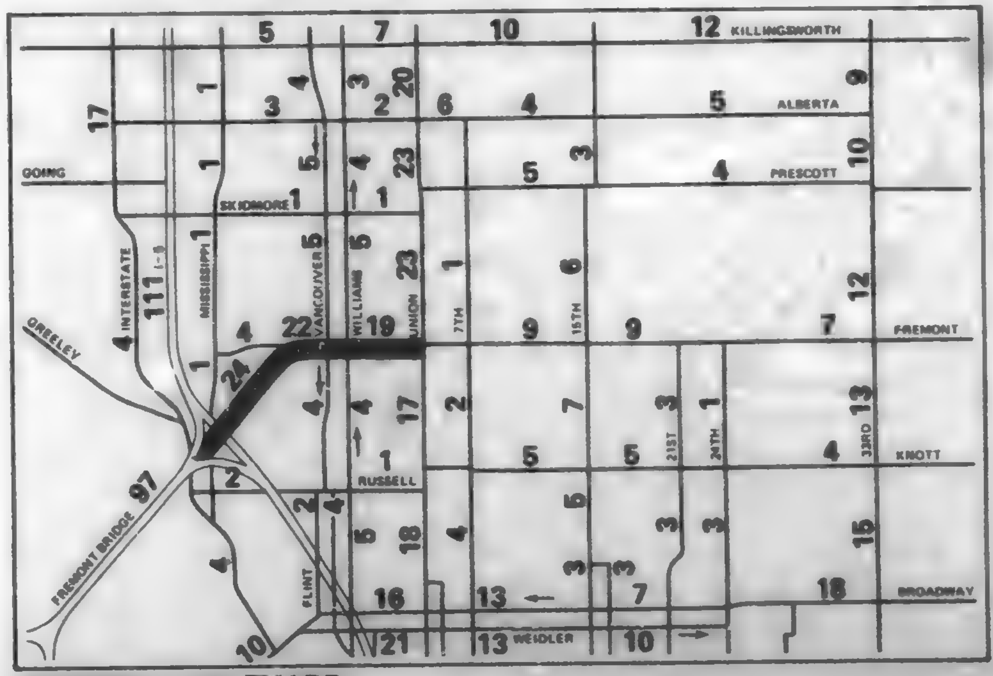
KILLINGSWORTH
ALBERTA
PRESCOTT
GOING
SKIDMORE
MISSISSIPPI
INTERSTATE
I-5
116
GREELEY
FREMONT BRIDGE
93
15
VANCOUVER
WILLIAMS
UNION
7TH
15TH
21ST
24TH
33RD
FREMONT
KNOTT
RUSSELL
FLINT
BROADWAY
WEIDLER

COOK–FREMONT



KILLINGSWORTH
ALBERTA
PRESCOTT
GOING
SKIDMORE
MISSISSIPPI
INTERSTATE
I-5
118
GREELEY
FREMONT BRIDGE
92
13
VANCOUVER
WILLIAMS
UNION
7TH
15TH
21ST
24TH
33RD
FREMONT
KNOTT
RUSSELL
FLINT
BROADWAY
WEIDLER

SHORT COOK



KILLINGSWORTH
ALBERTA
PRESCOTT
GOING
SKIDMORE
MISSISSIPPI
INTERSTATE
I-5
111
GREELEY
FREMONT BRIDGE
97
24
22
VANCOUVER
WILLIAMS
UNION
7TH
15TH
21ST
24TH
33RD
FREMONT
KNOTT
RUSSELL
FLINT
BROADWAY
WEIDLER

FREMONT BOULEVARD

PROJECTED TRAFFIC IN 1990

7 Average Daily Traffic (thousands of vehicles)

← One-way Traffic Flow

The more traffic on the ramps, the less on these streets. The effect is proportionately greater in 1990 than in 1980 because diversion to Williams and Vancouver will have been discontinued. Ainsworth, Portland Boulevard, and Lombard Street north of the Study Area will be similarly affected.

South of Fremont, the build alternatives will cause traffic on north-south streets west of 7th to decline in comparison to the No Build alternative, both in 1980 and 1990. This is caused by diversion of traffic to the Fremont Bridge from the Broadway Bridge and other bridges and Williams, Vancouver, and Union Avenue.

Fremont Street West of Union. West of Vancouver, the build alternatives will not affect traffic volumes by much. Between Vancouver and Union, they will significantly increase traffic in comparison to the No Build. In 1980 the increase is projected to be by about 30 percent under the Short Cook alternative, but may be smaller if the measures to discourage circumvention of the traffic controls are effective. Under Cook-Fremont and Fremont Boulevard the increase will be by about 100 percent. By 1990, traffic will have increased under the No Build alternative, and traffic volumes will be about 10 percent higher under Short Cook, 56 percent under Cook-Fremont, and over 110 percent under Fremont Boulevard.

Fremont Street East of Union. Traffic on Fremont Street is projected to increase between 1980 and 1990 under the No Build alternative, unlike traffic on most streets in the Study Area. This is because it is one of few designated collector streets providing direct service between Mississippi and 82nd Avenue. The traffic projections for Fremont east of Union under the build alternatives are based on the assumption that proposed measures to discourage bridge ramp traffic from using Fremont will work as intended. Because of this projected traffic volumes do not vary significantly between the No Build and build alternatives.

The projected traffic volumes under the Short Cook alternative reflect the expected effect of making Fargo one-way between Williams and Vancouver in discouraging bridge traffic from using side streets to circumvent the controls. The other measures proposed to do this will have the effect of reducing the volumes on Fremont Street east of Union shown in the projections.

Other Streets East of Union. A comparison of the existing traffic volumes with those projected in

1980 on streets east of 7th shows, in general, a small increase. The projections for 1990 indicate a moderate decline in traffic levels. In both 1980 and 1990, there are only minor differences in the projections for these streets between the No Build and build alternatives.

I-5. Because it is assumed that I-205 will be opened by 1980, projected traffic volumes on I-5 are only slightly higher than existing volumes. Traffic volumes on I-5 are projected to increase between 1980 and 1990. This is due to projected increases in population and employment in suburban parts of the metropolitan area such as Clark County, Washington.

In both 1980 and 1990, projected traffic on I-5 in the Study Area is less under the build alternatives than under the No Build. This is because much of the traffic that will use the ramps is diverted from it. As the figures show, the effect is least under the Short Cook alternative and greatest under the Fremont Boulevard alternative.

Summary. Between now and 1980, traffic in the Study Area will generally continue to increase slowly, but will decline by 1990. The build alternatives affect traffic patterns by diverting to the ramps traffic that would otherwise use either: (1) I-5 north of the Fremont Bridge and Alberta and Killingsworth, or (2) the Broadway and other bridges and Williams, Vancouver, and Union between Broadway and Fremont. This decreases traffic on I-5, Alberta and Killingsworth between I-5 and Union, and on Williams, Vancouver, and Union south of Fremont. It increases traffic on Fremont between Vancouver and Union, and on Vancouver, Williams, and Union north of Fremont. These effects are proportional to the degree of access to the ramps afforded. Traffic on streets east of 7th Avenue are not significantly affected by the build alternatives.

Traffic Under the Hospital and Stanton Yard Only Variation of the No Build Alternative. Traffic going to or from the east-end ramps under the Hospital and Stanton Yard Only variation of the No Build alternative will use either Kerby Boulevard or Gantenbein Avenue to get to or from the Stanton Yard, the Emanuel Hospital campus, and the immediate vicinity of the hospital, i.e., within several blocks of the campus. Control measures will discourage traffic going to or from outside this area from using the ramps.

In 1980, the average daily number of trips projected to use the ramps in going to or from the Stanton Yard is 300. Projected total traffic to or from the Emanuel Hospital campus is 1,900 and traffic to or from the immediate hospital vicinity is 800. By 1990, the average daily traffic between the ramps and the Emanuel Hospital campus is projected to increase to 2,100 and the others to remain the same as in 1980. Projected average daily traffic on the ramps themselves is 3,000 in 1980 and 3,200 in 1990. Traffic volumes to and from the Stanton Yard and Emanuel Hospital campus under the build alternatives are projected to be the same as under the Hospital and Stanton Yard Only variation of the No Build.

DISTRIBUTION OF THROUGH AND LOCAL TRAFFIC

The table on page 46 compares how the alternatives affect the proportions of through and local traffic at several locations in the Study Area. Local traffic is defined as those trips which have one or both trip ends within the Study Area. Local traffic on the Vancouver-Williams couplet north of Fremont is at least 30 percent greater under the Short Cook and Fremont Boulevard alternatives than under the No Build. It is also 30 percent greater than it is under the No Build on Union Avenue north of Fremont under the Fremont Boulevard alternative.

Through traffic under the build alternatives will be at least 30 percent greater than under the No Build as follows: on the Williams-Vancouver couplet north of Fremont with all build alternatives, on Fremont east of 7th Avenue with the Cook-Fremont and Fremont Boulevard alternatives, and on Union north of Fremont with the Fremont Boulevard alternative.

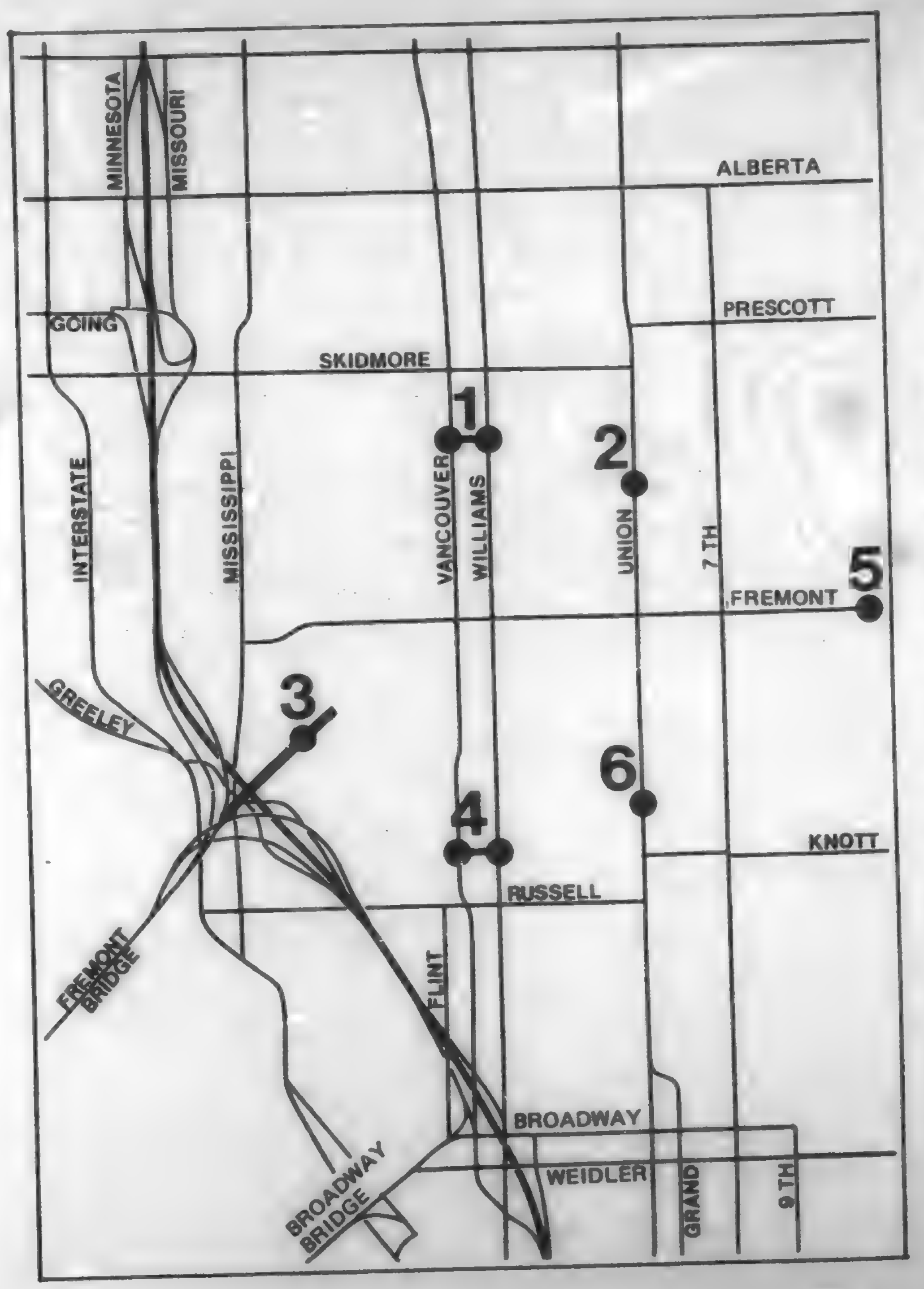
ORIGIN AND DESTINATION OF RAMP TRAFFIC

The table on page 47 shows how ramp traffic projected in 1990 is estimated to be distributed under the build alternatives. There is little difference between the alternatives in the amount of traffic to and from the Primary Impact Area. The smaller number of trips under the Cook-Fremont alternative results from the traffic signal metering at the bridge ramps, which will delay Primary Impact Area traffic as well as traffic to or from outside the Primary Impact Area. Significantly more traffic is oriented to the rest of the Study Area under the Fremont Boulevard alternative than under Short Cook and Cook-Fremont. The latter two are very similar.

The figures indicate that the greater the physical improvement and degree of access afforded by an alternative, the greater the amount of through

THROUGH AND LOCAL TRIPS IN 1990

		THROUGH TRIPS[1]		LOCAL TRIPS[2]		TOTAL	
		No.	%	No.	%	No.	%
1	NO BUILD	2,400	32	5,000	68	7,400	100
	SHORT COOK	3,400	33	6,900	67	10,300	100
	COOK-FREMONT	2,400	29	6,000	71	8,400	100
	FREMONT BLVD.	3,900	39	6,200	61	10,100	100
2	NO BUILD	6,700	44	8,500	56	15,200	100
	SHORT COOK	6,500	43	8,600	57	15,100	100
	COOK-FREMONT	8,800	46	10,300	54	19,100	100
	FREMONT BLVD.	12,100	52	11,300	48	23,400	100
3	NO BUILD	0	–	0	–	0	–
	SHORT COOK	1,700	13	11,000	87	12,700	100
	COOK-FREMONT	4,200	28	10,700	72	14,900	100
	FREMONT BLVD.	9,300	39	14,300	61	23,600	100
4	NO BUILD	2,600	18	12,100	82	14,700	100
	SHORT COOK	2,300	22	8,300	78	10,600	100
	COOK-FREMONT	2,000	21	7,600	79	9,600	100
	FREMONT BLVD.	1,500	19	6,500	81	8,000	100
5	NO BUILD	900	10	8,500	90	9,400	100
	SHORT COOK	1,000	11	8,400	89	9,400	100
	COOK-FREMONT	700	8	8,600	92	9,300	100
	FREMONT BLVD.	1,300	14	8,000	86	9,300	100
6	NO BUILD	8,100	42	11,200	58	19,300	100
	SHORT COOK	7,800	44	10,100	56	17,900	100
	COOK-FREMONT	7,500	43	9,900	57	17,400	100
	FREMONT BLVD.	7,200	42	10,000	58	17,200	100


MINNESOTA
MISSOURI
ALBERTA
PRESCOTT
GOING
SKIDMORE
1
2
INTERSTATE
MISSISSIPPI
VANCOUVER
WILLIAMS
UNION
7 TH
FREMONT
5
3
GREELEY
6
4
KNOTT
RUSSELL
FREMONT BRIDGE
FLINT
BROADWAY
BROADWAY BRIDGE
WEIDLER
GRAND
9 TH

Notes: [1] Through Trips neither begin nor end in the Study Area.

[2] Local Trips begin and/or end in the Study Area.

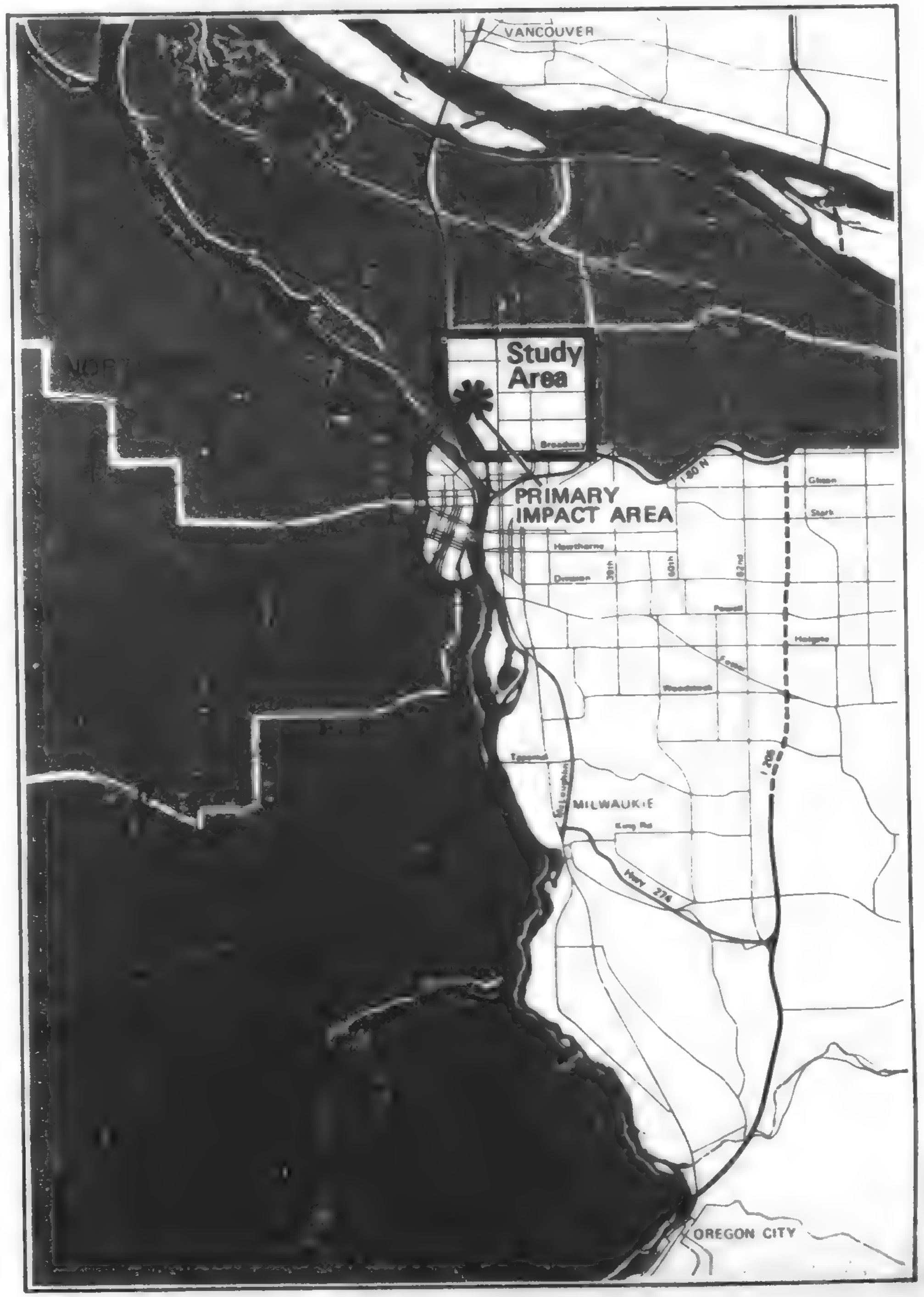
ORIGIN AND DESTINATION OF PROJECTED 1990 RAMP TRAFFIC

EAST SIDE OF WILLAMETTE RIVER

	SHORT COOK		COOK-FREMONT		FREMONT BLVD.	
	No.	%	No.	%	No.	%
PRIMARY IMPACT AREA	6,100	48	5,600	38	6,200	26
REST OF STUDY AREA	4,900	39	5,100	34	8,100	34
OUTSIDE STUDY AREA						
North	900	7	2,400	16	5,600	24
Northeast	0	0	600	4	1,600	7
East	800	6	1,200	8	2,100	9
TOTAL	12,700	100	14,900	100	23,600	100

WEST SIDE OF WILLAMETTE RIVER

	SHORT COOK		COOK-FREMONT		FREMONT BLVD.	
	No.	%	No.	%	No.	%
NORTHWEST	5,100	40	5,300	35	7,900	33
SUNSET-BEAVERTON	5,400	43	6,500	44	9,900	42
CENTRAL BUSINESS DIST.	1,300	10	2,200	15	4,600	20
SOUTHWEST	900	7	900	6	1,200	5
TOTAL	12,700	100	14,900	100	23,600	100



traffic (i.e., neither beginning nor ending in the Study Area) using the ramps. For the Short Cook alternative, only 1,700 trips or 13 percent are oriented outside the Study Area. Under Fremont Boulevard, 9,300 trips or 40 percent are oriented to outside the Study Area. Most of this traffic is oriented to the area north of the Study Area. Under all of the alternatives, this area accounts for over half of the through trips using the ramps.

The table for the west side of the Willamette River shows that most of the ramp traffic is oriented to the Northwest and Sunset Highway-Beaverton corridors. Only a small amount of traffic is oriented to the Southwest corridor, which includes I-5 to the south. Both in absolute terms and proportionately, trips to or from the Central Business District are greater under Fremont Boulevard then under Short Cook and Cook-Fremont.

WILLAMETTE RIVER CROSSINGS

Opening the bridge ramps is not expected to significantly affect the total number of river crossings in the region. About 535,000 daily crossings are projected in 1990. Although a few more trips may be made because it becomes easier to reach some destinations from the opposite side of the river, opening the ramps will not offer enough time savings over existing routes to significantly increase cross-river traffic.

ACCESS

This section of the chapter discusses the build alternatives in terms of both time and distance savings and in terms of ease and convenience of access.

TOTAL TRAVEL DISTANCE AND TRAVEL TIME

The total number of miles traveled and the hours of travel time for all trips projected in 1990 in the Study Area were calculated for each alternative. There are no significant differences between the alternatives, including the No Build, in either total vehicle-miles or vehicle-hours. However, there are some differences projected in the use of various types of streets. Details are contained in the Technical Appendix.

ACCESS TO PRIMARY IMPACT AREA

Emanuel Hospital

Background Perspective. The information that follows is largely from Working Paper No. 2 of the Fremont Bridge Access Study (Ref. 2).

Emanuel Hospital has a capacity of about 500 beds and is the third largest of the 22 general acute care hospitals in the metropolitan area. It has over 1,000 full-time and about 500 part-time employees and an active medical staff of about 300 doctors. An estimated 9 percent of Emanuel's employees live in either the Northwest corridor, Sunset Highway-Beaverton corridor, or the Central Business District as defined in the discussion of origin and destination. An estimated 64 percent of its active medical staff live in and about 34 percent maintain offices in these areas.[1]

Most of the patients discharged from Emanuel in 1974 lived on the east side of the Willamette River. About 16 percent lived in the Northwest, Sunset-Beaverton, and Southwest corridors as defined in the discussion of origin and destination.

Emanuel Hospital is the sponsor of the Emanuel Hospital Urban Renewal Project. The purpose of the project is to develop a medical center campus containing hospital facilities, physician offices, housing for hospital staff and the elderly, and some hospital-related commercial development. Twenty-two blocks have been purchased and cleared since the project's inception in 1966. A medical office building, the Portland Orthopedic Clinic, an extended care facility, and a new hospital lobby (connecting two existing buildings) have been built. Construction is underway on a 200-bed nursing tower, which will replace 200 beds in the existing hospital. A large amount of developable land remains within the project area.

Because of the activity of visitors in the afternoon and a 3:00-3:30 p.m. shift change, the peak period for hospital-oriented traffic is between 2:45 and 3:45 p.m. According to a survey taken during this period, most traffic enters and leaves the hospital campus via Vancouver Avenue. The connection to the Fremont Bridge on-ramp was open at the time; only 10 vehicles left the hospital area via Gantenbein Avenue, which connects to the ramp.

Time and Distance Savings. In proportion to total travel time and distance, the savings for each trip afforded by opening the ramps is measurable only for the Primary Impact Area, including Emanuel Hospital. Nevertheless, in absolute terms, the savings are small. Trips to the hospital from the west end of the Fremont Bridge will be shortened by about 2.5 minutes and 0.6 miles, if made by the bridge and the ramps.

Ease and Convenience. Access to Emanuel Hospital and other land uses in the Primary Impact Area have been rated according to the ease and convenience of access afforded by the build alternatives. Factors taken into account in making these ratings include the number of turning movements, traffic signals, and congestion along the alternative routes, as well as travel time and distance. The change in access to the Emanuel Hospital campus afforded by all three build alternatives, compared with all but the Hospital and Stanton Yard Only variations of the No Build alternative, is considered a significant improvement.

Bureau of Maintenance Facilities

Background Perspective. Stanton Yard, located immediately west of Emanuel Hospital, and the Albina Yards, located on the north side of the bridge ramps, comprise the operations center for the city's Bureau of Maintenance. Maintenance functions for the entire city are served from these locations. These functions include the construction, installation, inspection, and repair of city sidewalks, streets, and traffic structures, traffic control devices, and other facilities. The yards are used for staging, equipment and material storage, shops, and supervisory offices.

About 480 Bureau of Maintenance employees work at or out of the Stanton and Albina Yards. Most work from 8:00 a.m. to 4:30 p.m. A one-day survey was made in 1975 to determine maintenance vehicle traffic generation and routing. On that day, 197 vehicles made 615 one-way trips either beginning or ending at one of the yards. Nineteen of these trips were made on the Fremont Bridge via the on-ramp.

Time and Distance Savings. These are similar to the savings for Emanuel Hospital.

Ease and Convenience. The change in access afforded by opening the bridge ramps is considered a significant improvement for Stanton Yard, somewhat less so for Albina Yards, although it is still an improvement.[2]

Continental Bakery

Background Perspective. The Continental Bakery is located on the block bounded by Williams, Vancouver, Fremont, and Ivy. It employs approximately 160 persons working on staggered shifts around the clock, 5 days a week. Forty-five delivery vans operate from the plant, leaving between 6:00 and 7:30 a.m. and returning between 2:30 and 4:00 p.m. Twelve tractor-trailer transports also operate from the plant. These load during the day and begin leaving in the late afternoon. Both vans and transports presently enter the plant from Fremont. Bakery management is considering a reorganization of loading procedures so that the transports would enter from Williams Avenue and leave on Fremont.

The bakery recently completed the acquisition and clearance of all nonbakery properties on both the bakery block and the block immediately to the south. The company has tentative plans for expansion on the south block and is interested in the possibility of vacating Ivy Street.

Time and Distance Savings. Time and distance savings for the Continental Bakery associated with opening the ramps would be similar to those for Emanuel Hospital.

Ease and Convenience. Opening the ramps would be a major improvement in the ease and convenience of access to the plant vicinity.

Major traffic flows are projected for Fremont Street in front of the bakery under all three build alternatives. This will increase the potential for conflicts between bakery vehicles and general traffic on these streets. Use of Fremont to get to and from the plant will be most difficult under the Fremont Boulevard alternative because of the number of lanes and large traffic volumes. Expansion onto the south block may allow moving the main plant access point away from Fremont, particularly if Ivy is vacated.

Continental Baking Company is considering moving the base for its local distribution trucks away from the plant. This would leave only the transports. It may be necessary to make parts of the median on Williams Avenue under Short Cook and the one on Fremont between Williams and Vancouver under Cook-Fremont and Fremont Boulevard painted rather than raised to allow large trucks to enter and leave the plant.

Primary Impact Area East of Williams

Time and Distance Savings. Time and distance savings will be in the same range as those for Emanuel Hospital—significant in proportion to total cross-river travel time, but minor in absolute terms.

Ease and Convenience. Access to this area from the west side of the Willamette River will improve. However, the traffic control measures and traffic volumes under the build alternatives will decrease the ease and convenience of access to individual land uses. The improvements at the intersection of Fremont and Union will make access to the commercial establishments located there somewhat more difficult under the Cook-Fremont and Fremont Boulevard alternatives than with the No Build. Measures to prevent circumvention of the lane control on Williams and Vancouver Avenues under the Short Cook alternative will limit the freedom of circulation in the residential areas immediately north and south of Fremont, reducing the level of access to these areas from several directions. This effect must be weighed against the advantages of lower traffic volumes on residential streets.

Because the metering at the ramps under the Cook-Fremont alternative will add to the travel time for trips using the ramps in comparison to the Short Cook and Fremont Boulevard alternatives, the improvement in access will be less. This is reflected in the number of trips projected to use the ramps going to or from the Primary Impact Area, as shown in the table on page 47.

ACCESS TO REST OF STUDY AREA AND OUTSIDE THE STUDY AREA

According to the traffic projections under Cook-Fremont and Fremont Boulevard, the majority of trips using the ramps in 1990 will be going to or from areas outside the Primary Impact Area. In actuality, the savings in travel time and improvements in the ease and convenience of access for these trips will be small. Many motorists will take the route with least congestion, whether using the ramps or not. Nevertheless, because the bridge provides a visible, direct, easy-to-understand route to and from westside parts of Portland, many people will perceive opening the ramps as more of an improvement in access than is really the case when measured in actual travel time.

OPERATIONAL CHARACTERISTICS

TRAFFIC METERING UNDER COOK-FREMONT AND FREMONT BOULEVARD

In effect, all traffic signals meter traffic. The difference between a normal signal and one used intentionally to meter or limit traffic lies in the timing of the phases (green, yellow, red). The timing of most signals is designed to facilitate all possible moves at an intersection according to the traffic demand for them. The timing of a signal used for metering is designed to facilitate some moves and limit others.

Metering is used successfully at present in other cities to control the amount of traffic entering freeways to avoid or minimize congestion. The type of metering proposed under the Cook-Fremont and Fremont Boulevard alternatives has had little, if any, use. In theory, no reason has been identified why it should not work.

The Cook-Fremont and Fremont Boulevard alternatives meter traffic flow across Union on Fremont by traffic signal timing. Metering is used to discourage traffic from using Fremont Street east of Union Avenue. Cook-Fremont also meters traffic going on and off the ramps to limit the amount of traffic on Fremont between Vancouver and Union. The intended effect of metering is to keep traffic volumes at or below some maximum level. The traffic signal is timed to allow only so much traffic to pass through. If there is more traffic wishing to go through the intersection than the metering allows, motorists will have to wait longer. Some will seek an alternative route the next time.

A motorist will experience metering as he does congestion. As he approaches the metering point, he will encounter a line of vehicles waiting at the traffic signal. When the light turns green, some of the vehicles in front of the motorist will move through the metering point. However, the light will turn red and stop the motorist for a second time. If the line of waiting vehicles is long enough, the motorist may be stopped for a third or fourth red light.

Once the motorist decides that he is using more time stopping at the metering point than he is saving by using the ramps, he will decide to use another route.

It is believed that the metering will have to delay motorists for only a small amount of time to have a significant effect on the use of the ramps. Preliminary investigations using the traffic assignment model indicate that a delay as small as 1 or 2 minutes may be adequate to hold traffic volumes to the levels shown in this report. The amount of time that will actually be needed to restrain traffic volumes to a set level can only be determined by field testing after the ramps are opened to traffic.

A question associated with metering is the amount of vehicular backup which will occur at the point of metering. This depends on the amount of time that motorists are willing to be delayed in order to use the metered facility. This, too, can best be determined by field testing.

Another consideration in the use of traffic signal metering is the enforcement of the regulation. Motorists often become impatient when faced with a long red traffic light and little cross street traffic. They may think the traffic signal is malfunctioning. If these motorists proceed on a red light, they not only defeat the purpose of metering, but cause a safety hazard. The ramp metering could be placed at a nonintersection location on the ramp. The signals would be placed to minimize or eliminate the vehicle storage problem. However, it is likely that enforcement of the regulation would be more difficult due to the absence of cross traffic. This option would also require hospital traffic to be metered.

Metering is proposed at two locations under the Cook-Fremont alternative. First, it will be used at either the Commercial or Gantenbein intersections (or a combination of the two). At either location, some undesirable metering will occur.

With metering at Commercial, traffic to and from Emanuel Hospital on Gantenbein will be metered. With metering at Gantenbein, traffic on Kerby desiring to go to or from the east on the ramp will be metered. In both cases, all ramp traffic to or from Vancouver will be metered, including traffic going to or coming from the Primary Impact Area. Thus, local traffic is penalized to the same degree as through traffic.

Approximately 325 feet of storage is available for westbound traffic between Gantenbein and Vancouver. With two traffic lanes, about 26 vehicles can be stored while waiting for the green signal.

The second metering location under the Cook-Fremont alternative is at the intersection of Fremont Street and Union Avenue. At this point, only traffic passing straight through the intersection on Fremont will be metered. The motorist who wishes to turn onto Union from Fremont, either eastbound or westbound, will not be affected by metering.

Because the signal timing can be adjusted, metering offers the advantage of allowing changes in the amount of traffic flow in response to changing traffic conditions. This flexibility could become a valuable asset in controlling future traffic flows.

The purpose of metering as proposed is to achieve a means of positive control over the amount of traffic using Fremont and other streets to protect environmental conditions along them. Because metering can be adjusted to change traffic volumes, it may be a cause of concern to community residents. People may fear future adjustments allowing more traffic on their streets. The number of lanes at the metered intersections would limit the range of such adjustments. However, if uncertainty over possible adjustments emerges, one way to mitigate this effect would be for the city to establish a procedure for public review before any adjustments are made. This could be coordinated with a program of monitoring the performance and effects of a ramp connection, if one is necessary.

EFFECTIVENESS OF TRAFFIC CONTROLS

Each of the build alternatives involves control measures to discourage ramp traffic from using Fremont Street east of Union Avenue. Short Cook prevents lane changes on Williams and Vancouver Avenues between Fremont and Cook Streets. Cook-Fremont and Fremont Boulevard meter traffic flow across Union on Fremont. Cook-Fremont also meters traffic at the end of the ramps. Special traffic controls are also part of the variations of the No Build alternatives which allow some use of the ramps. These are designed to discourage use of the ramps by traffic going to or from areas outside the immediate vicinity of Emanuel Hospital.

The alternatives, including the No Build variations, rely on the layout of the existing streets and some proposed changes to discourage motorists from circumventing the controls. All rely on the circulation system within the Emanuel Hospital campus shown in the figure on page 25. Using Gantenbein Avenue through the campus or Kerby Boulevard around its west side should take more time than the metering delay under the Cook-Fremont alternative, and cause a longer and more complicated trip than alternative routes under the No Build variations, Short Cook, and Cook-Fremont. The volume of traffic which does use one of these routes should be small. If it becomes a problem, additional measures can be taken. For example, stop signs can be placed and speed limits set within the hospital campus, and a traffic signal designed to delay traffic can be installed at the intersection of Kerby Boulevard and Russell Street.

As indicated in Chapter 2 of Part I, each build alternative relies on the median on Union and the closures of Cook, Fargo, and Monroe Streets at Union as proposed under the Union Avenue Redevelopment Plan to discourage circumvention of the controls. To be effective, the Union Avenue median will have to be unbroken at intersections between Fremont and Shaver. Under Cook-Fremont and Fremont Boulevard, which do not completely preclude traffic from moving between the ramps and Fremont east of Union, these measures should be adequate to avoid noticeably increasing traffic on local streets.

Under Short Cook, because direct access between Fremont and the ramps is completely precluded and because the control measures are on Williams and Vancouver rather than at Union, additional measures are necessary. These include closing Fargo at Williams and making Fargo one-way westbound between Williams and Vancouver, prohibiting the left turn from Beech to Vancouver, and installing a traffic diverter at the intersection of Beech and Cleveland.

If only Fargo were made one-way, it is estimated that about 3,000 vehicles per day will circumvent the traffic controls to get between the ramps and Fremont. The additional measures are expected to reduce this flow substantially. Although through traffic on local streets will probably not be a severe burden, circumvention of the controls is expected to be greater under Short Cook than under either Cook-Fremont or Fremont Boulevard.

IMPACTS

PARKING

Existing "no parking" zones and those which would take effect under the proposed Union Avenue Redevelopment Plan, and those required under the alternatives are shown in the Project Features figures in Part I, Chapter 2. New parking restrictions under the alternatives compare as follows:

Alternative	Curb Parking Prohibited
No Build	850 feet
Short Cook	5,930 feet
Cook-Fremont	6,720 feet
Fremont Boulevard	4,150 feet

The improvements to the intersection of Fremont and Union assumed under the No Build alternative will require prohibiting parking along a total of

850 feet of curb on Fremont on either side of Union. Depending on actual traffic volumes, it may be possible to allow parking along Fremont between Williams and Union Avenue during off-peak hours (6 p.m. to 7 a.m.) under the Cook-Fremont alternative. It may also be possible to allow parking on the south side of Fremont in the morning and on the north side in the afternoon. The traffic projections are not adequate to enable a positive determination of either of these possibilities. A decision on each will have to be made based on counts of actual traffic flow after the alternative is implemented.

Loss of parking under Cook-Fremont should not be a severe problem for residents on the north side of Fremont because the blocks are short. Blocks on the south side are much longer. Seventeen houses face Fremont on the south side between Williams and Union Avenue. Six do not have off-street parking now. Of the eleven that do, seven have garages, most of which are very small and located close to the sidewalk. Vehicles entering and leaving these must use the south moving lane and parking lane. Because the garages are narrow, vehicles enter and leave them slowly. This is a safety hazard now which will be worsened by the higher traffic volumes under the Cook-Fremont alternative.

To reduce this hazard, small garages close to the sidewalk on the south side of Fremont could be either remodeled or replaced with open parking spaces to allow vehicles to enter and leave the street using only the outside lane. Insofar as some of these garages may be unusable now because of their small size, this would also mitigate the effect of restricting on-street parking. Constructing off-street parking spaces for the houses that do not have off-street parking would similarly mitigate the loss of on-street parking for their occupants. These measures are not part of the Cook-Fremont alternative as proposed, but could be made part of it.

TRAFFIC CONGESTION

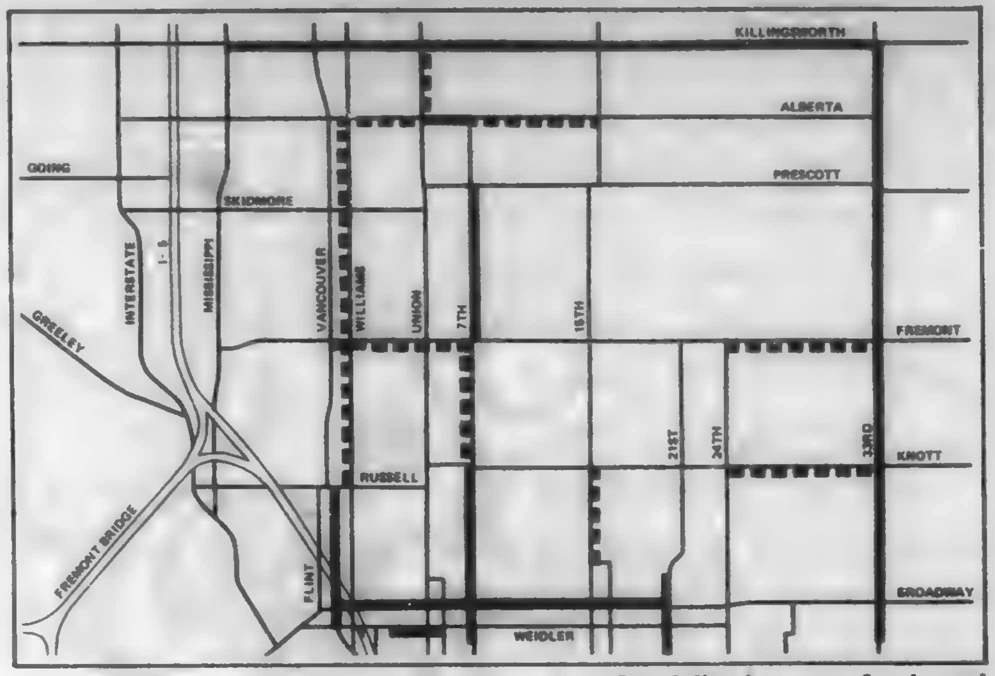
The figures the following pages show the results of a comparison between existing and projected traffic volumes and street capacity. The relationships between volume and capacity have been translated into terms of the congestion a motorist is likely to encounter on these streets. Under all alternatives it is assumed that the street improvements proposed under the Union Avenue Redevelopment Plan will be made by 1980. Under the No Build alternative, it is assumed that by

1980 improvements similar to those proposed under Short Cook will be made to the intersection of Fremont and Union Avenue.[3]

Roadway capacities are an approximation of the maximum number of vehicles that a street can handle at reasonably steady flow conditions. Factors used in calculating roadway capacities include width of street, parking conditions, one-way or two-way operation, peak period volume characteristics, turning movements, type of vehicle in the traffic stream, signal timing, and population and land use characteristics.

Operation of a roadway with "minor" congestion, as defined in the figures, is generally considered satisfactory in urban areas. The importance of the street segments shown as having "minor" congestion is that they are borderline--more traffic on them could cause "major" traffic congestion.

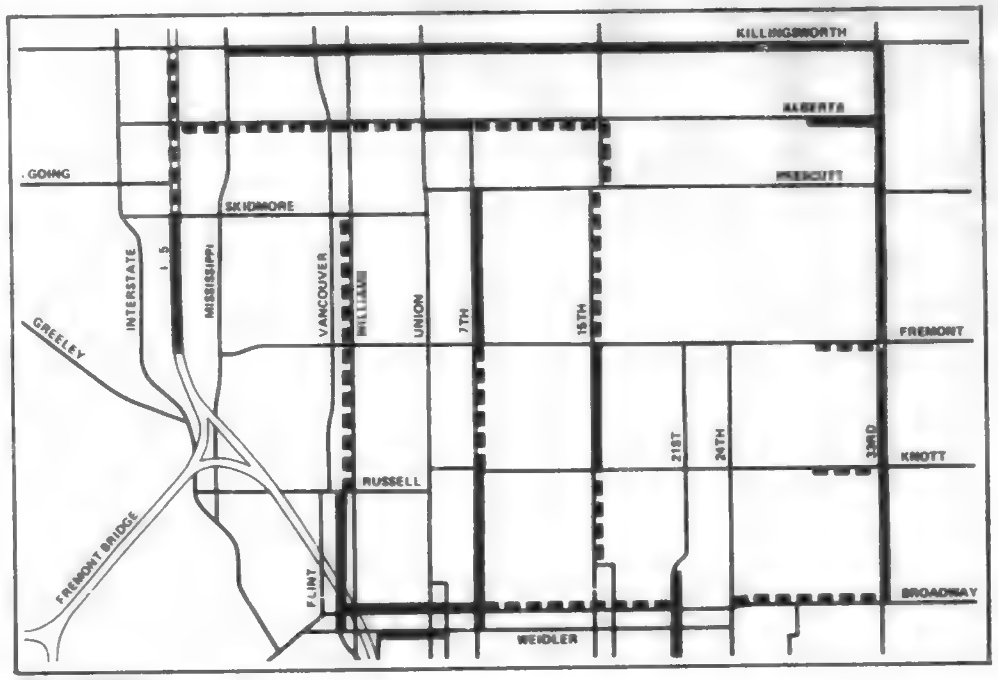
Under existing conditions, there is major congestion on Killingsworth, 33rd Avenue, Vancouver south of Russell, and Broadway between Vancouver and 7th. As shown in the figures, Killingsworth east of 15th and 33rd Avenue will likely have major congestion through 1990, although the general decline in traffic will relieve conditions somewhat by then. None of the build alternatives


KILLINGSWORTH
ALBERTA
PRESCOTT
GOING
SKIDMORE
INTERSTATE
I-5
MISSISSIPPI
VANCOUVER
WILLIAMS
UNION
7TH
15TH
GREELEY
FREMONT
KNOTT
RUSSELL
21ST
24TH
33RD
FREMONT BRIDGE
FLINT
BROADWAY
WEIDLER

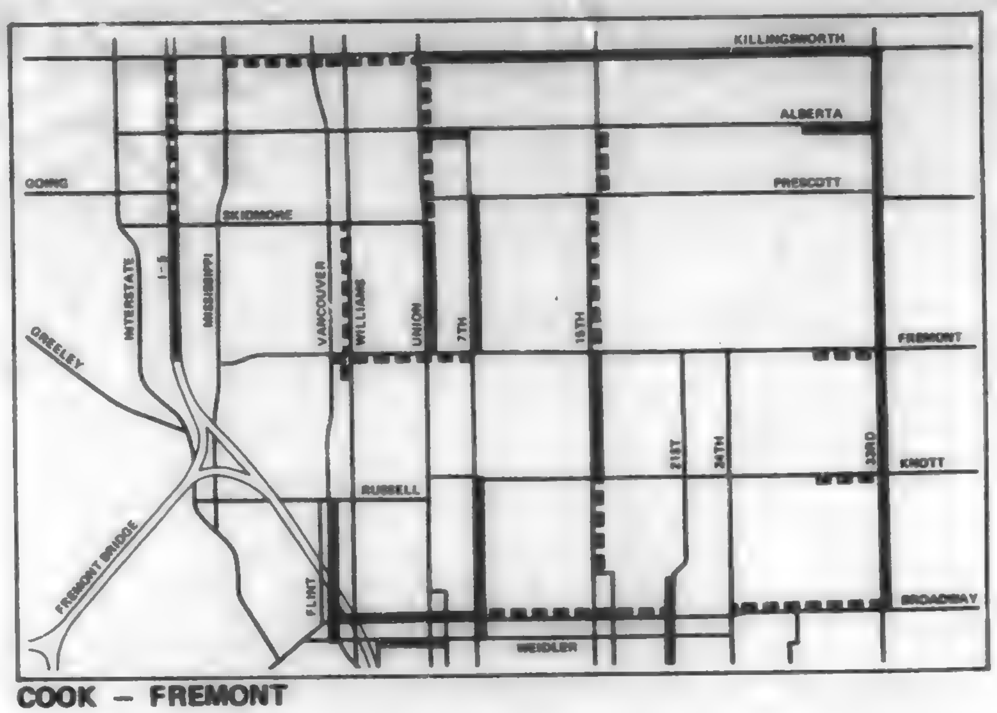
See following page for legend.

EXISTING CONGESTION
(CAPACITY DEFICIENCIES)

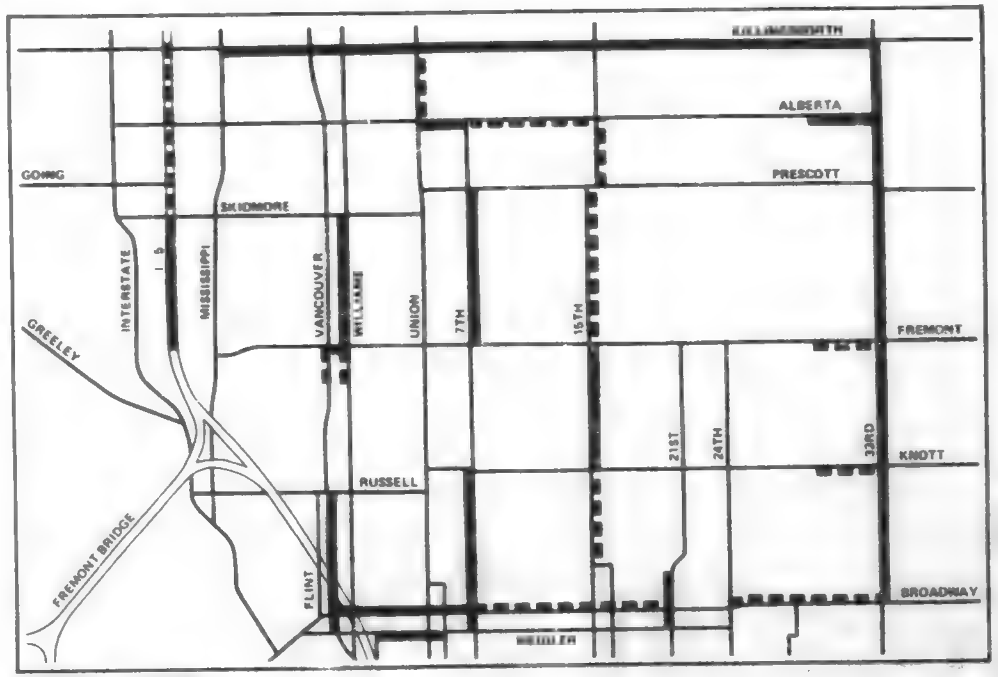
PROJECTED CONGESTION (CAPACITY DEFICIENCIES) IN 1980


KILLINGSWORTH
ALBERTA
PRESCOTT
GOING
SKIDMORE
INTERSTATE
I-5
MISSISSIPPI
VANCOUVER
WILLIAMS
UNION
7TH
15TH
GREELEY
FREMONT
21ST
24TH
33RD
KNOTT
RUSSELL
FREMONT BRIDGE
FLINT
BROADWAY
WEIDLER

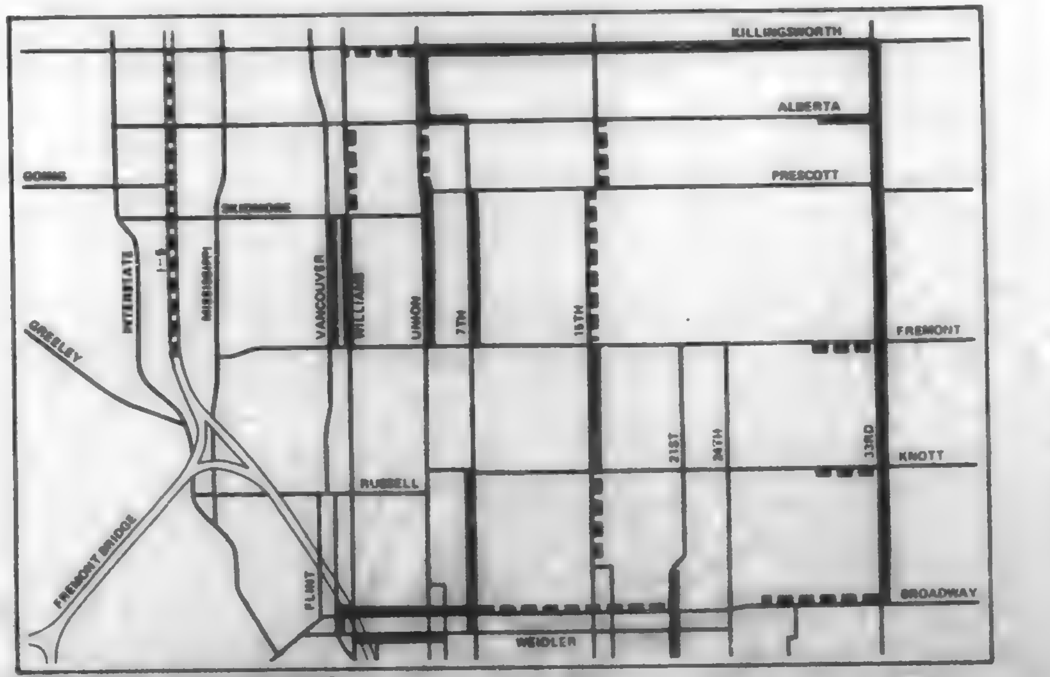
NO BUILD


KILLINGSWORTH
ALBERTA
PRESCOTT
GOING
SKIDMORE
INTERSTATE
I-5
MISSISSIPPI
VANCOUVER
WILLIAMS
UNION
7TH
15TH
GREELEY
FREMONT
21ST
24TH
33RD
KNOTT
RUSSELL
FREMONT BRIDGE
FLINT
BROADWAY
WEIDLER

COOK – FREMONT


KILLINGSWORTH
ALBERTA
PRESCOTT
GOING
SKIDMORE
INTERSTATE
I-5
MISSISSIPPI
VANCOUVER
WILLIAMS
UNION
7TH
15TH
GREELEY
FREMONT
21ST
24TH
33RD
KNOTT
RUSSELL
FREMONT BRIDGE
FLINT
BROADWAY
WEIDLER

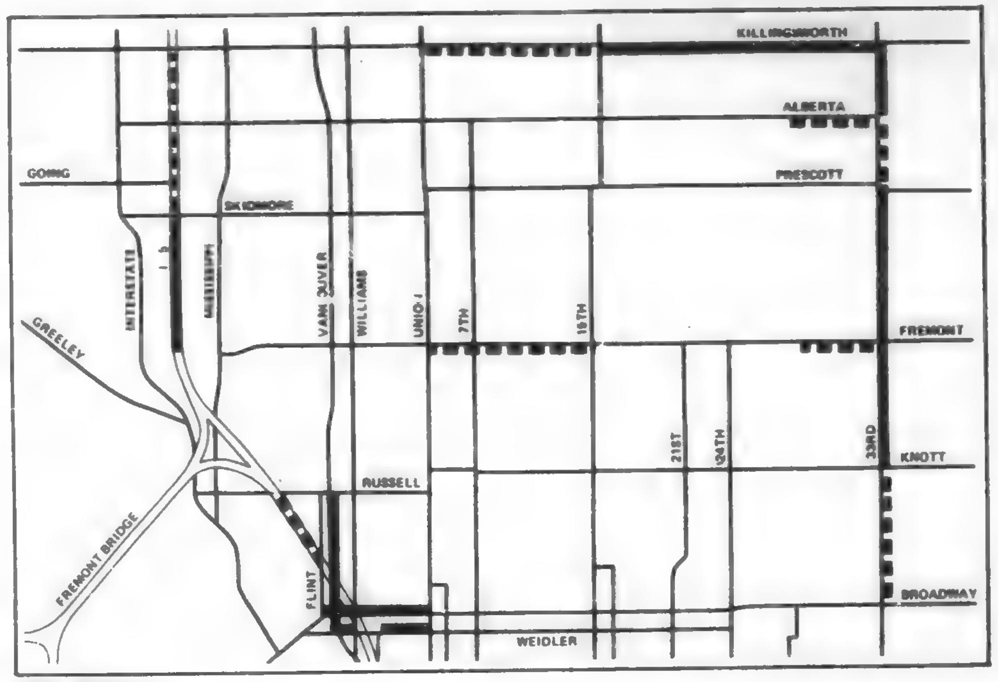
SHORT COOK


KILLINGSWORTH
ALBERTA
PRESCOTT
GOING
SKIDMORE
INTERSTATE
I-5
MISSISSIPPI
VANCOUVER
WILLIAMS
UNION
7TH
15TH
GREELEY
FREMONT
21ST
24TH
33RD
KNOTT
RUSSELL
FREMONT BRIDGE
FLINT
BROADWAY
WEIDLER

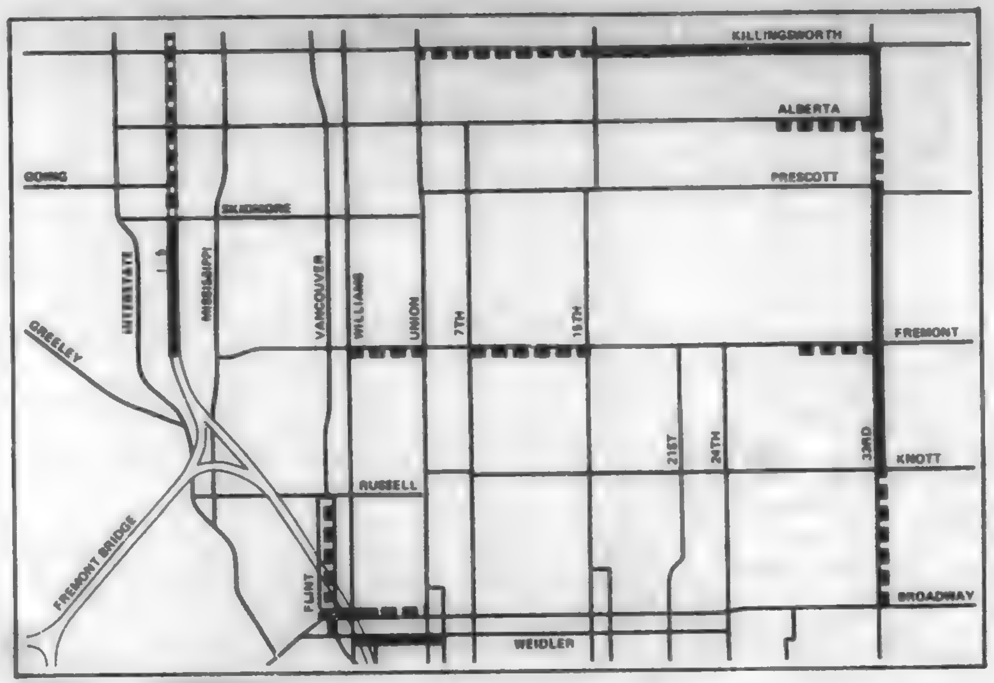
FREMONT BOULEVARD

▪▪▪▪ Minor — delays through 2 red lights will occasionally occur during peak hours (traffic is between 90 and 100 percent of street capacity).

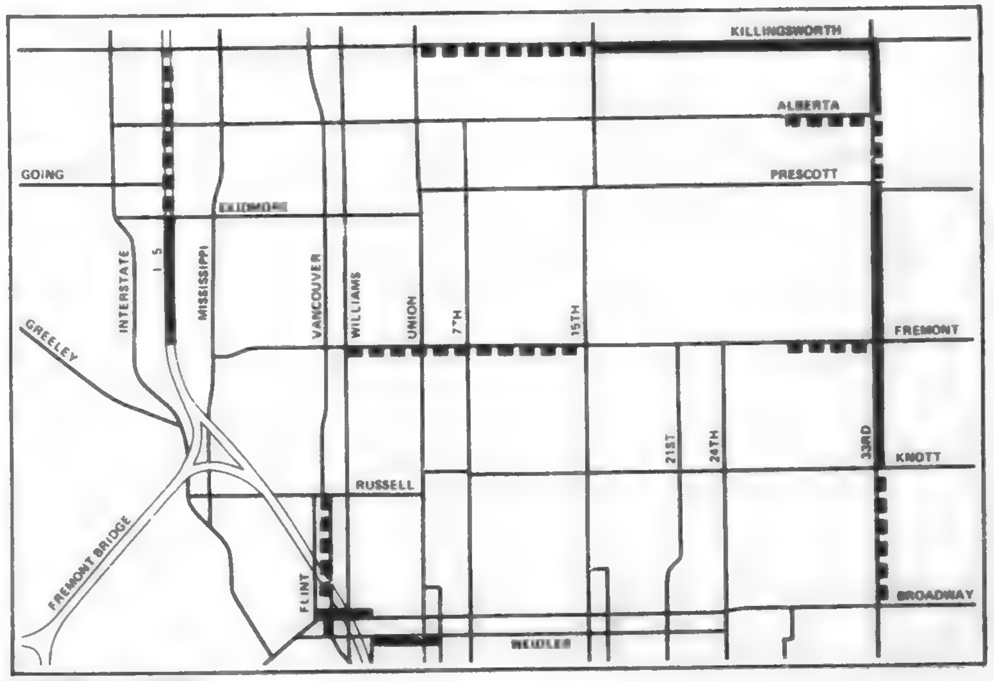
▬ Major — delays through 2 red lights will frequently occur during peak hours and occasionally at other times (traffic is over 100 percent of street capacity).


KILLINGSWORTH
ALBERTA
PRESCOTT
GOING
SKIDMORE
INTERSTATE
I-5
MISSISSIPPI
VANCOUVER
WILLIAMS
UNION
7TH
15TH
FREMONT
GREELEY
21ST
24TH
33RD
KNOTT
RUSSELL
FREMONT BRIDGE
FLINT
BROADWAY
WEIDLER

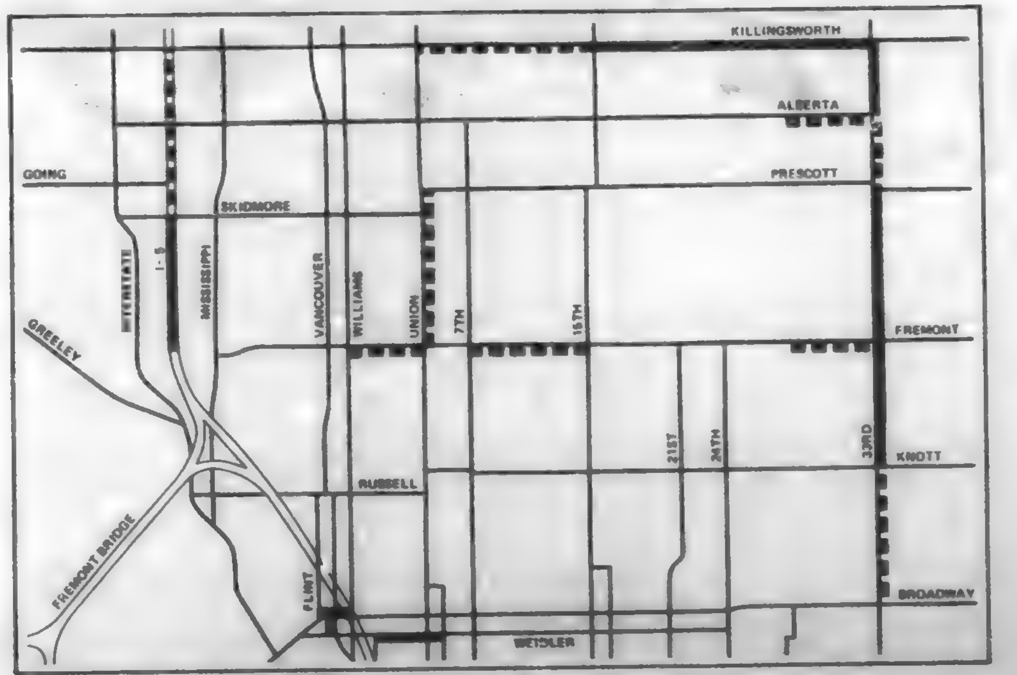
NO BUILD


KILLINGSWORTH
ALBERTA
PRESCOTT
GOING
SKIDMORE
INTERSTATE
I-5
MISSISSIPPI
VANCOUVER
WILLIAMS
UNION
7TH
15TH
FREMONT
GREELEY
21ST
24TH
33RD
KNOTT
RUSSELL
FREMONT BRIDGE
FLINT
BROADWAY
WEIDLER

COOK – FREMONT


KILLINGSWORTH
ALBERTA
PRESCOTT
GOING
SKIDMORE
INTERSTATE
I-5
MISSISSIPPI
VANCOUVER
WILLIAMS
UNION
7TH
15TH
FREMONT
GREELEY
21ST
24TH
33RD
KNOTT
RUSSELL
FREMONT BRIDGE
FLINT
BROADWAY
WEIDLER

SHORT COOK


KILLINGSWORTH
ALBERTA
PRESCOTT
GOING
SKIDMORE
INTERSTATE
I-5
MISSISSIPPI
VANCOUVER
WILLIAMS
UNION
7TH
15TH
FREMONT
GREELEY
21ST
24TH
33RD
KNOTT
RUSSELL
FREMONT BRIDGE
FLINT
BROADWAY
WEIDLER

FREMONT BOULEVARD

PROJECTED CONGESTION (CAPACITY DEFICIENCIES) IN 1990

▪▪▪▪ Minor—delays through 2 red lights will occasionally occur during peak hours (traffic is between 90 and 100 percent of street capacity).

▬ Major—delays through 2 red lights will frequently occur during peak hours and occasionally at other times (traffic is over 100 percent of street capacity).

will significantly affect congestion on streets east of 15th Avenue.

No Build Variations

As stated in the discussion of travel patterns, none of the variations of the No Build alternative will affect traffic volumes significantly except on the ramps themselves and on the local streets in the vicinity of Emanuel Hospital. Consequently, they will not affect future congestion.

Short Cook

As the figures show, the diversion of traffic to the ramps increase the level of congestion on Williams Avenue north of Fremont in comparison to the No Build alternative in 1980. In 1990, declining traffic volumes will have eliminated congestion on Williams and Vancouver except for Vancouver north of Broadway. The Short Cook alternative will reduce this congestion from major to minor.

Cook-Fremont

Under 1980 conditions, Cook-Fremont will cause major congestion on Union north of Fremont by diverting traffic from I-5, Alberta, and Killingsworth. By 1990 this problem will have been eliminated and Cook-Fremont, like Short Cook, will relieve congestion on Vancouver north of Broadway.

Fremont Boulevard

Under 1980 conditions, diversion of traffic to the ramps will virtually eliminate the congestion projected to occur under the No Build on Killingsworth between I-5 and Union and on Vancouver north of Broadway. However, because the capacity of Union north of Fremont will be exceeded, some ramp traffic will be diverted to Williams and Vancouver, causing major congestion on these streets as well as on Union.

By 1990, the amount of traffic on Union north of Fremont will be within the capacity of the street (there will be only minor congestion) and traffic will no longer be diverted from Union to Williams and Vancouver. Fremont Boulevard in 1990 will have the effect of eliminating the congestion on Vancouver north of Broadway.

1980 Congestion and Mitigating Measures

All of the build alternatives will relieve congestion on Vancouver at its intersection with Broadway under 1990 conditions, as well as relieve congestion on Alberta and Killingsworth between I-5 and Union. However, this effect is at the expense of congestion before 1990 on Williams north of Fremont under Short Cook; Union under Cook-Fremont; and Williams, Vancouver, and Union under Fremont Boulevard, as indicated by the 1980 congestion figures.

There are two possibilities for reducing the increase in traffic on Williams, Vancouver, and Union, and thereby mitigating the congestion and other adverse effects associated with the high traffic volumes on these streets. One is to employ metering at the end of the ramps under the Short Cook and Fremont Boulevard alternatives, as well as Cook-Fremont.

Under Short Cook, the metering would be at the same intersections as under Cook-Fremont. Ramp traffic could be limited by coordinated signals with short "green times" to reduce volumes on Williams. Under Cook-Fremont, the metering could be adjusted to allow less traffic to use the ramps than was assumed in the projections, with the objective of relieving congestion on Union. With Fremont Boulevard, the metering would take place at the intersection between the ramps and the connection to Gantenbein. It would be adjusted to reduce the demand for use of Union to decrease the diversion from Union to Williams and Vancouver.

The incorporation of metering into all the alternatives would reduce the uncertainties inherent in relying on any traffic projection and add a measure of positive control over the amount of traffic allowed to enter the study area from the ramps. However, it must be kept in mind that the effect of metering itself as proposed is uncertain. Moreover, to the extent that additional metering would decrease use of the ramps, it would reduce the level of relief afforded to alternate routes, especially Vancouver north of Broadway and Alberta and Killingsworth between I-5 and Union Avenue.

A second method of relieving the projected congestion under the Cook-Fremont and Fremont Boulevard alternatives would be to increase the capacity of the intersection of Fremont and Union. This could be done by adding a separate right turn lane for southbound traffic on Union. Right-turn traffic would use both the separate lane and the regular right lane. This would allow a longer "green time" for the turn from Fremont onto Union northbound, thereby increasing the capacity of the intersection in both directions. Under Cook-Fremont, it would relieve the congested conditions projected for Union Avenue. Under the Fremont Boulevard alternative, it would cause fewer diversions to Williams and Vancouver Avenues from Union and thereby relieve congestion on these streets.

Adding to the capacity of the intersection of Fremont and Union would have the advantage of not reducing the amount of relief to other streets, which metering would cause. However, additional property acquisition and relocation would be required to accommodate a 12-foot lane extending 150 feet north of the intersection.

1990 Congestion and Mitigating Measures

Under projected traffic conditions in 1990, traffic congestion in the Study Area will be limited to the locations mentioned earlier--the Broadway-Weidler-I-5 interchange area, 33rd Avenue, and Killingsworth east of 15th. At the same time, regional growth will have increased traffic on I-5 and I-80N. This will be the case regardless of which ramp alternative is adopted. In addition, most streets in northeast Portland outside the Study Area will have greater capacity deficiencies than streets within the Study Area. This suggests the possibility of traffic diversion from those streets to Study Area streets to avoid congestion. The traffic projections in this study do not take that possibility into account.

If such diversions occur, they will be expected primarily from I-5 north of the Fremont Bridge. By 1990, volumes on this section are expected to increase to a point where major congestion may occur. Because normal (non-diverted) traffic volumes on some Study Area streets (including Union, Williams, and Vancouver) will be below their capacity, significant diversions of traffic to the Fremont Bridge ramps and streets in the Study Area could result. Most likely, these diversions would be significant only during peak traffic periods.

The amount of traffic which will divert depends on the amount of congestion on alternative routes. Once congestion levels are approximately the same, the diversion will stop. One way to avoid the diversion is to improve public transit on the overburdened corridor. If the congestion and diversion does occur, then the metering suggested to relieve congestion on Williams, Vancouver, and Union under 1980 conditions could be used to discourage it. This would be an added advantage of incorporating ramp metering into the Short Cook and Fremont Boulevard alternatives. A disadvantage would be that normal traffic as well as diverted traffic would be penalized by the metering. This would be the cost of realizing an additional measure of control over traffic levels on Study Area streets.

EMERGENCY SERVICES

Ambulance

According to a review of hospital records, an average of about four emergency ambulance trips per day arrived at Emanuel Hospital in June of 1974.[4] Most of these originated in north and northeast Portland. Only four of the total trips during the month originated in areas the shortest route from which would have been via the Fremont Bridge and east-end off-ramp, had it been open at the time.

If the off-ramp is opened, few if any emergency ambulance trips that would otherwise go to other hospitals will go to Emanuel. This is because the factors which account for where emergency patients are taken now, both to Emanuel and to other hospitals, will remain unchanged. The advantage of opening the off-ramp for emergency ambulance trips will be in shortening the travel time for trips which will go to Emanuel from west side areas served by the Fremont Bridge for the same reasons such trips are made today (i.e., primarily patient requests). If I-505 is built as proposed through Northwest Portland, there may also be time savings for trips from far north Portland. It may be faster to use the St. Johns Bridge, I-505, and the Fremont Bridge to Emanuel from this part of the city than, for example, Lombard and Interstate Avenue. As noted earlier, the time savings for a trip from near the west end of the Fremont Bridge to Emanuel afforded by opening the off-ramp will be about 2.5 minutes at normal traffic speeds. The savings will be smaller for trips made at higher speeds.

The time and distance savings of the build alternatives for trips to Emanuel Hospital could be realized by ambulance trips under the variations of the No Build allowing use of the off-ramp by emergency vehicles.

Police and Fire Protection

Fire Protection. If the east-end ramps are opened, Portland Fire Bureau Engine Company 3 and Truck Company 3, stationed near the west-end approach to the Fremont Bridge, will be assigned to respond to alarms in the area of the east-end ramps. This will be in addition to east side companies that respond to alarms in the area now, and will improve the level of fire protection. Cook-Fremont and Boulevard will also provide an additional route alternative and a shorter arrival time for Engine Company 3 and Truck Company 3 in responding to multialarm fires along Union Avenue north of Fremont Street and in areas accessible via Union Avenue.

At present, Engine Company 21 and Truck Company 21, stationed near the west side of the Steel Bridge, respond to alarms in the vicinity of the east side of the bridge. If the Steel Bridge is ever taken out of service or access to it constrained, the importance of the Fremont Bridge for cross-river Fire Bureau trips will increase.

As shown in the figure on page 15, the curve in the connection between the ramps and Cook Street under the variations of the No Build alternative which allow only emergency and/or public transit use of the ramps will be too sharp to allow large fire apparatus to turn onto Kerby Boulevard from the off-ramp. The connection and its intersection with Cook Street can be designed to accommodate all other turns without taking significantly more land than is shown in the figure.

Police Protection. Because the Willamette River is the boundary between the Portland Police Bureau Central Precinct on the west side and the North and East Precincts on the east side, the number of cross-river emergency police trips is not large. If the ramps are opened, it is expected that 1 to 2 emergency police trips per day would use them. These trips would normally be by cars assigned to respond to traffic accidents throughout the city. No other effects on Police Bureau operations have been identified.

PUBLIC TRANSPORTATION

Existing Public Transit

Bus lines operated by the Tri-County Metropolitan Transportation District (TRI-MET) are shown in the figure on page 67. Virtually all residences in the Study Area are within 1/4 mile of a bus route. Service is provided to the entire metropolitan area. Most lines are oriented to the Central Business District. Headways (time spacing between buses) are reasonable, especially during peak periods when 10- to 15-minute intervals are common. As in the entire Portland area, transit ridership in the Study Area has been growing in recent years.

Transit Use of the Ramps

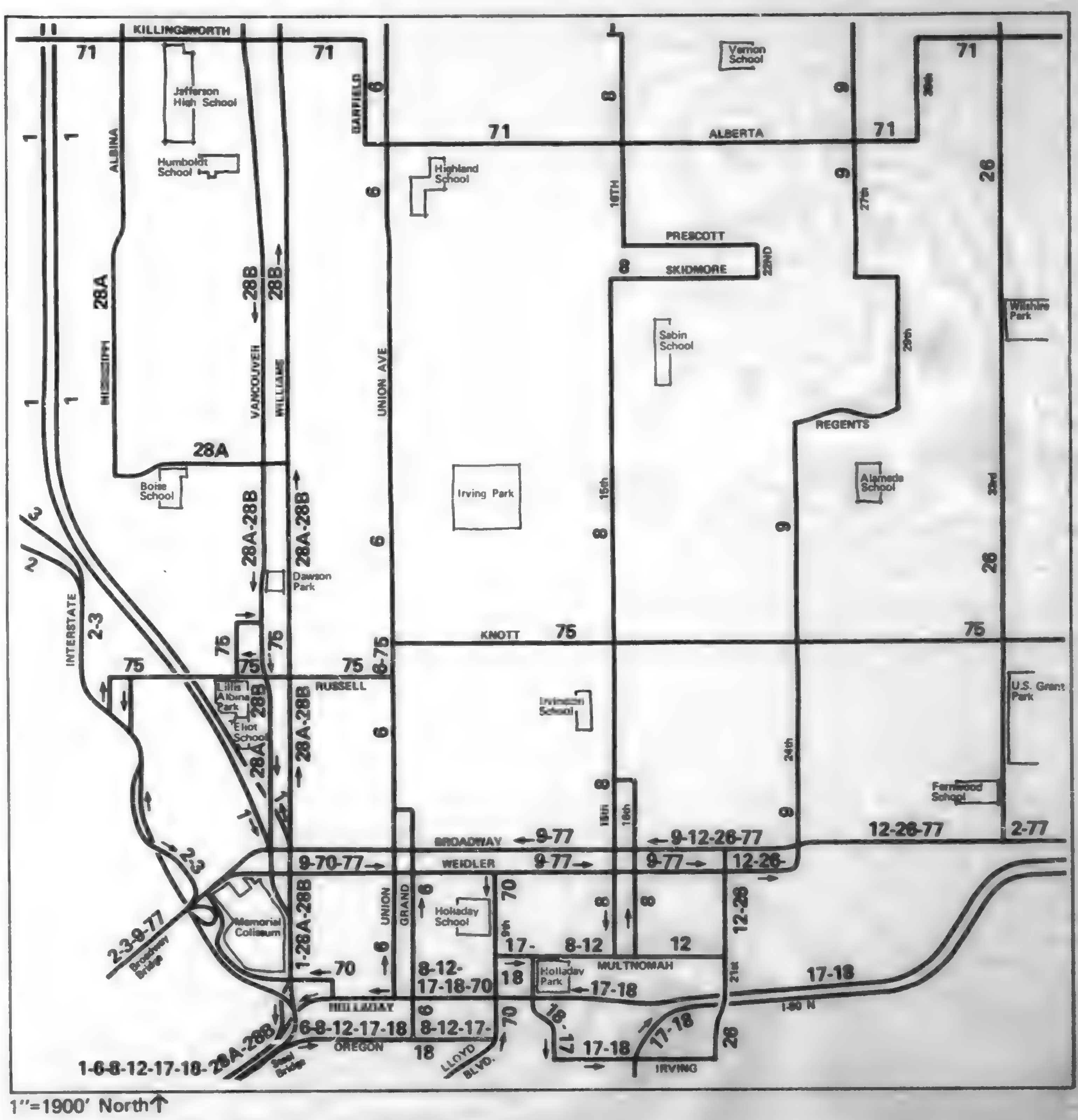
Public transit could use the Fremont Bridge east ramps for access to the Fremont Bridge under all of the alternatives that allow any degree of access. However, the opportunities for using the ramps appear limited. Most existing bus lines are oriented to downtown. Because the west end of the Fremont Bridge meets the local street system on the west side of downtown, other bridges provide more direct access. Planning for bus access to the downtown transit mall is currently underway and may identify advantages to routing lines on the Fremont Bridge, but this does not mean that the east end ramps would necessarily be used. The addition of a route along Fremont Street is tentatively programmed by TRI-MET for after 1980, but it is too early to speculate whether use of the ramps would be advantageous.

If any public transit use is made of the ramps, it will most likely be for special-purpose express trips. The Model Cities Transportation Study completed in 1971 proposed that special express service to industrial centers in Northwest Portland and Beaverton be offered as part of a program to increase employment in the Model Cities neighborhoods. The study described the timing of the program as depending on economic conditions, since it would rely on the availability of job openings. It has never been tried. Use of the Fremont Bridge could afford some time savings for such service, and the east-end ramps could prove the most convenient access point.

Another possibility for use of the ramps is for express service between Emanuel Hospital and Marquam Hill, the location of the University of Oregon Medical School and Veterans Administration Hospital. According to recommendations for the location of new Veterans Administration Hospital facilities to replace the existing ones, convenient access between the medical school and VA facilities is the one advantage that makes Marquam Hill preferable to the Emanuel Hospital Urban Renewal Project. The Emanuel site is considered preferable in most other respects because of parking, access, and environmental problems associated with the Marquam Hill site. It is not known whether there would be adequate demand to support special transit service between the Emanuel project and Marquam Hill, but it would facilitate the maintenance of a close relationship between the University and VA facilities if the latter are relocated at Emanuel. It could also supplement the existing transit service between the Study Area and Marquam Hill provided by the Irvington busline (No. 8 in the figure) through downtown.

Effect of Alternatives on Transit Service

None of the alternatives would interfere with the routing of existing bus lines. If the bus route


KILLINGSWORTH
ALBINA
MISSISSIPPI
VANCOUVER
WILLIAMS
UNION AVE
GARFIELD
ALBERTA
PRESCOTT
SKIDMORE
22ND
REGENTS
KNOTT
RUSSELL
BROADWAY
WEIDLER
UNION
GRAND
HOLLADAY
MULTNOMAH
OREGON
LLOYD BLVD.
IRVING
INTERSTATE
I-80 N
Jefferson High School
Humboldt School
Boise School
Dawson Park
Little Albina Park
Eliot School
Highland School
Irving Park
Irvington School
Vernon School
Sabin School
Alameda School
Wilshire Park
U.S. Grant Park
Fernwood School
Memorial Coliseum
Holladay School
Holladay Park
Broadway Bridge
Steel Bridge
2-3-9-77
1-6-8-12-17-18-28A-28B
1"=1900' North

BUS ROUTE KEY

1	Mocks Crest
2	St. Johns
3	Fessenden
6	Union Avenue
8	Irvington
9	Broadway
12	Beaumont
17	Fremont Express
18	Troutdale
26	33rd Avenue
28A	Mississippi Avenue
28B	Williams Avenue
70	Bridge Transfer
71	Killingsworth-Swan Island
75	39th Avenue
77	Northeast-Northwest

9 BUS ROUTE AND NUMBER

NOTES:

1. Arrows indicate one-way movements of buses, even though the street may have two-way traffic.

2. Routes crossing the Steel and Broadway bridges but not serving the study area are not shown.

EXISTING PUBLIC TRANSIT LINES

planned for Fremont Street crosses Union Avenue without turning, the metering under the Cook-Fremont and Fremont Boulevard alternatives will add from one to several minutes to its travel time, depending on the time of day.

TRANSPORTATION PLANNING

REGIONAL TRANSPORTATION PLAN

The only adopted current plan applying to the Study Area is the Interim Regional Transportation Plan. This plan, adopted by the Columbia Region Association of Governments in June 1975, is a set of goals, objectives, and policies to guide long-range transit and highway development decisions until a complete transportation plan can be prepared and adopted. It includes maps depicting a generalized regional transportation system for 1990. The introduction to the Interim Plan states that it "describes a transportation system for 1990 in which public transit plays a key role in providing high-quality mobility for people in the urban area," and, "at the same time, the existing highway system will be augmented with certain committed new roads, and will be maintained, redesigned and made more efficient to carry autos, freight, and transit vehicles" (Ref. 3).

The figure on page 70 shows the Interim Plan as it applies to the Study Area. In the plan, Flint and 7th Avenues are shown as local streets, whereas they now function as local collectors. The traffic projections used in this report indicate that these changes should not cause problems under any alternative in the long run. In the short run, designating 7th Avenue as a local street and discouraging its use except for local access will add to capacity deficiencies on other streets before the general decline in traffic volumes projected to occur by 1990.

Adoption of one of the build alternatives will require an amendment to the Interim Plan to designate the bridge ramps and associated connections to the major traffic street system as either minor or principal arterials.

PORTLAND ARTERIAL STREETS PROGRAM

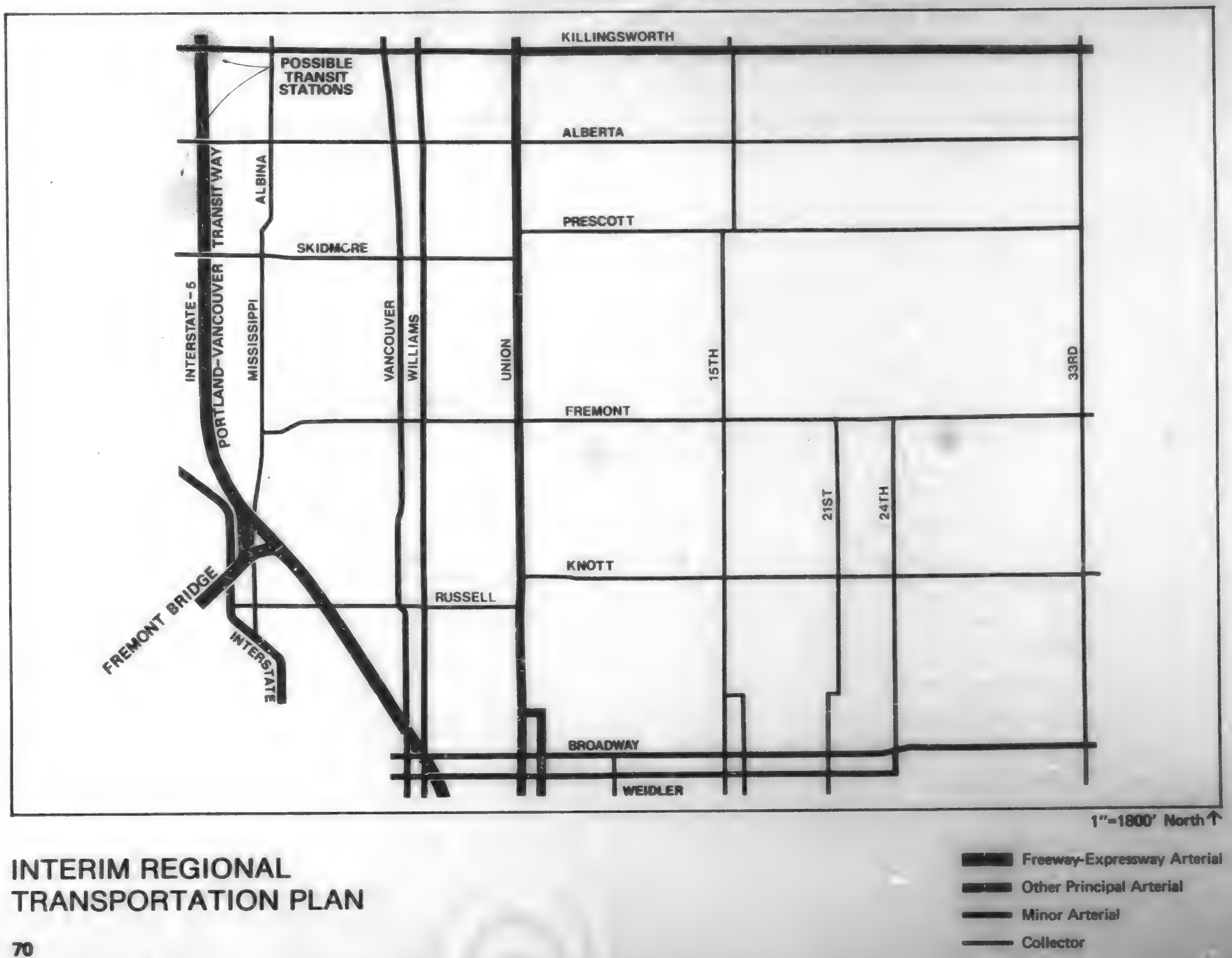
The Arterial Streets Program is a reassessment of the city's street system to establish a set of policies against which proposed street improvements can be measured. The program seeks to determine the status of individual streets in a transportation system characterized by greater transit use and a land use pattern oriented to transit and pedestrian access to places of employment, residence, and commerce. In addition, the program aims at a new functional differentiation among streets. Controls will limit the use of a street to its intended function, e.g., local access, interneighborhood trips, interregional trips, public transit, etc. (Ref. 4).

At present, the program is in the public review stage. Once adopted, the Interim Regional Transportation Plan will be amended accordingly. The local street system as shown in the most recent discussion draft of the program for Northeast Portland is shown in the figure on page 71.

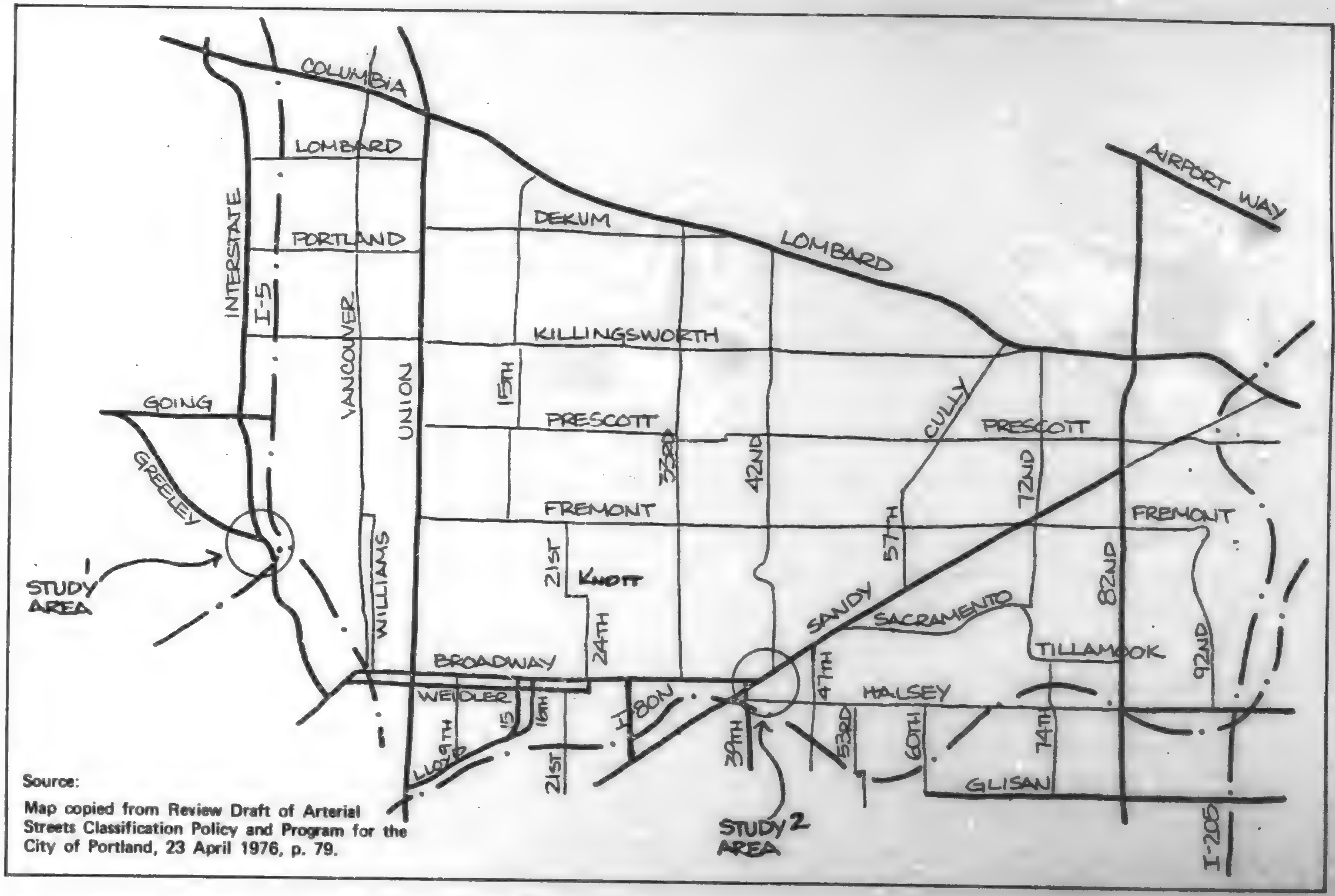
To the extent that they will divert through traffic from Alberta and Killingsworth between I-5 and Union Avenue to the ramps and Union and from Williams and Vancouver south of Fremont to the ramps and Union, the Cook-Fremont and Fremont Boulevard alternatives will support the policy of the draft Arterial Streets Program to concentrate through traffic on "major city traffic streets." With respect to Fremont Street from the ramps to Union, the labeling of the Fremont Bridge east-end interchange as a "Study Area" on the street classifications figure means that street classifications in the vicinity will depend in part on the outcome of the issue this report addresses. The Cook-Fremont and Fremont Boulevard alternatives will clearly make this segment of Fremont a "major city traffic street."

The increase in demand for through trips projected in 1990 will not be large enough to complicate implementing the proposed Arterial Streets Program classifications under any of the build alternatives. Implementing some of the classifications before the decline in traffic projected by 1990 may be difficult, regardless of which alternative is selected. An example is Williams Avenue north of Fremont. Redesignating it as a local street has been under consideration for some time. The transportation element of the Model Cities Comprehensive Plan, which was adopted by the Model Cities neighborhoods in 1973, but has never been formally adopted by the city, includes making Williams a local street north of Beech.

The projections in this report indicate that it will not be possible to make Williams a local street before the general traffic decline projected by 1990 without causing increased congestion on Vancouver and other streets. This is true under both No Build and build conditions. By 1990, volumes on Williams and Vancouver streets will not differ by much between the alternatives.


KILLINGSWORTH
POSSIBLE TRANSIT STATIONS
ALBERTA
PRESCOTT
SKIDMORE
INTERSTATE - 5
PORTLAND-VANCOUVER TRANSIT WAY
ALBINA
MISSISSIPPI
VANCOUVER
WILLIAMS
UNION
15TH
33RD
FREMONT
21ST
24TH
KNOTT
RUSSELL
FREMONT BRIDGE
INTERSTATE
BROADWAY
WEIDLER
1"=1800' North ↑
Freeway-Expressway Arterial
Other Principal Arterial
Minor Arterial
Collector

INTERIM REGIONAL TRANSPORTATION PLAN


COLUMBIA
LOMBARD
INTERSTATE
I-5
PORTLAND
VANCOUVER
UNION
GOING
GREELEY
1 STUDY AREA
WILLIAMS
BROADWAY
WEIDLER
LLOYD
9TH
15
16TH
21ST
15TH
DEKUM
KILLINGSWORTH
PRESCOTT
33RD
FREMONT
21ST
KNOTT
24TH
I-80N
42ND
LOMBARD
SANDY
39TH
STUDY 2 AREA
47TH
HALSEY
53RD
60TH
57TH
CULLY
PRESCOTT
72ND
SACRAMENTO
TILLAMOOK
74TH
GLISAN
82ND
FREMONT
92ND
I-205
AIRPORT WAY

Source:

Map copied from Review Draft of Arterial Streets Classification Policy and Program for the City of Portland, 23 April 1976, p. 79.

— · — Regional Trafficway

– – – – Regional Trafficway and Major City Traffic Street

——— Major City Traffic Street

——— Neighborhood-Collector Street

All Others Local Service Streets

Notes:
1 See text for explanation.
2 For study of traffic problems in the Hollywood District.

PROPOSED ARTERIAL STREET CLASSIFICATIONS

This suggests that Williams can be a local street under all alternatives, once traffic declines.

If, as discussed earlier, traffic diverts from I-5 to the Fremont Bridge ramps under 1990 conditions to avoid congestion, it is likely that Williams and Vancouver will be the most affected of Study Area streets. Making Williams a local street north of Fremont would help discourage this, but Vancouver would still probably become congested during peak traffic periods. Diversion from I-5 could also neutralize the effect of increasing the capacity of the intersection at Fremont and Union to relieve projected congestion in 1980. Metering at the end of the ramps under all alternatives would help control use of both Williams and Union.

UNION AVENUE REDEVELOPMENT PLAN

Transit and street improvements to Union through the Study Area are major parts of the proposed Union Avenue Redevelopment Plan (Ref. 5). In the alternative plan recommended by the city staff, the avenue will be developed with two lanes of traffic in each direction divided by a landscaped median. Bus turnouts and signalized left-turn lanes will be provided at major intersections. The city has not yet adopted the plan, and funds for the street improvements have not been secured.

A feature of the city staff proposal for Union Avenue is that most improvements will be made within the existing right-of-way. The objective is to minimize disruption and avoid relocation. In this respect, the Cook-Fremont and Fremont Boulevard alternatives, which require some additional right-of-way acquisition and relocation at the intersection of Fremont and Union, are incompatible.

The traffic projections used in this report assume that the street improvements proposed for Union Avenue would be implemented by 1980. Nevertheless, under the Cook-Fremont and Fremont Boulevard alternatives, the capacity of Union between Fremont Street and Skidmore will be exceeded under 1980 conditions. One of the other alternatives considered in the Union Avenue Redevelopment Plan would afford a greater increase in capacity for this segment to relieve the congestion, but would mean greater disruption and relocation, as well as higher costs.

As stated earlier, all build alternatives assume that the median proposed on Union under the Redevelopment Plan will not have openings at intersections with local streets between Fremont and Shaver. The uninterrupted median will help to discourage circumvention of the controls that limit traffic volumes on Fremont east of Union. Similarly, they depend on the street closures proposed under the plan for Ivy, Cook, Fargo, and Monroe Streets at Union Avenue.

The project development process for the improvements proposed by the Union Avenue Redevelopment Plan is not as far along as the process for opening the east-end bridge ramps. If one of the build alternatives is adopted, either (a) implementation will have to be delayed until the median on Union and street closures discussed above are constructed as part of the Union Avenue street improvements, (b) these will have to be incorporated into the project for opening the ramps, or, (c) other measures to discourage use of local streets to circumvent the proposed traffic controls will have to be developed and incorporated into the project.

BICYCLE PLANNING

Portland's bikeway plan calls for a bikeway going north through the Study Area roughly along Gantenbein Street, intersecting with another bikeway along Shaver from Commercial to 16th Avenue (Ref. 6). The increased traffic caused by the build alternatives on Williams, Vancouver, and Union Avenue will increase the potential for conflicts where the bikeways cross these streets. The Fremont Boulevard alternative includes a pedestrian and bicycle overpass above the ramp connection which can be incorporated into the proposed bikeway along Gantenbein. This will reduce conflicts.

At one of the community meetings on the Fremont Bridge Access Study, it was recommended that the east-end ramps not be opened in a way that would preclude a future bikeway over the bridge. The main constraint to constructing such a bikeway is the width of the bridge's main span.

There are four 12-foot lanes on each deck of the bridge with 10-foot shoulders on either side. A two-way bikeway would occupy the entire shoulder width. Using a shoulder and maintaining four traffic lanes needed for future traffic capacity (see figure on page 42) would require relaxation of federal design standards for interstate highways and would cause a potentially serious decline in the margin of safety these standards are intended to insure.

The projected future increase in traffic on the Fremont Bridge is due primarily to expected growth in suburban parts of the metropolitan area and only to a lesser extent due to opening the east-end ramps. A bikeway over the bridge, provided there is sufficient demand for it, may be feasible if the future traffic is reduced to levels requiring only three lanes on one of the decks. This reduction could result from improvements in regional public transit combined with adopting one of the No Build variations.

The east-end ramps are wide enough to accommodate a bikeway under any of the alternatives, and either the on-ramp or the off-ramp could be used. Use of the upper deck of the bridge (and on-ramp) would put the bikeway in the median on the west side bridge approach, requiring a special ramp to connect it to the Glisan Street overpass. This would not be necessary if the lower deck (and off-ramp) were used.

FOOTNOTES

1. These estimates were made from address lists supplied by tallying from Emanuel Hospital.

2. A related question is access between the Stanton and Albina Yards. This is addressed in Chapter 3 of Part II.

3. Throughout the analysis in Part II, it is assumed that improvements will be made to the intersection of Fremont and Union under the No Build alternative to relieve the congestion on Fremont west of Union which currently exists and which will worsen. The cost of these improvements are not included in the cost estimates for the No Build because it is believed they will not be eligible for Federal Highway Administration funding.

4. According to hospital personnel, month-to-month variations are minor.

REFERENCES

1. Columbia Region Association of Governments, Interim Transportation Plan for the Portland-Vancouver Metropolitan Area, June 1975.

2. CH2M HILL, Working Paper No. 2, Study Area Conditions, Fremont Bridge Access Study, June 1975.

3. Columbia Region Association of Governments, op. cit., p. 1.

4. Portland Bureau of Planning, Draft Arterial Streets Policy and Program for the City of Portland, April 1976.

5. __________, Union Avenue Redevelopment Plan Summary, October 1975.

6. Columbia Region Association of Governments, A Bikeway Plan for the Columbia-Willamette Region.

Chapter 2

AIR QUALITY AND NOISE ANALYSIS

This chapter examines how the traffic patterns under each of the alternatives will affect air pollution and noise levels. The effects of the alternatives on storm water runoff and the related pollution effect on the Willamette River, into which storm water drains, have been evaluated and found insignificant. This evaluation is contained in the Technical Appendix. Interrelationships between the alternatives and such elements of the environment as geology and plantlife are not significant because of the urbanized setting of the project and the nature of the alternatives. They are not discussed.

AIR QUALITY

This section describes motor vehicle-related air pollutants and their significance, discusses their existing and predicted future levels, and draws conclusions about the effects of the alternatives. A description of the methodologies used in making the analysis and supporting information are contained in the Technical Appendix.

Air quality is determined in part by the amount of pollutants emitted into the atmosphere. These pollutants are of two kinds--primary, which are emitted directly from motor vehicles, industrial stacks, and other sources, and secondary, which are formed in the atmosphere from primary pollutants. Carbon monoxide, particulate lead, hydrocarbons and nitrogen oxides are primary pollutants which are important in planning arterial streets because they are direct emissions from motor vehicles. Similarly, nitrogen dioxide and photochemical oxidants are important secondary pollutants because major portions of the primary pollutants from which they derive are emitted by motor vehicles.

Primary pollutants are local in their pattern of generation and dispersal. Large concentrations of carbon monoxide and airborne lead tend to exist near major sources (roadways) and to thin out quickly with distance from the source. Secondary pollutants, on the other hand, are regional in their generation and dispersal pattern. They are formed after emissions such as nitrogen oxides and hydrocarbons react with sunlight, and are often found far from the emission source.

Both physiographic and meterological conditions aggravate air pollution problems in the Portland area. Low wind speeds and temperature inversions concentrate pollutants in the air. Inversions occur as frequently as 9 out of 10 days in late fall and early winter and are often accompanied by low wind speeds. Consequently, ventilation of the airshed is most restricted during these times of the year.

The Coast Range and the Cascade Range act as barriers to low-level wind movement in the Willamette Basin. Sometimes they also channel winds, bringing pollutants from the valley northward.

Air pollution is most commonly judged by reference to standards for ambient air quality. Both federal and State of Oregon standards are used in this study. There are two levels of federal standards--primary and secondary.

Federal primary standards are levels of ambient pollution which, allowing for an adequate margin of safety, are "requisite to protect the public *health*."

Federal secondary standards are levels of ambient pollution which are "requisite to protect the public *welfare* from any known or anticipated effects associated with the presence of air pollutants in the ambient air" (Ref. 1). Secondary standards are designed to protect against adverse effects on soils, water, vegetation, materials, animals, weather, visibility, and personal comfort and well-being, as well as public health. Like the federal secondary standards, the Oregon standards are intended to protect both the public *health* and *welfare* (Ref. 2).

NITROGEN DIOXIDE AND PHOTOCHEMICAL OXIDANTS

Relative to federal standards, photochemical oxidant levels are problems in the Portland area; nitrogen dioxide levels are not. Even though they are caused primarily by motor vehicle emissions, photochemical oxidant and nitrogen dioxide levels will not be significantly affected by the alternatives. This is because, as secondary pollutants, they are regional rather than localized in pattern, as explained above. Consequently, their levels depend on total emissions of the primary pollutants from which they are formed (hydrocarbons and oxides of nitrogen), rather than on where they are emitted.

As concluded in the preceding chapter, there will be little difference in total traffic between the alternatives. Therefore, there will not be significant differences between the alternatives in total emissions of hydrocarbons or oxides of nitrogen.

The alternatives will not significantly affect photochemical oxidants or nitrogen dioxide. Additional details on their existing levels and information on their health effects are contained in the Technical Appendix and Working Paper No. 6 (Ref. 3).

CARBON MONOXIDE

Significance

Carbon monoxide (CO) in an urban area comes primarily from motor vehicle exhaust. A 1970 study estimated that 97 percent of the CO in Portland air is from motor vehicles (Ref. 4). It is found in highest concentrations near its source. Because of these factors, CO is an excellent indicator of the local air quality effects of urban arterials.

Although CO does not affect vegetation at levels found in urban areas, it does have human health effects. CO can reduce the ability of blood to distribute oxygen to the body. Exposures to CO for 8 hours at levels in the range of 1.5 to 2 times the federal standard for maximum levels over an 8-hour period (10 milligrams per cubic meter) have been observed to affect a person's ability to estimate time intervals (Ref. 5).

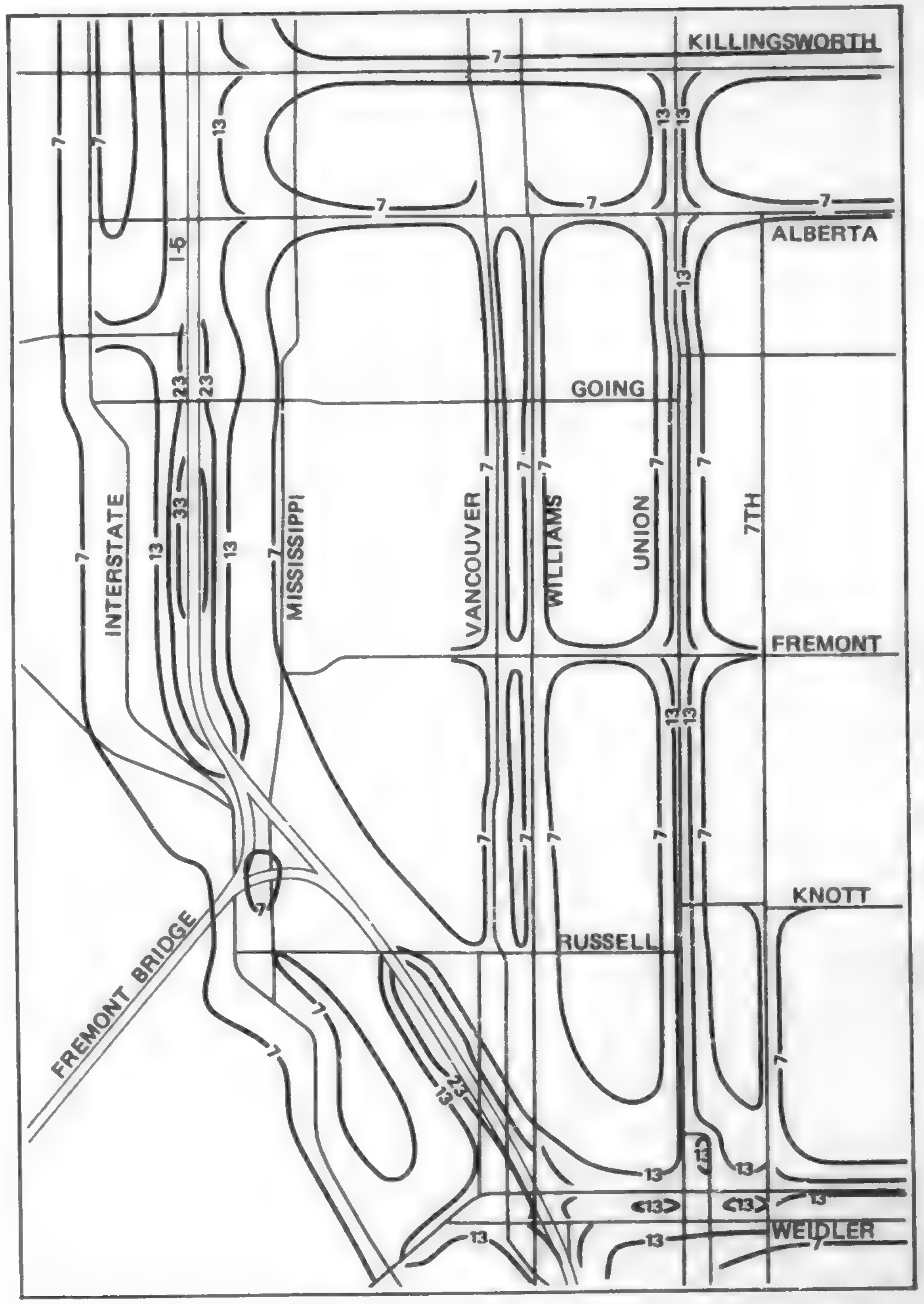
High levels of CO are generally associated with traffic facilities. In any of the nation's 15 largest cities, an average automobile trip would expose riders to an average CO concentration of 12 to 46 milligrams per cubic meter (mg/m^3), with short-term peaks possibly greater than 115 mg/m^3 (Ref. 6). The federal standard for maximum 1-hour concentrations is 40 mg/m^3.

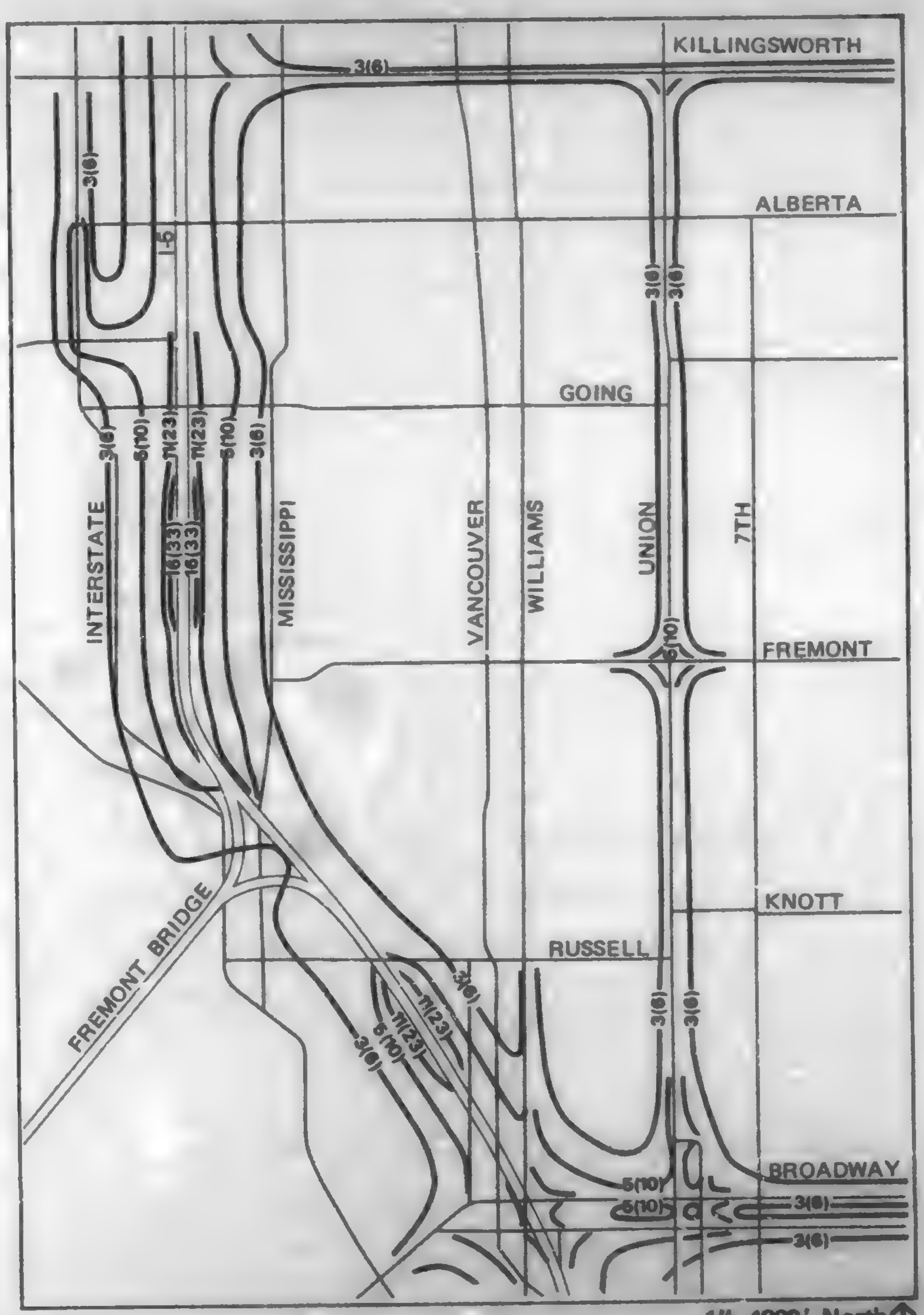
Existing Levels

On the basis of CO testing done for this study, it is concluded that background levels of CO in the Study Area do not approach the federal primary standard for either maximum 1- or 8-hour levels. The federal secondary and Oregon standards are the same as the federal primary standard. However, the 8-hour standard of 10 mg/m^3 is probably exceeded frequently near major traffic streets in winter, and both in winter and occasionally in summer near I-5.

Future Levels

The figures on the following page show predictions of the highest average levels of CO over an 8-hour


KILLINGSWORTH
ALBERTA
GOING
FREMONT
KNOTT
RUSSELL
WEIDLER
INTERSTATE
I-5
MISSISSIPPI
VANCOUVER
WILLIAMS
UNION
7TH
FREMONT BRIDGE
7
13
23
33


KILLINGSWORTH
ALBERTA
GOING
FREMONT
KNOTT
RUSSELL
BROADWAY
INTERSTATE
I-5
MISSISSIPPI
VANCOUVER
WILLIAMS
UNION
7TH
FREMONT BRIDGE
3(6)
5(10)
11(23)
16(33)

1"= 1800' North ↑

—7— Maximum eight-hour carbon monoxide levels in milligrams per cubic meter (mg/m3).

—3(6)— Maximum eight-hour carbon monoxide levels in milligrams per cubic meter (mg/m3). First number assumes the "minimum" control strategy, second the "maximum" control strategy. See text for explanation. THE FEDERAL PRIMARY AND SECONDARY STANDARDS AND THE OREGON STANDARD ARE 10 mg/m3.

NO BUILD ALTERNATIVE
CARBON MONOXIDE

period that will occur in 1980 and 1990 under the No Build alternative. These levels are expressed using contours corresponding to various concentrations of CO in milligrams per cubic meter (mg/m^3). The predictions intend to show CO levels when vehicle emissions and stagnant meterological conditions combine to cause the highest levels over an 8-hour period in each year. Similar conditions might be expected to occur anywhere from 5 to 10 times in either year.

At any point along the 7 mg/m^3 contours in the figures, the 8-hour average CO level predicted is 7 mg/m^3. Between the 7 and 13 contours, the CO level predicted is above 7 mg/m^3 but below 13 mg/m^3. The other contours can be similarly interpreted.

The predictions were made using mathematical modeling which takes into account traffic volumes and other characteristics; motor vehicle emissions, including changes due to emission controls; and the way CO disperses in the air. Because of the assumptions made in the analysis regarding background pollution levels and meteorological conditions, the predictions may overstate CO levels.

Two sets of predictions were made, one assuming that no more stringent emission controls than are presently required will be in use (the "maximum" emission control strategy), and one assuming that the more stringent emission controls mandated by existing federal legislation will be enforced (the "minimum" emissions control strategy). There are virtually no differences between the contours predicting maximum CO in 1980 under the two assumptions; the predictions are close to the same either way. The differences between the two sets of predictions for 1990 are significant.

As a comparison of the two figures on page 80 show, maximum 8-hour average CO levels will decline between 1980 and 1990 according to the predictions. This is due to both the projected decline in traffic volumes and improved emission controls. The decline will be greater if the "minimum" emissions control strategy holds up.

Impact Analysis. In both 1980 and 1990, there will be violations of the CO standard in the Study Area. These are associated primarily with I-5, Broadway, Weidler, and Union Avenue, and busy intersections. The effects of the build alternatives on CO in comparison with the No Build, reflect the effect they have on traffic patterns in the area.

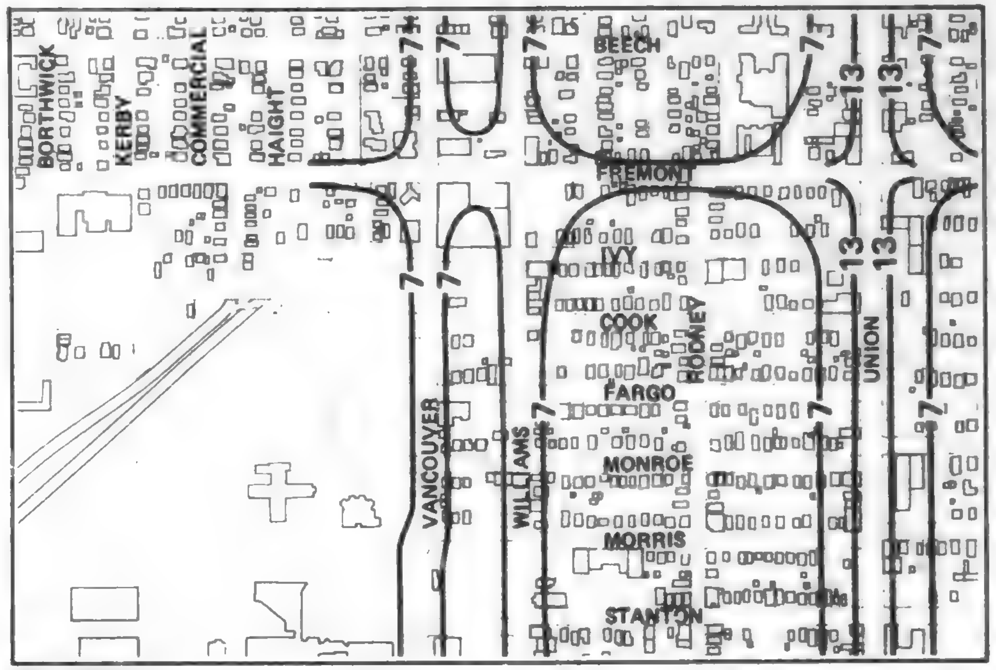
As described in the preceding chapter, the traffic effect can be summarized as a redistribution caused by diversion from: (a) bridges south of the Fremont, (b) Williams, Vancouver, and Union Avenue south of Fremont Street, (c) I-5, and (d) Alberta and Killingsworth between I-5 and Union, to: (a) the ramps, (b) Fremont Street between Gantenbein and Union, and (c) Williams, Vancouver, and Union north of Fremont. This effect is proportional to the level of street improvements under each alternative. Capacity deficiencies in 1980 will cause significant diversions to Williams and Vancouver north of Fremont, which will not occur in 1990. Proportionately, the overall diversion effect, however, will be more pronounced in 1990. The effects on traffic volumes on streets east of Union will be minor in both 1980 and 1990.

In magnitude, the effects of the build alternatives on CO levels are not great. Except for locations between the Fremont Bridge and Union Avenue identified below, at no location do the predictions show a build alternative causing both the CO standard to be exceeded or not exceeded in comparison to the No Build, and a difference in level of more than 2 mg/m^3.

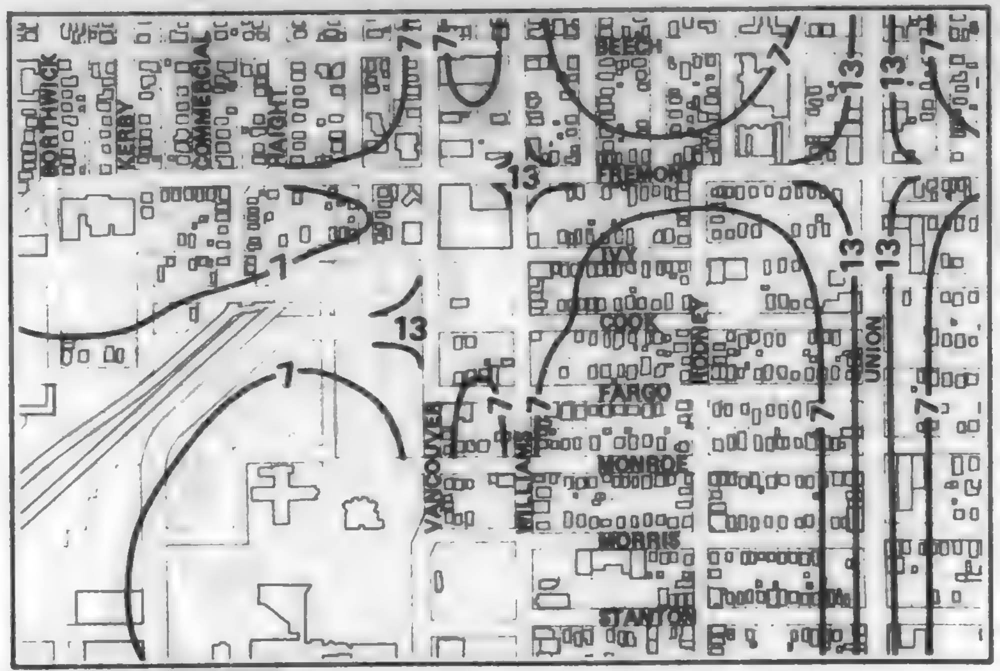
Outside the Fremont Bridge to Union Avenue Corridor. Outside the corridor between the bridge and Union Avenue, the build alternatives decrease exposure to CO above the standard in the vicinity of the Broadway-Weidler-I-5 interchange and along other parts of I-5 in the Study Area. These effects are generally proportional to the amount of traffic diversion and total traffic, and are minor. The Cook-Fremont and Fremont Boulevard alternatives increase exposure along Union Avenue north of Fremont Street. Fremont Boulevard also decreases exposure at the intersection of Union and Killingsworth under 1990 conditions. These effects are also minor.

All build alternatives will decrease predicted 1980 concentrations of CO by greater than 2 mg/m^3 relative to the No Build alternative at the interchange of Alberta Street with I-5. This is the only instance outside the bridge to Union corridor where the build alternatives will change predicted CO levels by more than 2 mg/m^3 in either 1980 or 1990.

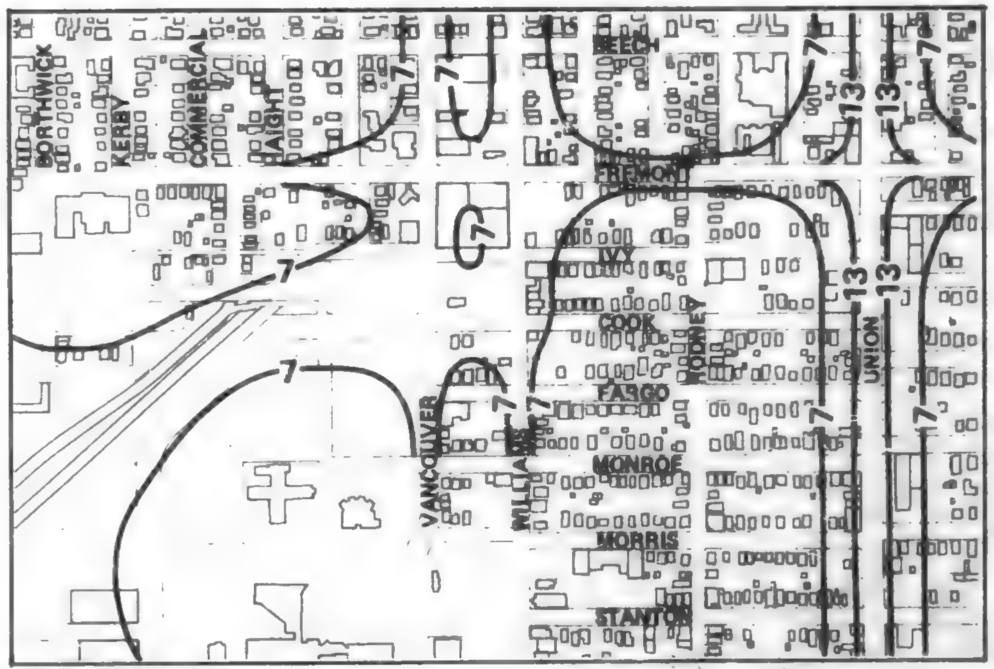
Fremont Bridge to Union Avenue Corridor. As shown in the figure on page 83, the predicted CO levels in 1980 under the No Build alternative exceed the standard at the intersections of Vancouver, Williams, and Union with


BORTHWICK
KERBY
COMMERCIAL
HAIGHT
VANCOUVER
WILLIAMS
BEECH
FREMONT
IVY
COOK
RODNEY
FARGO
MONROE
MORRIS
STANTON
UNION
7
13

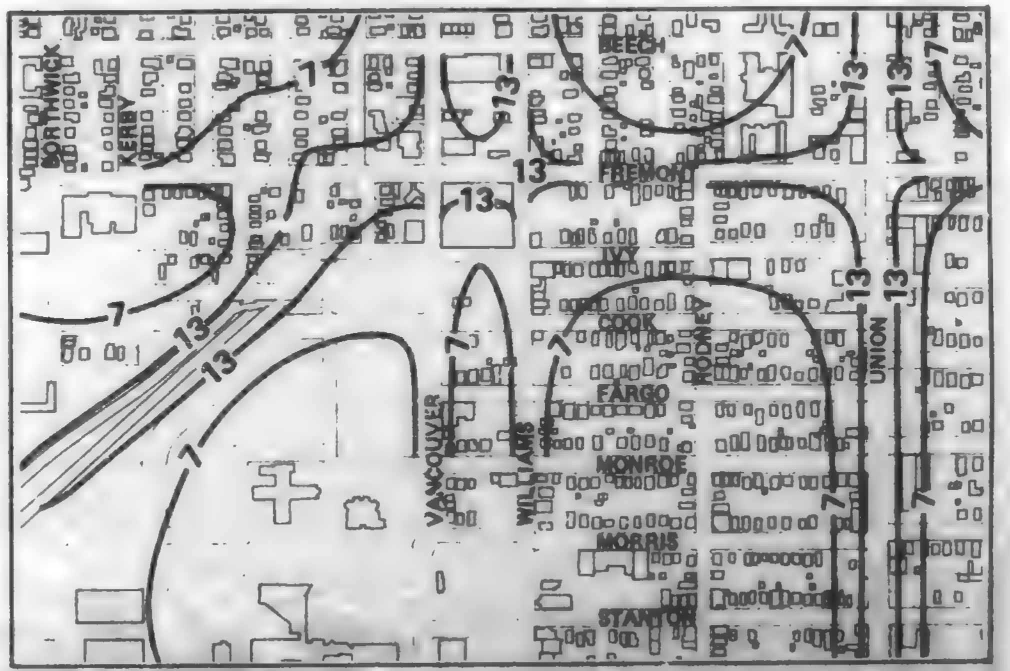
NO BUILD


BORTHWICK
KERBY
COMMERCIAL
HAIGHT
VANCOUVER
WILLIAMS
BEECH
FREMONT
IVY
COOK
RODNEY
FARGO
MONROE
MORRIS
STANTON
UNION
7
13

COOK – FREMONT


BORTHWICK
KERBY
COMMERCIAL
HAIGHT
VANCOUVER
WILLIAMS
BEECH
FREMONT
IVY
COOK
RODNEY
FARGO
MONROE
MORRIS
STANTON
UNION
7
13

SHORT COOK


BORTHWICK
KERBY
VANCOUVER
WILLIAMS
BEECH
FREMONT
IVY
COOK
RODNEY
FARGO
MONROE
MORRIS
STANTON
UNION
7
13

FREMONT BOULEVARD

—7— Maximum eight-hour Carbon Monoxide levels in miligrams per cubic meter (mg/m3). THE FEDERAL PRIMARY AND SECONDARY STANDARDS AND THE OREGON STANDARD ARE 10 mg/m3.

CARBON MONOXIDE IN 1980

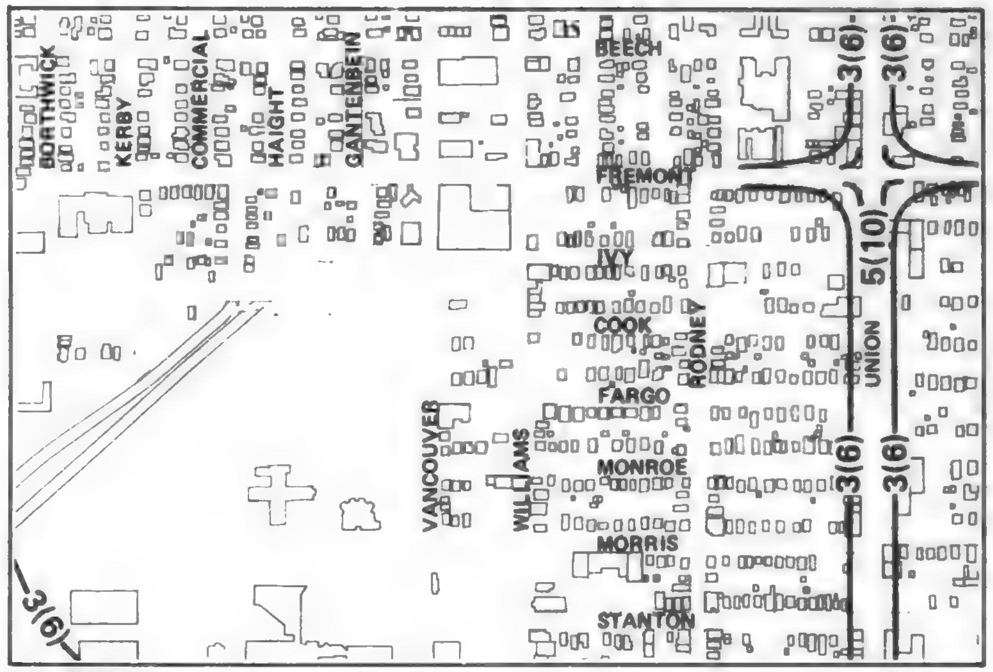
Fremont. Under Short Cook, the standard will also be exceeded at the intersection of Cook Street and Vancouver. Cook-Fremont does the same and also causes the standard to be exceeded in the entire area between Williams and Vancouver Avenues from Cook Street to Fremont, and along Fremont to Union Avenue. Fremont Boulevard causes exposures to CO above the standard along the ramps, the connection to Fremont, and along Fremont to Union. The increase in CO over No Build levels will be by more than 2 mg/m^3 along the ramps from where they cross I-5 to Vancouver Avenue under the Short Cook and Cook-Fremont alternatives, and along the ramps, the connection to Fremont, and all the way to Union Avenue under Fremont Boulevard.

If the "minimum" emissions control strategy assumption holds up, there will be no violations of the CO standard along the corridor in 1990, according to the predictions shown on page 85. If not, the standard will be exceeded at the intersection of Fremont and Union under the No Build alternative. Short Cook will slightly increase this exposure. Cook-Fremont will also increase the exposure at Fremont and Union and cause a small amount of exposure at the intersection of Fremont and Williams Avenue. Fremont Boulevard will cause CO levels to exceed the standard along the ramps, the connection to Fremont, and along Fremont to Union in 1990 under the "maximum" emissions control strategy.

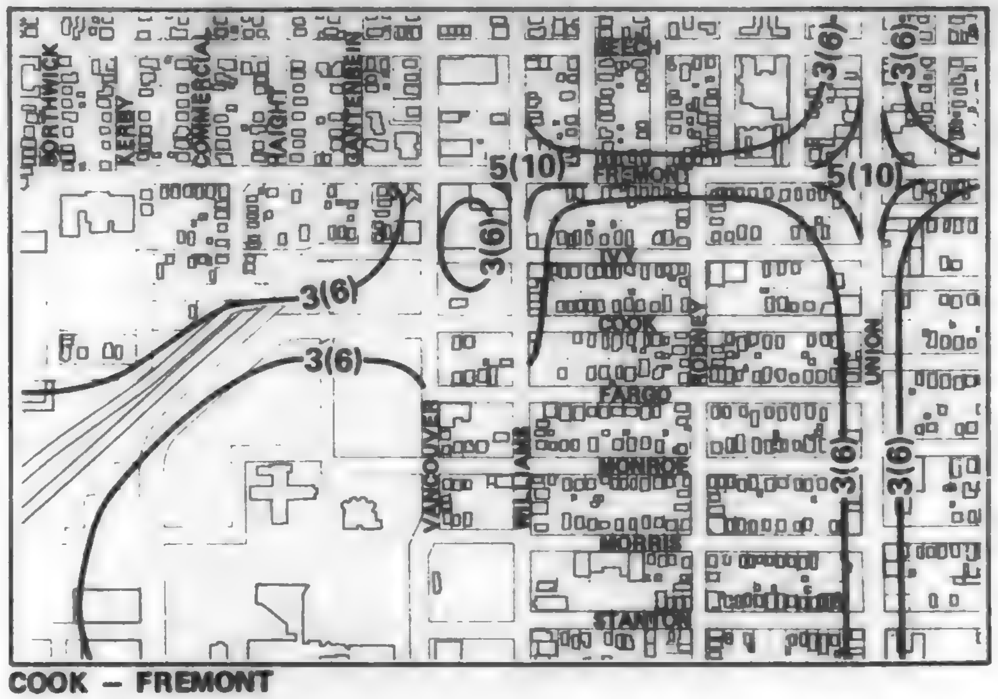
Secondary Effects. According to the predictions, under the Cook-Fremont and Fremont Boulevard alternatives, some locations along Fremont Street between Gantenbein and Grand Avenue, including places of residence and employment, will be exposed to maximum 8-hour CO levels above the federal standard under 1980 conditions. They would not be so exposed under the No Build alternative. At other locations along Fremont where CO levels will exceed the standard under the No Build, Cook-Fremont and Fremont Boulevard will increase the level. At a few locations, levels will be in the range which has been associated with impaired ability to judge time intervals. The accuracy of the predictions and currently available data on the health effects of CO are not sufficient to establish whether there will be any health effect, but it appears at least possible.

If there are any health effects caused by the CO levels associated along Fremont with the Cook-Fremont and Fremont Boulevard alternatives, the number of homes affected would be small. It is impossible to judge whether the decreases in

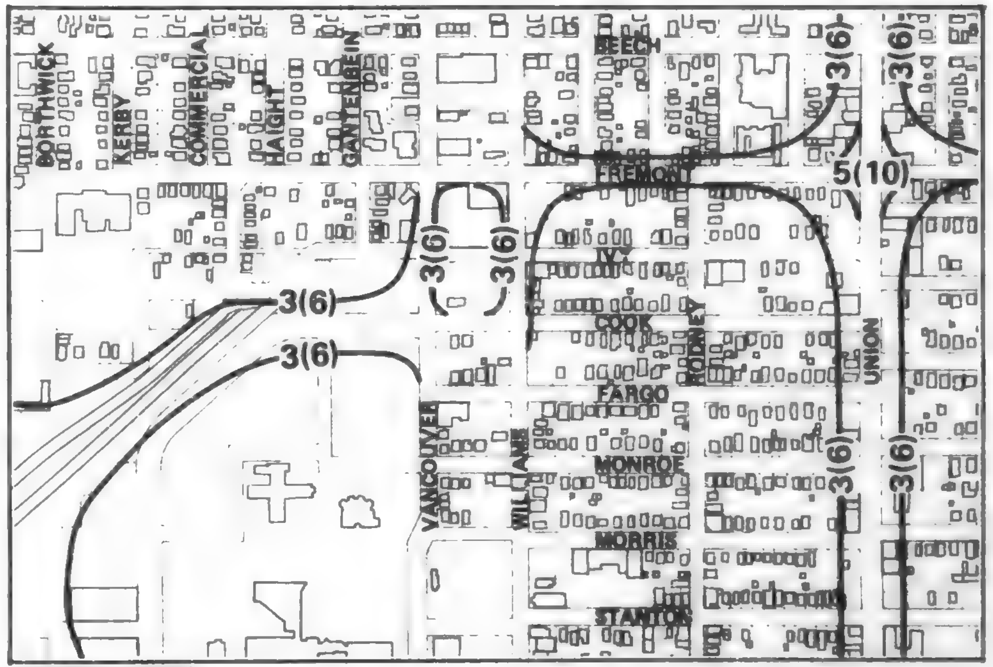
CARBON MONOXIDE IN 1990


BORTHWICK
KERBY
COMMERCIAL
HAIGHT
GANTENBEIN
BEECH
FREMONT
IVY
COOK
RODNEY
FARGO
MONROE
MORRIS
STANTON
VANCOUVER
WILLIAMS
UNION
3(6)
5(10)

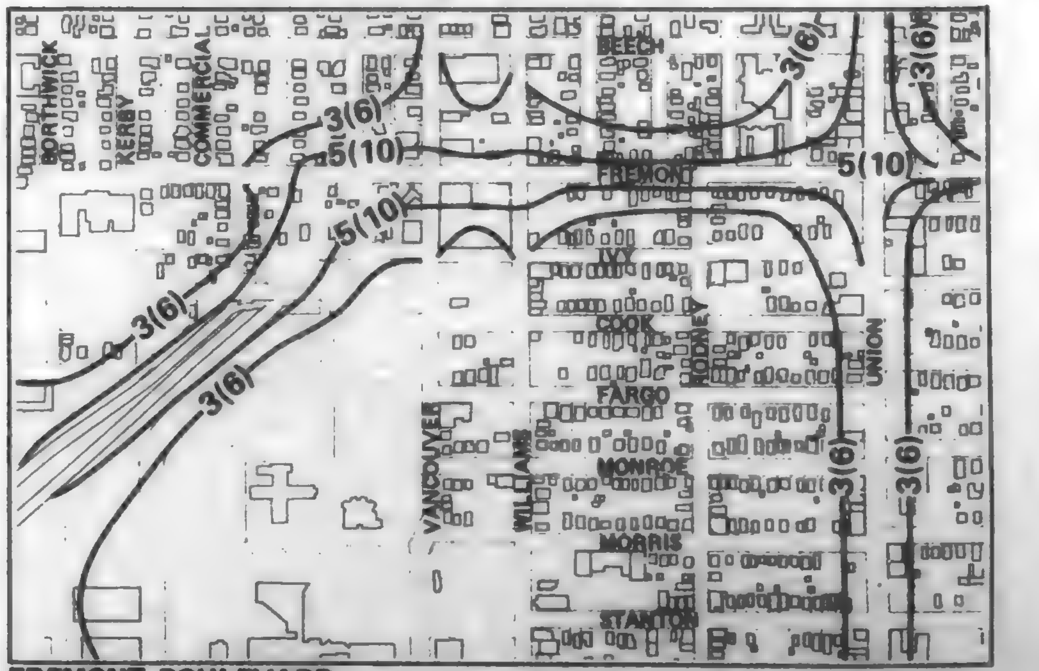
NO BUILD


BORTHWICK
KERBY
COMMERCIAL
HAIGHT
GANTENBEIN
BEECH
FREMONT
IVY
COOK
RODNEY
FARGO
MONROE
MORRIS
STANTON
VANCOUVER
WILLIAMS
UNION
3(6)
5(10)

COOK – FREMONT


BORTHWICK
KERBY
COMMERCIAL
HAIGHT
GANTENBEIN
BEECH
FREMONT
IVY
COOK
RODNEY
FARGO
MONROE
MORRIS
STANTON
VANCOUVER
WILLIAMS
UNION
3(6)
5(10)

SHORT COOK


BORTHWICK
KERBY
COMMERCIAL
HAIGHT
GANTENBEIN
BEECH
FREMONT
IVY
COOK
RODNEY
FARGO
MONROE
MORRIS
STANTON
VANCOUVER
WILLIAMS
UNION
3(6)
5(10)

FREMONT BOULEVARD

–3(6)– Maximum eight-hour Carbon Monoxide levels in miligrams per cubic meter (mg/m3). First number assumes the "minimum" control strategy, second, the "maximum" control strategy. See text for explanation. THE FEDERAL PRIMARY AND SECONDARY STANDARDS AND THE OREGON STANDARD ARE 10 mg/m3.

exposures caused elsewhere by these alternatives would have the opposite effect, or how the two effects would balance.

LEAD

Significance

Like carbon monoxide, lead is a primary pollutant and motor vehicles are the largest contributors of lead to the ambient air. Lead levels in urban areas vary widely, ranging from less than 1 microgram per cubic meter ($\mu g/m^3$) in some to over 5 $\mu g/m^3$ in others. The severe health effects that lead can have are associated with levels above those typical of urban dwellers and usually result from ingestion of material which is high in lead content, rather than from respiration or from ingestion of foods which have been contaminated by atmospheric lead. As yet, the effects of long-term exposure to low levels of lead have not been established.

There are no federal standards for lead. The State of Oregon standard calls for a maximum average lead level over a 30-day period of 3.0 $\mu g/m^3$ (Ref. 2).

In the winter of 1972-73, the Multnomah County Health Department conducted a survey of lead levels in blood among pre-school children living near I-5 in the Study Area. The survey found an unexpectedly high number of cases of elevated blood lead levels and what appeared to be a correlation between blood lead levels and distance of residence from the nearest major thoroughfare (Ref. 7). Further study since then does not indicate an unusually high incidence of elevated blood levels among residents living near I-5 in the Study Area, nor in the Portland population as a whole (Ref. 8). Nevertheless, lead has been examined here in some detail because of the public interest in the original findings.

Existing Levels

Lead levels have not been measured along I-5 but may well exceed the Oregon standard. From ambient lead measurements taken elsewhere for this study, it can be concluded that the Oregon lead standard is probably not exceeded in the Study Area outside the right-of-way of I-5.

Future Levels

Future lead levels in the Study Area have been calculated using emission rates, traffic characteristics, and a dispersal model in a manner similar to the analysis of carbon monoxide.

Because future lead emission rates are less certain, less confidence can be placed in the predictions. Nevertheless, they are adequate to draw some general conclusions.

According to the predictions, the only place in the Study Area where the Oregon lead standard will be exceeded is along I-5 between Russell and Going Streets. The levels in excess of the standard will be primarily within the right-of-way of the freeway. The standard will be exceeded in 1980, and in 1990 if widespread use of unleaded gasoline does not occur.

Impact Analysis

Lead levels in excess of the Oregon standard are predicted to occur on I-5 whether or not the Fremont Bridge ramps are opened. The effects of opening the ramps are minor. Although the build alternatives affect lead in the corridor between the Fremont Bridge and Union Avenue and elsewhere in the Study Area much as they do carbon monoxide levels, the maximum levels predicted are well below the standard.

SUSPENDED PARTICULATE

Lead is one constituent of total suspended particulate, which also consists of dust and other matter suspended in the atmosphere. Particulate is both local and regional in its pattern of generation and dispersal, and comes from many sources other than motor vehicles. Recent research in the Portland area indicates natural sources account for from 33 to 36 percent of total suspended particulate, industrial sources for 34 percent, exhaust emissions from dust raised by motor vehicles from 8 to 21 percent, and other manmade sources for 11 percent (Ref. 9).

Because of these factors, suspended particulate beyond its lead content is not especially important in planning for streets and highways. However, the results of the monitoring to determine lead levels indicates that the federal particulate standards may be exceeded in some parts of the Study Area. The alternatives will not have significant effects on levels of suspended particulate. This is because particulate emissions, as far as is known, are not dependent on vehicle speed, and the total emissions between alternates are not significantly different. Dust generated by vehicle movement is more important than exhaust emission of particulates; the quantity of dust is affected by frequency of street cleaning more than by differences in numbers of vehicles.

HYDROCARBONS

Hydrocarbons, which are primary pollutants, are important primarily because of their role in the formation of photochemical oxidants, or smog. The federal primary and secondary standards are both a maximum average of 160 $\mu g/m^3$ between the hours of 6 and 9 a.m. because maximum oxidant levels follow reactions among morning hydrocarbon and nitrogen oxide concentrations. It was estimated in 1970 that 70 percent of the hydrocarbons in Portland air come from motor vehicles. There is little data on the level of reactive hydrocarbons in Portland, but it is believed that the federal standard is exceeded throughout the city. Hydrocarbons and carbon monoxide are the two pollutants for which motor vehicles registered in the Portland metropolitan area are tested under the state's clean air program.

As concluded earlier, there will not be significant differences between the alternatives in total emissions of hydrocarbons.

Some biologically active hydrocarbons, such as those produced by incomplete combustion of gasoline and other residential and industrial fuels, are carcinogenic. Biologically active carcinogenic hydrocarbons are present in the atmosphere in far higher concentrations in urban and industrial areas than in rural regions. Conclusive experimental evidence is not yet available, but it appears that hydrocarbon carcinogens and ambient particulate concentrations increase the incidence of skin and lung cancers, the latter particularly among smokers. However, there are no federal or state standards which set hydrocarbon levels based on direct health hazards.

The carbon monoxide predictions are indicative of the proportional effects of the alternatives on hydrocarbon levels. Since it is not known at what levels hydrocarbons affect health, an analysis of their direct health effects is not possible.

EFFECT OF THE METERING

As described in Chapter 2 of Part I and discussed in the preceding chapter, the Cook-Fremont and Fremont Boulevard alternatives involve timing traffic signals at intersections to control traffic volumes. Because not enough is known about how this "metering" will affect traffic flow characteristics, the predictions of carbon monoxide and lead do not specifically take metering into account. Assuming that all cars delayed by the metering through an 8-hour period will be delayed an equal amount of time, the metering will add less than 3/4 mg/m^3 of carbon monoxide to predicted levels at 50 feet from any intersection affected in either 1980 or 1990. This does not alter any of the conclusions drawn from the predictions. The effect of the metering on lead emissions will be similar. The additional quantity of any of the pollutants addressed in this chapter caused by metering will be insignificant in comparison with total emissions in the Study Area.

MITIGATING MEASURES

As the figures showing predicted carbon monoxide levels demonstrate, the most effective way to mitigate the adverse effects of traffic on air quality is to control motor vehicle emissions.

Opportunities for minimizing impacts in the design of urban arterials are limited. Routing to minimize exposure is one possibility. This was taken into consideration in selecting the three build alternatives analyzed in this report. In comparison to other alternatives evaluated on a preliminary basis, they minimize the exposure of homes between the Fremont Bridge and Union Avenue to increased pollution levels.

SUMMARY COMPARISON OF ALTERNATIVES

The differences between the alternatives in terms of lead, suspended particulate, hydrocarbons, nitrogen dioxide and photochemical oxidants are not significant. The differences between the effects of the alternatives on air quality outside the corridor between the ramps and Union Avenue are also not significant. Therefore, a rating of the alternatives with respect to air quality must rest on their effects on carbon monoxide levels between the ramps and Union.

The No Build alternative and Short Cook can be rated the same. The difference in CO levels between these alternatives is probably within the range of accuracy of the predictions, the amount of both the increase in CO and area affected under Short Cook is small, and the impact may be susceptible to abatement in final design.

The Cook-Fremont alternative can be rated as having a greater adverse impact on air quality than Short Cook, and Fremont Boulevard as having a greater impact than Cook-Fremont. Both Cook-Fremont and Fremont Boulevard will cause CO levels above the standard between the ramps and Union Avenue under 1980 conditions. The area exposed and the increase in CO levels will be larger under Fremont Boulevard.

As the 1990 predictions indicate, none of the alternatives will cause violation of the CO standard in that year if the "minimum" emission control assumption holds up.

COORDINATION OF THE AIR QUALITY ANALYSIS WITH THE DEPARTMENT OF ENVIRONMENTAL QUALITY

During the course of this study, staff members of the Oregon Department of Environmental Quality (DEQ) have reviewed the monitoring procedures, including the calibration of instruments; the derivation of emission factors; and the applicability of measured and historical data to the Study Area. DEQ reviewed drafts of this report and the Technical Appendix and found the analysis adequate.

CONSISTENCY WITH STATE IMPLEMENTATION PLAN

The State Implementation Plan is a set of policies and regulations to attain compliance with national ambient air standards as required by the Federal Clean Air Act of 1970 (Refs. 10 and 11). The staff of the Oregon Department of Environmental Quality has reviewed the alternatives for consistency with the State Implementation Plan. Basing its judgment on whether the alternatives will cause new violations of air quality standards, it found all build alternatives to be inconsistent. The review states that revisions to the Short Cook and Cook-Fremont alternatives could make them consistent if the violations are eliminated.

Under state regulations, DEQ must issue a permit before construction of an arterial improvement classed as an "indirect source" of air pollution (Ref. 10). New violations of air quality standards are grounds on which such a permit may be denied. Furthermore, the Federal Highway Administration will not fund projects which are inconsistent with the State Implementation Plan. Final determination of consistency with the plan will be made by the Environmental Quality Commission.

Other factors considered in judging consistency with the State Implementation Plan and not addressed by the DEQ staff review are the effects on total vehicle miles traveled and public transportation. As concluded in the preceding chapter, the differences in total vehicle miles between the alternatives are small and any increase in total trips caused by opening the ramps will be limited because of the relatively minor improvements in access. None of the alternatives will offer either significant opportunities or constraints with regard to public transportation.

NOISE

The purpose of this section is to identify the impacts of traffic noise. Background information and a description of the methodologies used in the analysis are contained in the Technical Appendix.

As with air quality, noise impacts are based on standards established to protect the public health and welfare. In this report, Federal Highway Administration (FHWA) design standards for traffic facilities are the basic reference. All federally sponsored traffic facilities must meet these standards except in specific cases where exemptions are allowed (Ref. 12).

The measuring unit "decibel" (written symbolically as "dB") is used to express the relative loudness of a sound. In addition, the A-weighted frequency scale of a standard sound level meter is used in this study because it correlates best with the human response to loudness and to the annoying characteristics of a particular noise. The A-weighted scale is widely used in environmental noise studies, and the FHWA noise standards are based on the A-weighted system. The measuring unit in this study is written "dBA." The table on page 92 gives representative examples of various dBA levels.

FHWA standards are expressed in terms of the dBA level exceeded 10 percent of the time. This is written symbolically as L_{10}. Thus, a location where noise exceeds 65 dBA, 10 percent of the time would be described as having an L_{10} of 65 dBA. The table on page 93 lists the FHWA standards for different land uses.

Noise can have both psychological and physiological effects. Physiological effects include loss of hearing, sleep disturbance and vasoconstriction (constriction of the veins). Loss of hearing does not usually occur as a result of community noise since high levels and long exposure are required. Studies have shown that for acceptable speech indoors, background noise levels should be less than 45 dBA. This generally requires a steady state noise level outside the building of no more than 60 to 70 dBA, depending on architectural charactistics and time of year. Levels of noise causing sleep interference vary with individuals. With some people, levels as low as 35 to 40 dBA can cause interference. Interference from noise in the range of 55 to 60 dBA is common. Vasoconstriction generally occurs with levels of noise

SOUND LEVELS AND EFFECTS OF ILLUSTRATIVE NOISES[1]

Noise Range dBA[2]	Perception and Effects	Community Noise Sources	Industry and Home Noise Sources	Loudness--Subjective Judgment of Noise
130 - 140	Near permanent damage level from short exposure	Military jet takeoof from carrier (50 ft.)	Hydraulic press (3 ft.)	135 dBA - 64 times as loud as 75 dBA
120 - 130	Pain to ears	Turbo-fan jet at takeoff power (100 ft.)	Oxygen torch Boiler shop	125 dBA - 32 times as loud as 75 dBA
110 - 120	Uncomfortably loud	Rock and roll band Unmuffled motorbike (2-3 ft.)	Scraper-loader Riveting machine	115 dBA - 16 times as loud as 75 dBA
100 - 110	Discomfort threshold	Jet fly-over (1,000 ft.) Unmuffled cycle (25 ft.)	Textile loom Noisy newspaper press	105 dBA - 8 times as loud as 75 dBA
90 - 100	Very loud	Train whistle (500 ft.) Diesel truck (25 ft.)	Air compressor (20 ft.) Power lawnmower	95 dBA - 4 times as loud as 75 dBA
80 - 90	Intolerable for phone use Loud	10-hp outboard motor	Garbage disposal Food blender	85 dBA - 2 times as loud as 75 dBA
70 - 80 Reference Level	Moderately loud Prevention of extra auditory physiological effects	Passenger car 65 mph (25 ft.) Busy downtown area	Automatic dishwasher Vacuum cleaner	75 dBA - sought after maximum community level[3]
60 - 70		Large air conditioning unit (100 ft.) Ocean at edge of surf	Conversation Dishwasher - rinse (10 ft.)	65 dBA - 1/2 as loud as 75 dBA
50 - 60	Quiet	Large transformer (200 ft.)	Window air conditioner in room	55 dBA - 1/4 as loud as 75 dBA
40 - 50	Prevention of sleep interference	Occasional private auto (100 ft.) Bird calls	Quiet home during evening hours	45 dBA - 1/8 as loud as 75 dBA
30 - 40	Very quiet	Soft whisper (5 ft.)	Room in quiet house at midnight	35 dBA - 1/16 as loud as 75 dBA

---

[1] Data for this table were obtained from several references. Most decibel levels for specific noise sources were adapted from the data of Dr. Alexander Cohen.

[2] On the logarithmic decibel scale on the left, each increase of 10 dB represents a several-fold increase in sound pressure, but only an approximate doubling in a subjective assessment of loudness as the average human ear hears the noise or as it affects the nervous system. This subjective loudness range is shown in the column on the right. This column was adapted from one presented in the 1970 report by Branch.

[3] Seventy-five dBA is the level recommended, for example, in a recent Los Angeles study as the maximum permitted noise level to be achieved within 3 years for cars, motorcycles, and construction tools and equipment used in the urban setting as measured from a distance of 25 ft.

Source: Earth Metrics, Inc. 1975.

FEDERAL HIGHWAY ADMINISTRATION EXTERIOR NOISE STANDARDS

Land Use Category	Design Noise Level - L_{10}	Description of Land Use Category
A	60 dBA	Tracts of land in which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose. Such areas could include amphitheaters, particular parks or portions of parks, open spaces, or historic districts which are dedicated or recognized by appropriate local officials for activities requiring special serenity and quiet.
B	70 dBA	Picnic areas, recreation areas, playgrounds, active sports areas, and parks which are not included in Category A and residences, motels, hotels, public meeting rooms, schools, churches, libraries, and hospitals.
C	75 dBA	Developed lands, properties or activities not included in Categories A and B above.

Source: Federal Highway Administration, "Procedures for Abatement of Highway Traffic Noise and Construction Noise," 23 CFR Part 772.12, 40 Federal Register 16939, 23 April 1976.

above 70 dBA and is proportional to the number of decibels by which the noise level exceeds 70 dBA.

Psychological effects range through annoyance, stress, and deterioration of work performance. The level at which these effects occur varies with the setting and the specific activity in which a person is engaged.

EXISTING LEVELS

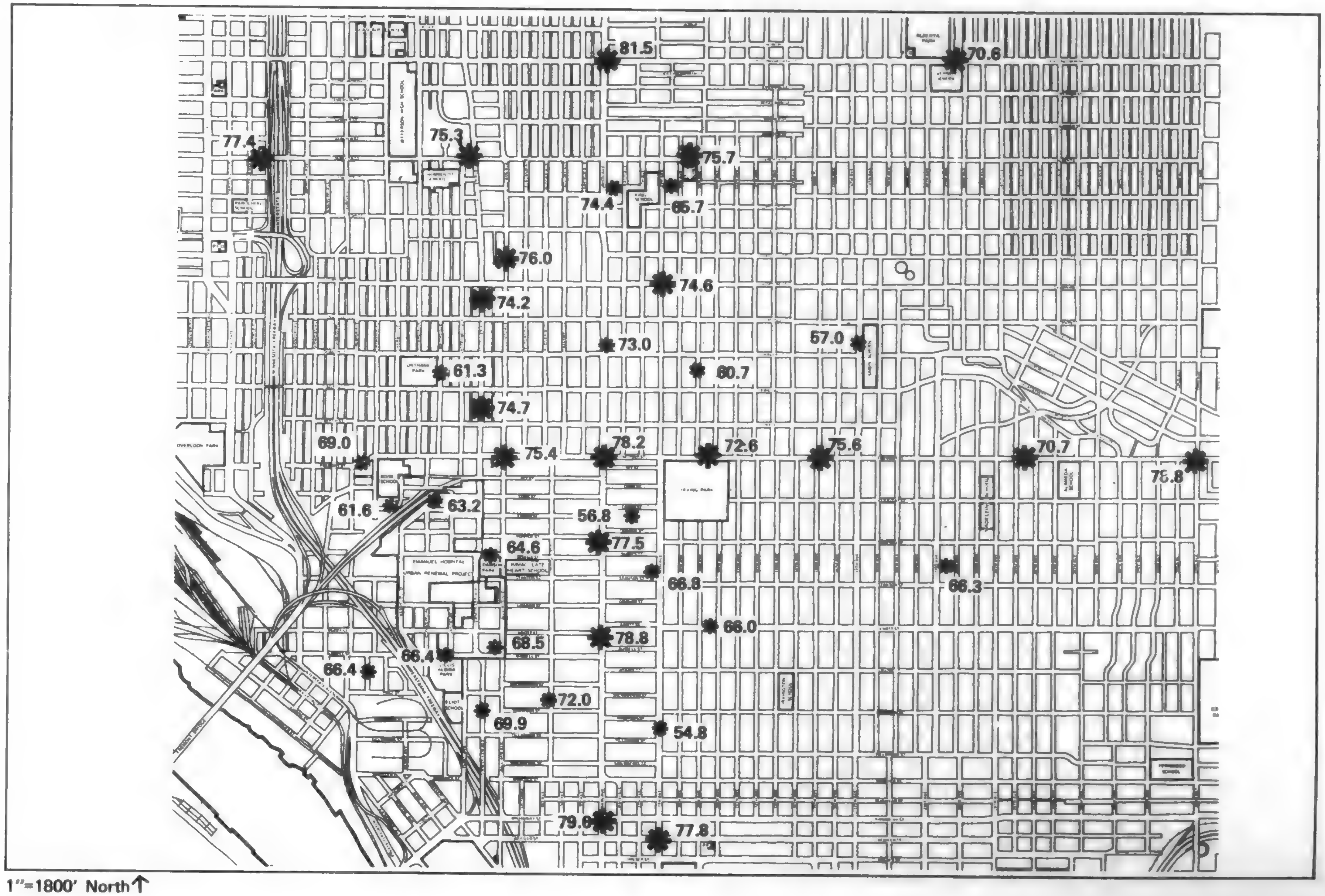
Measured L_{10} noise at 40 locations in the Study Area are shown in the figure on page 95 and compared with the FHWA standard for the type of land use at each location. This comparison shows that existing noise levels along major traffic streets are high. Noise samples indicating levels above the appropriate FHWA design noise level (for either Category B or C as described in the table on page 93) were taken on Killingsworth, Alberta, Fremont, Broadway, Weidler, Union, Williams and Vancouver north of Fremont, and 33rd Avenue.

FUTURE LEVELS

The figures on pages 96, 97, and 98 show predicted maximum future noise levels under each alternative. These levels are associated with peak hour traffic. The levels are expressed using contours corresponding to L_{10} noise of 55, 60, and 70 dBA. During the hour when traffic is heaviest, predicted noise at the 55 contour will exceed 55 dBA 10 percent of the time. Between the 55 and 60 contours, the noise level will exceed 55 dBA, but not 60 dBA, 10 percent of the time. Similarly, the noise level between the 60 and 70 contours will exceed 60 dBA, but not 70 dBA, 10 percent of the time. On the other side of the 70 contour, the noise level during the peak traffic hour will exceed 70 dBA or higher levels 10 percent of the time.

The contours were determined using a mathematical model developed by the Highway Research Board and approved by FHWA. The model takes into consideration projected traffic volume, speed, percentage of trucks, roadway configuration and surface, and the presence of buildings.

The noise predictions reflect projected total traffic in 1980 and 1990 and the effect the build alternatives have on traffic patterns in both years. Thus, the general decline in noise levels shown in the figures on page 96 is due to the decline in traffic projected to occur by 1990 as well as to federal and state legislation mandating quieter trucks and cars. Nevertheless, in both years there will be many areas near major traffic


81.5
70.6
77.4
75.3
75.7
74.4
65.7
76.0
74.6
74.2
73.0
57.0
61.3
60.7
74.7
69.0
75.4
78.2
72.6
75.6
70.7
76.8
61.6
63.2
56.8
77.5
64.6
66.8
66.3
66.0
78.8
68.5
66.4
66.4
72.0
69.9
54.8
79.6
77.8
JEFFERSON HIGH SCHOOL
OVERLOOK PARK
EMANUEL HOSPITAL
URBAN RENEWAL PROJECT
ALBERTA PARK
ALAMEDA SCHOOL

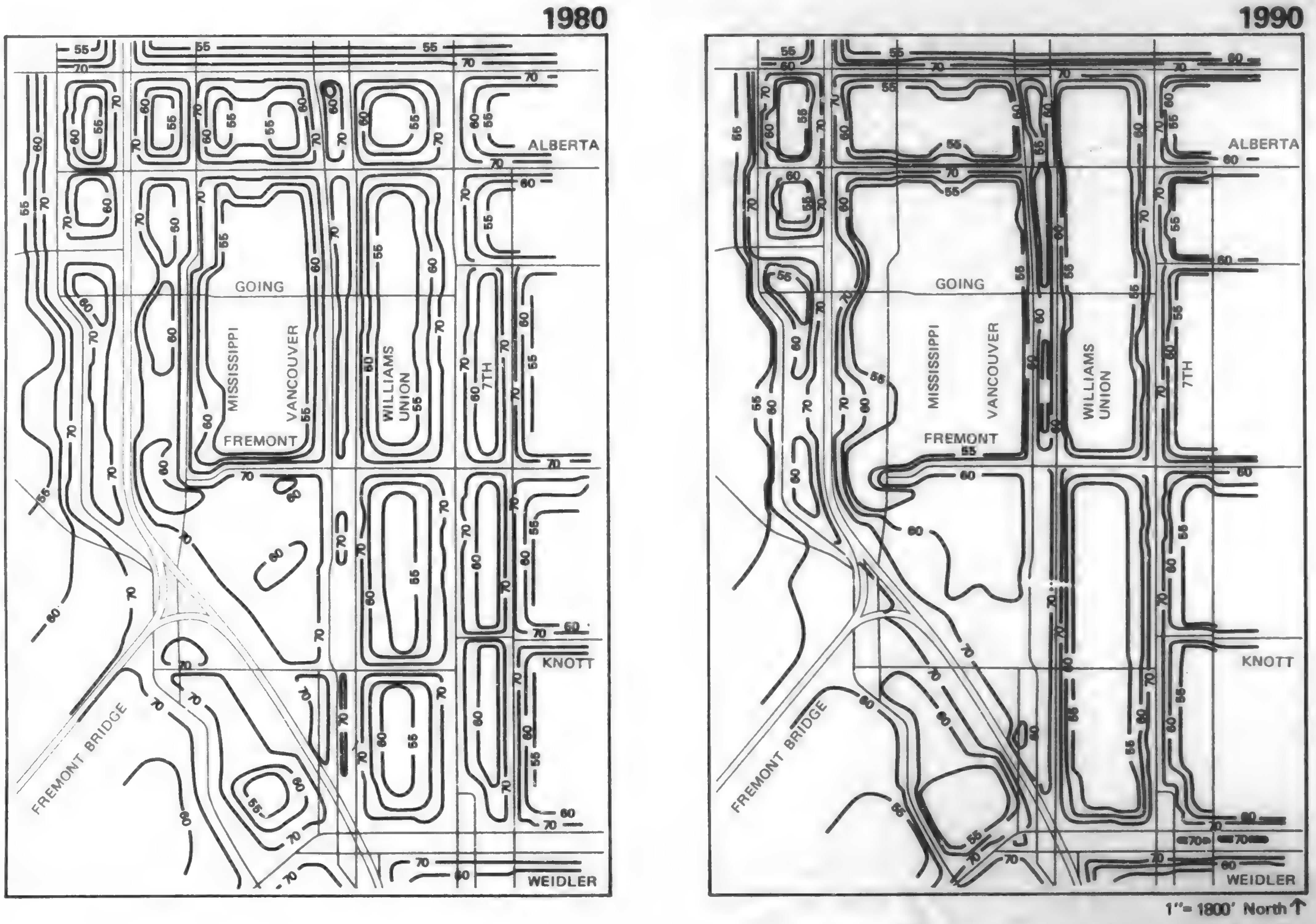
1"=1800' North↑

62.8 L_{10} Noise in dBA

✱ Above the Federal Highway Administration Standard

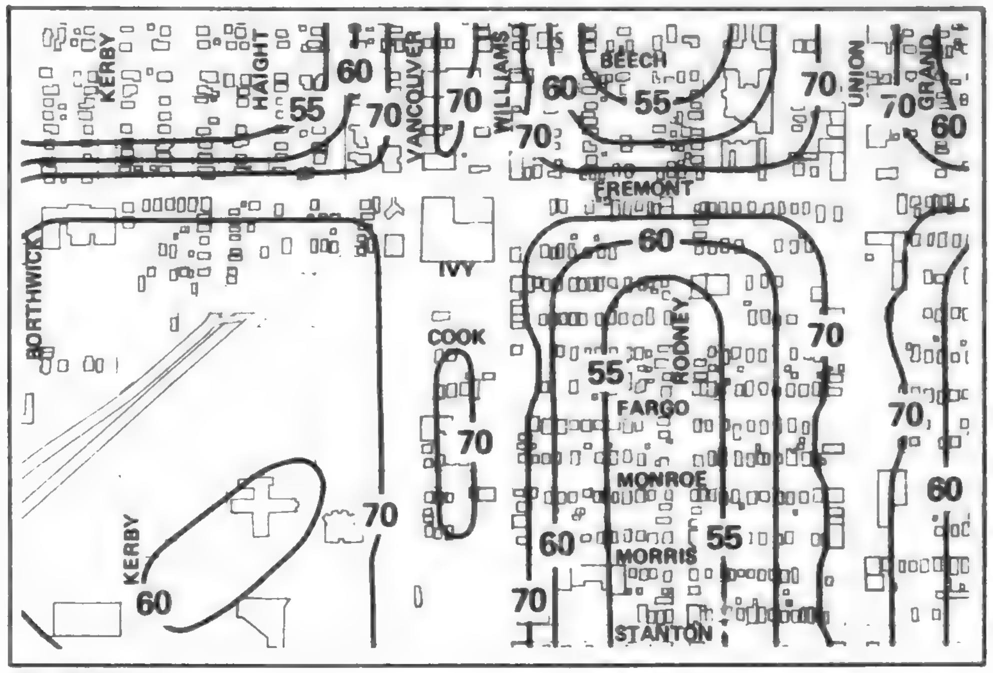
● Below the Federal Highway Administration Standard

EXISTING NOISE

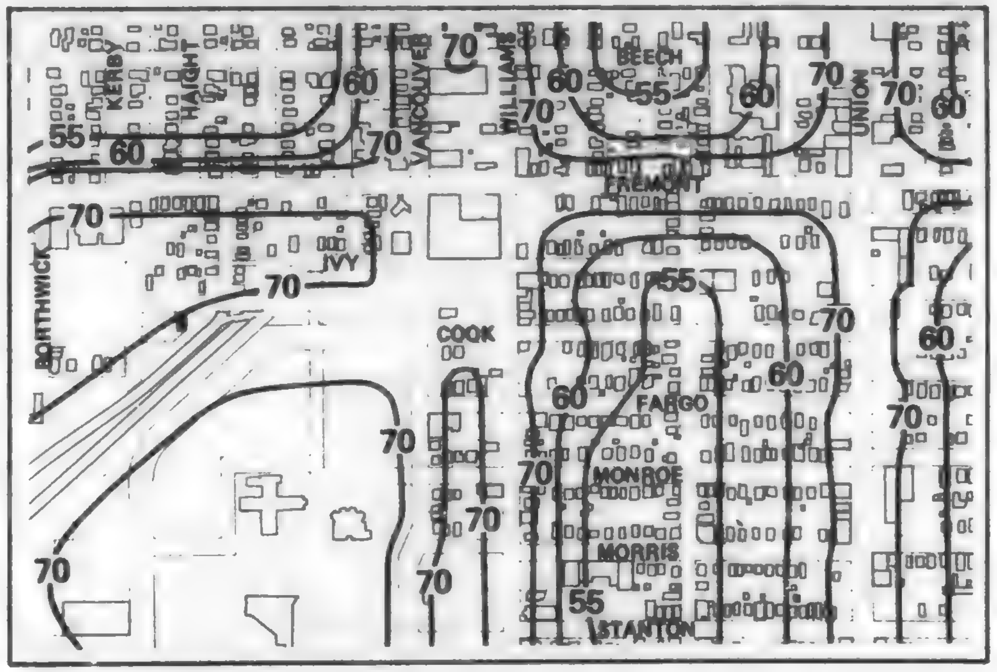

1980
1990
ALBERTA
GOING
MISSISSIPPI
VANCOUVER
FREMONT
WILLIAMS
UNION
7TH
KNOTT
WEIDLER
FREMONT BRIDGE
55
60
70
1"= 1800' North ↑

NO BUILD ALTERNATIVE NOISE

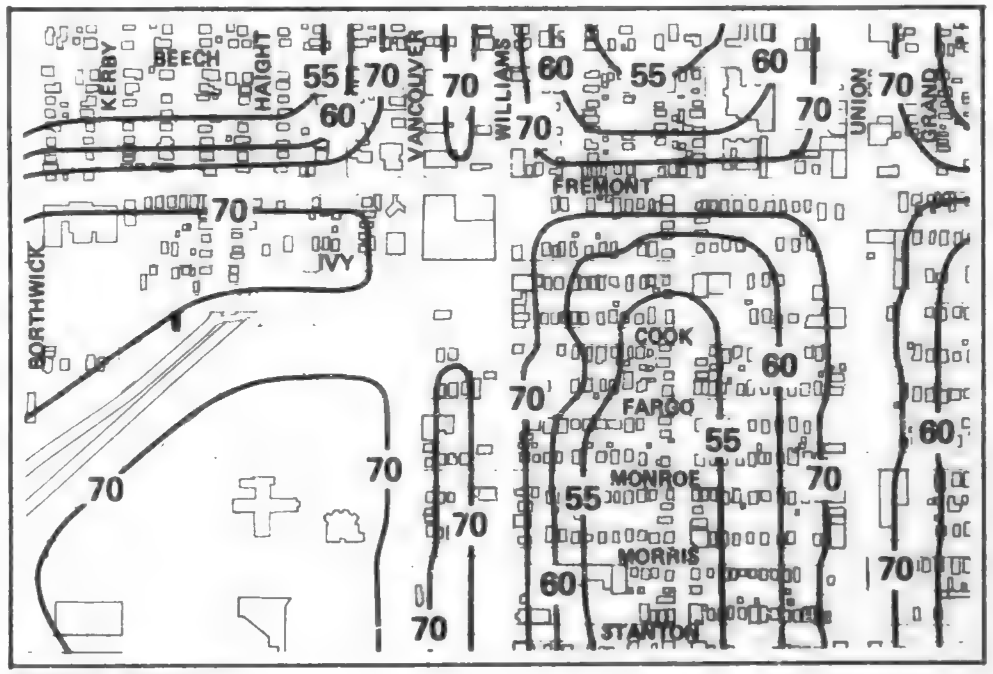
—60— Maximum One-hour L_{10} Noise in dBA due to Traffic.
THE FEDERAL HIGHWAY ADMINISTRATION
STANDARD FOR RESIDENCES IS 70 dBA.


KERBY
HAIGHT
VANCOUVER
WILLIAMS
BEECH
FREMONT
UNION
GRAND
BORTHWICK
IVY
COOK
RODNEY
FARGO
MONROE
MORRIS
STANTON
55
60
70

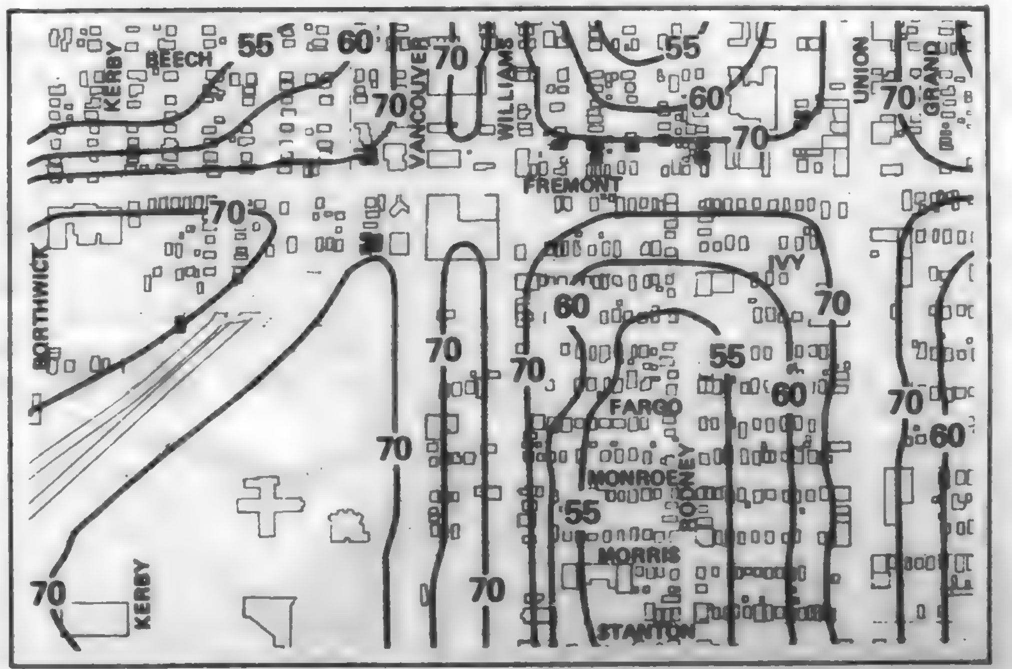
NO BUILD


KERBY
HAIGHT
VANCOUVER
WILLIAMS
BEECH
FREMONT
UNION
BORTHWICK
IVY
COOK
FARGO
MONROE
MORRIS
STANTON
55
60
70

COOK–FREMONT


KERBY
BEECH
HAIGHT
VANCOUVER
WILLIAMS
FREMONT
UNION
GRAND
BORTHWICK
IVY
COOK
FARGO
MONROE
MORRIS
STANTON
55
60
70

SHORT COOK

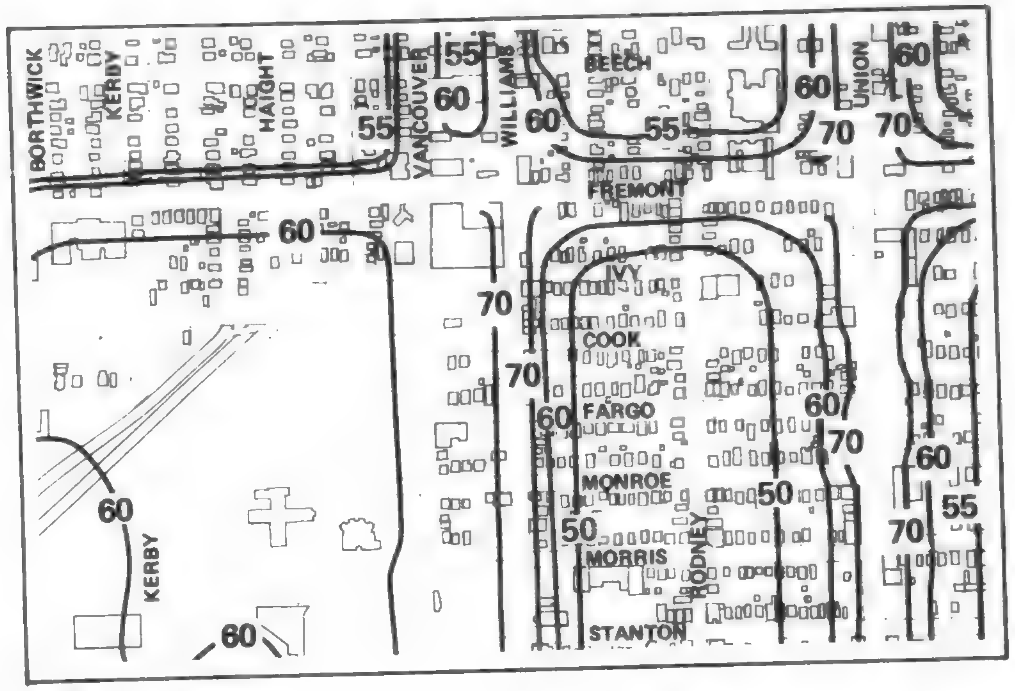

KERBY
BEECH
VANCOUVER
WILLIAMS
FREMONT
UNION
GRAND
BORTHWICK
IVY
FARGO
MONROE
RODNEY
MORRIS
STANTON
55
60
70

FREMONT BOULEVARD

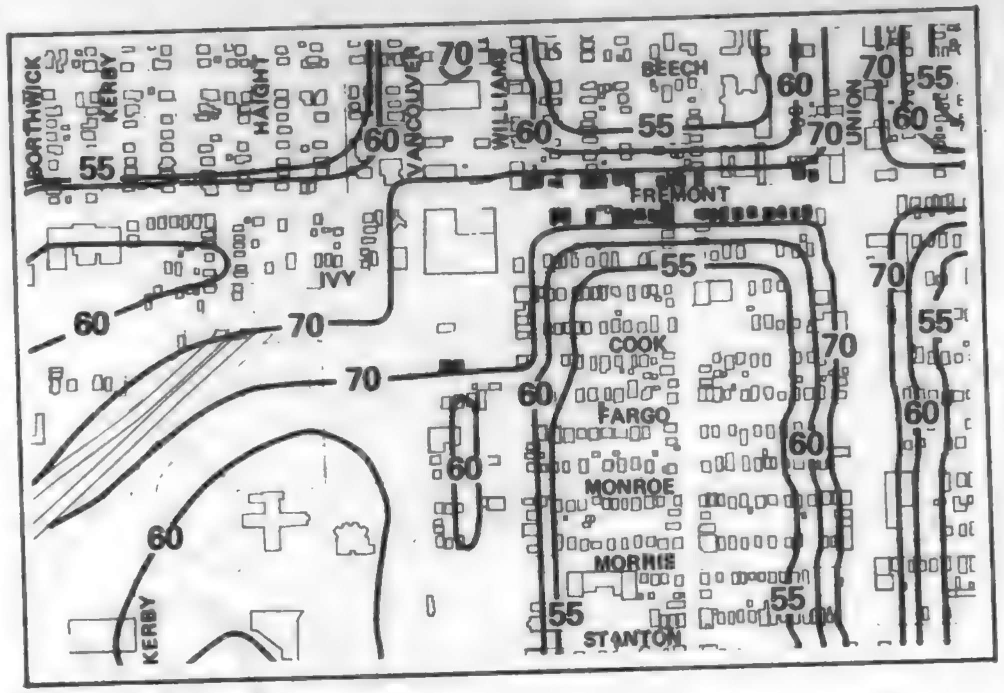
—70— Maximum One-hour L_{10} Noise in dBA Due to Traffic

▬ Dwellings Exposed to L_{10} Noise Above 70 dBA by Alternative

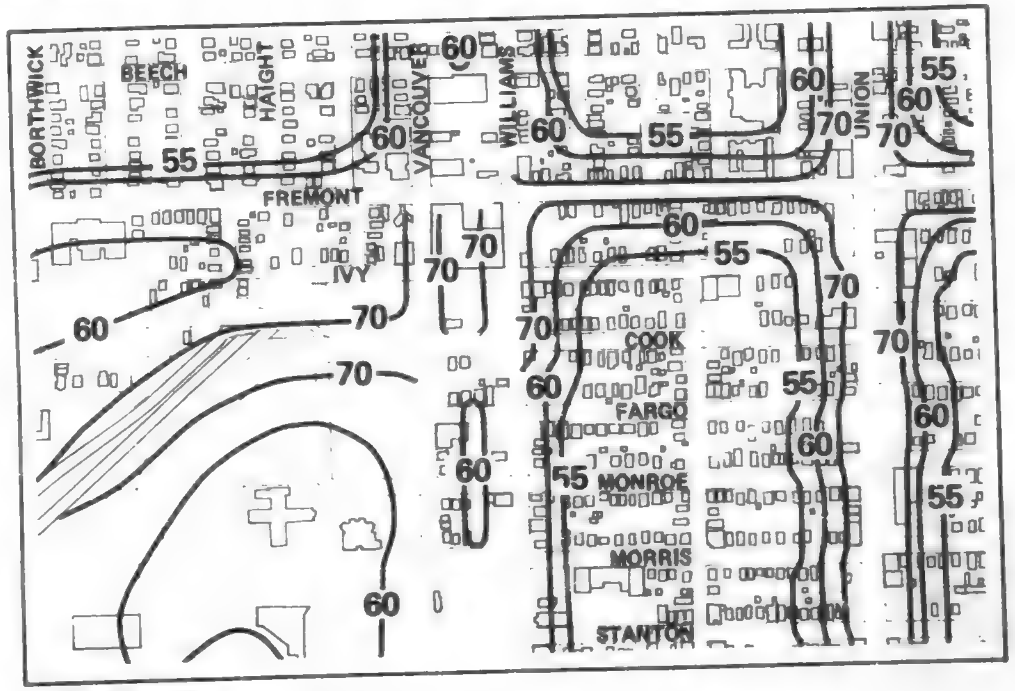
NOISE IN 1980


BORTHWICK
KERBY
HAIGHT
VANCOUVER
WILLIAMS
BEECH
FREMONT
IVY
COOK
FARGO
MONROE
MORRIS
RODNEY
STANTON
UNION
KERBY
55
60
70
50

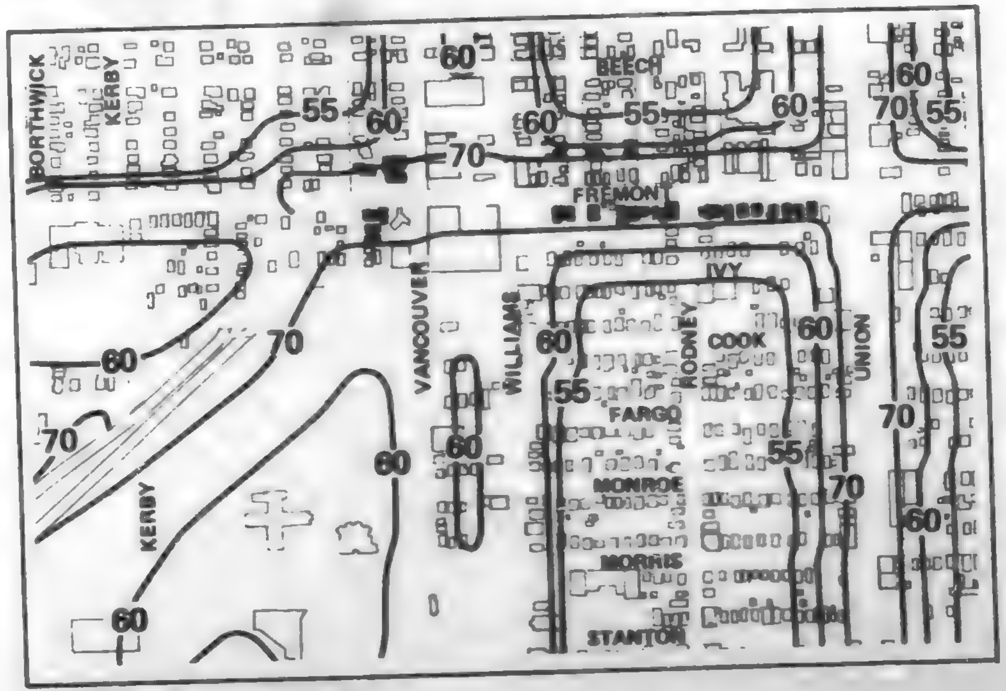
NO BUILD


BORTHWICK
KERBY
HAIGHT
VANCOUVER
WILLIAMS
BEECH
UNION
FREMONT
IVY
COOK
FARGO
MONROE
MORRIS
STANTON
KERBY
55
60
70

COOK–FREMONT


BORTHWICK
BEECH
HAIGHT
VANCOUVER
WILLIAMS
UNION
FREMONT
IVY
COOK
FARGO
MONROE
MORRIS
STANTON
55
60
70

SHORT COOK


BORTHWICK
KERBY
BEECH
FREMONT
IVY
VANCOUVER
WILLIAMS
RODNEY
COOK
UNION
FARGO
MONROE
MORRIS
STANTON
KERBY
55
60
70

FREMONT BOULEVARD

NOISE IN 1990

–70— Maximum One-hour L_{10} Noise in dBA Due to Traffic

■ Dwellings Exposed to L_{10} Noise Above 70 dBA by Alternative streets in the Study Area with L_{10} noise greater than 70 dBA. This is similar to existing conditions.

IMPACT ANALYSIS

As described in the preceding chapter, the traffic effect of the build alternatives can be summarized as a diversion from: (a) bridges south of the Fremont, (b) Williams, Vancouver, and Union Avenue south of Fremont, (c) I-5, and d) Alberta and Killingsworth between I-5 and Union, to: (a) the ramps, (b) Fremont Street between Gantenbein and Union, and (c) Williams, Vancouver, and Union north of Fremont. This effect is proportional to the level of street improvements under each alternative. Although there will be extensive diversion in 1980, it will be constrained by capacity deficiencies on Fremont and Union Avenue. These will cause diversions to Williams and Vancouver north of Fremont that will not occur under 1990 conditions. Proportionally, the overall diversion effect will be greater in 1990. The effects on traffic volumes on streets east of Union will be minor in both 1980 and 1990.

Predicted Noise Levels and Exposures

The alternatives will not affect noise levels east of 7th Avenue. West of 7th, predicted noise levels are proportional to traffic volume. Noise levels will be higher on streets to which traffic is diverted by an alternative and lower on streets from which it is diverted. All exposures to noise levels above the FHWA standard for residences caused by the build alternatives will occur only within the corridor between the bridge ramps and Union Avenue. Outside the corridor, the build alternatives will cause a decline in noise levels along some streets. One notable example is that L_{10} noise above 70 dBA predicted in 1990 on Williams south of Fremont and along Alberta and Killingsworth between I-5 and Union under the No Build alternative is eliminated by the Cook-Fremont and Fremont Boulevard alternatives.

The table on the following page compares the number of dwelling units which will be exposed to L_{10} noise above 70 dBA under the build alternatives but not under the No Build alternative. The structures containing these dwelling units are shown in the figures on pages 91 and 92. The impact of the Cook-Fremont and Fremont Boulevard alternatives will be much greater in 1990 than in 1980 because by then noise levels in general will be lower.

DWELLING UNITS EXPOSED TO L_{10} NOISE ABOVE 70 dBA BY ALTERNATIVES

	1980	1990
SHORT COOK	1	0
COOK–FREMONT	1	40
FREMONT BOULEVARD	19	46

The table on the following page takes into account both instances where noise levels will be higher because of build alternatives and instances where they will be lower. It shows the total number of residential units exposed to L_{10} noise above 70 dBA in the Study Area west of 7th Avenue for both 1980 and 1990, including the No Build alternative. The table was derived using the noise level contour maps from which the figures on pages 96, 97, and 98 were drawn.

As the table shows, the largest number of exposures under 1980 conditions will occur with the Fremont Boulevard alternative which will expose 20 more residential units than the No Build alternative. The fewest exposures will occur with the Short-Cook alternative, which will expose 21 fewer units than the No Build alternative. Cook-Fremont will expose 14 fewer units than the No Build in 1980.

The number of exposures to L_{10} noise over 70 dBA will decline drastically by 1990 under all alternatives. Fremont Boulevard will cause the largest number of exposures, 25 more residential units than the No Build. Short Cook will cause the smallest number, 19 fewer than the No Build. In contrast to 1980 conditions, Cook-Fremont will cause 13 more exposures than the No Build alternative.

The table also compares the number of residential units exposed to L_{10} noise from 60 to 70 dBA. Exposures to L_{10} noise above 60 dBA but below 70 dBA do not violate FHWA design standards, but do represent exposures to levels which are high according to other standards.

There are no adopted local standards for roadway noise. However, State of Oregon standards for noise levels at residences, schools, and hospitals caused by commercial and industrial sources envision noise levels comparable to a daytime L_{10} in the range of 60 to 65 dBA.[1] The State Department of Environmental Quality has proposed a standard for new public roads of an L_{10} of 63 dBA (Ref. 15).

In proposing a way of opening bridge ramps on a temporary basis until a long-term solutions is adopted (the "interim solution" discussed in Chapter 1,

UNITS EXPOSED TO L_{10} NOISE FROM 60 TO 70 dBA AND ABOVE 70 dBA
STUDY AREA WEST OF 7TH AVENUE

	RESIDENTIAL				COMMERCIAL				PUBLIC				INDUSTRIAL			
	1980		1990		1980		1990		1980		1990		1980		1990	
	ABOVE 70 dBA	60-70 dBA	ABOVE 70 dBA	60-70 dBA	ABOVE 70 dBA	60-70 dBA	ABOVE 70 dBA	60-70 dBA	ABOVE 70 dBA	60-70 dBA	ABOVE 70 dBA	60-70 dBA	ABOVE 70 dBA	60-70 dBA	ABOVE 70 dBA	60-70 dBA
NO BUILD	1,083	1,476	216	810	43	16	118	58	189	10	15	28	243	86	103	40
SHORT COOK	1,062	1,509	197	1,003	43	17	126	58	188	10	17	24	247	80	108	39
COOK-FREMONT	1,060	1,522	229	1,003	46	15	104	77	188	11	11	31	241	87	103	31
FREMONT BOULEVARD	1,103	1,543	241	867	46	19	84	91	190	8	10	36	247	81	90	40

Part I), a citizens committee recommended an L_{10} of 65 dBA as the noise level which should not be exceeded at a residential property because of the opening (Ref. 16).

In both 1980 and 1990, the number of exposures to L_{10} noise between 60 and 70 dBA will be smallest under the No Build alternative. Fremont Boulevard will cause the largest number of exposures in 1980 but fewer than either the Short Cook or Cook-Fremont alternative in 1990. Short Cook and Cook-Fremont will cause the same number of exposures in 1990.

On the basis of overall residential noise exposures, the No Build and Short Cook alternatives can be rated the same. Exposures to L_{10} noise above 70 dBA will be lowest under Short Cook in both 1980 and 1990, and exposures to L_{10} noise between 60 and 70 dBA will be lowest under the No Build in both years. Under 1980 conditions, Fremont Boulevard will have the greatest adverse noise impact; exposures to L_{10} noise from 60 to 70 dBA and above 70 dBA will be highest among the alternatives. Under 1990 conditions, Cook-Fremont will have the greatest adverse impact. Although there will be fewer exposures to L_{10} noise above 70 dBA than with Fremont Boulevard, there will be significantly more exposures to L_{10} noise between 60 and 70 dBA.

Exposures of commercial, public, and industrial units will be roughly equivalent under all alternatives. By 1990, exposures of these types of structures to L_{10} noise above 70 dBA will be least under Fremont Boulevard. Exposures to L_{10} noise between 60 and 70 dBA will be greatest under this alternative.

Effects of Predicted Noise Levels

Fremont Bridge to Union Avenue Corridor. Noise levels are generally high in the Fremont Bridge to Union Avenue corridor and will remain so regardless of which alternative is adopted. Speech interference will occur outdoors at all levels above 60 dBA shown in the contours. This will affect the most residential properties under the Fremont Boulevard alternative, the fewest under the No build alternative.

Noise levels above 70 dBA can be expected to cause indoor speech interference. Levels sufficient to interfere with sleep will occur along Fremont Street within the corridor under all alternatives; the effect will be least under the No Build and Short Cook alternatives and greatest under the Cook-Fremont and Fremont Boulevard alternatives.

Boise School. In 1980, L_{10} noise in front of Boise School (on Fremont) will be higher than 70 dBA and generally from 60 to 65 dBA in the rear of the school and on the playground under all alternatives, including the No Build. Traffic noise from Fremont will possibly cause some interference with activities in classrooms facing Fremont if windows are open. The school grounds will not be suitable for quiet activities.

Because cars and trucks are expected to be quieter by 1990, as discussed earlier, noise levels at Boise School will be approximately 10 dBA quieter than in 1980 under the No Build and Fremont Boulevard alternatives and from 5 to 8 dBA under the Short Cook and Cook-Fremont alternatives.

Eliot School. Eliot School is located near I-5 south of Russell Street. Although quieter cars and trucks will cause a decline in noise levels at Eliot School by 1990, the rear of the building will still be exposed to L_{10} noise in excess of 70 dBA. The build alternatives will not affect this condition. There will be more traffic on Flint Avenue in front of the school under the No Build than under the build alternatives. However, the amount of traffic will not be great under any of the alternatives and the noise effect at the school will be mainly from I-5.

MITIGATING MEASURES

Noise Barriers

Noise barriers were considered for all residential properties where the build alternatives are predicted to cause L_{10} noise in excess of 70 dBA. Because they are effective only if they can be designed without frequent openings, noise barriers were judged inappropriate on Fremont Street, where most of the noise impacts occur.

The Project Features figure for the Fremont Boulevard alternative on page 31 shows a noise barrier on the north side of the ramps and the connection to Fremont. This is the only place where a noise barrier is a cost-effective noise abatement measure for L_{10} noise above 70 dBA. The effect of the barrier was taken into account by the noise predictions. As the 1980 prediction figure shows, despite this effect, three houses west of the ramps will be exposed to L_{10} noise levels above 70 dBA.

Numerous designs for noise barriers are available; they vary in effectiveness and aesthetic quality. Where proposed under the Fremont Boulevard alternative, a landscaped earth berm would probably be most acceptable. There should be adequate space for its construction and it will be less visually disturbing than a wall. This berm could be architecturally integrated with the proposed pedestrian overpass. Between Fargo and Cook Street, the berm should be 8 feet high, and from Cook to Fremont, 10 feet high.

Other Mitigating Measures

Because noise barriers are feasible only in the one instance discussed above, the only way to effectively abate most of the adverse noise impacts of the build alternatives would be to insulate the affected houses against the intrusion of excessive traffic noise. However, Federal Highway Administration policy is to fund insulating residences only in cases where the impact is extremely severe. No such impacts have been identified at this stage. Insulating against excessive noise is not proposed as a mitigating measure because, in the absence of federal funding, it is unlikely that the City of Portland or Oregon State Highway Division will bear the cost.

In cases of severe noise impact, FHWA also considers acquiring the impacted property and relocating the occupants. Whether or not a noise impact warrants noise insulation or property acquisition is determined on a case by case basis. If any instances of severe impact exist, they will be identified in the final EIS.

FOOTNOTES

[1] Oregon law prohibits the operation of an industrial or commercial noise source that allows the noise level at a residence, school, or hospital to exceed an L_{10} of 65 dBA between 7:00 A.M. and 10:00 P.M. before 1978, and 60 dBA after 1977. All new commercial and industrial sources must meet the 60 dBA standard (Ref. 14).

REFERENCES

1. U.S. Environmental Protection Agency, "National Primary and Secondary Ambient Air Quality Standards," 42 CFR Part 410, 36 Federal Register 8186, 30 April 1971.

2. Oregon State Department of Environmental Quality, "Ambient Air Quality Standards," Oregon Administrative Rules, Chapter 340, Sec. 31-010 to 31-055.

3. CH2M HILL, Working Paper No. 6, Existing Air Quality and Noise Conditions, Fremont Bridge Access Study, December 1975.

4. Department of Environmental Quality, State of Oregon Clean Air Act Implementation Plan, January 1972., p. 4-J-19.

5. R.R. Beard and G.A. Wertheim, "Behavioral Impairment Associated with Small Doses of Carbon Monoxide," American Journal of Public Health, Vol. 57, 1967, p. 2012.

6. R.M. Brice and J.F. Roesler, "The Exposure to Carbon Monoxide of Occupants of Vehicles Moving in Heavy Traffic," Journal of the Air Pollution Association, Vol. 16, 1966, p. 597.

7. Multnomah County Health Department, Lead Poisoning Project Report, June 1974.

8. Oregon Graduate Center, A Study of Community Exposures to Lead in the Portland Metropolitan Area, unpublished draft, 16 April 1974.

9. ____________, The Impact of Emissions from Transportation Sources on Air Quality, unpublished draft, March 1976.

10. Oregon State Department of Environmental Quality, "State of Oregon Clean Air Act Implementation Plan," Oregon Administrative Rules, Chapter 340, Sec. 20-047.

11. The Clean Air Act of 1970, P.L. 91-604, 23 U.S.C.

12. Federal Highway Administration, U.S. Department of Transportation, "Procedures for Abatement of Highway Traffic Noise and Construction Noise," 23 CFR Part 772, 41 Federal Register, 16933, 23 April 1976.

13. U.S. Environmental Protection Agency, Information on Levels of Environmental Noise Requisite to Protect Public Health and

Welfare with an Adequate Margin of Safety, March 1974.

14. Oregon Department of Environmental Quality, "Noise Control Regulations for Industry and Commerce," Oregon Administrative Rules, Chapter 340, Sec. 35-035 et. seq.

15. ____________, Air Quality Control Division, Proposed Noise Control Regulations, February 1974.

16. East-End Fremont Bridge Ramps Ad Hoc Committee, "Final Recommendations," 14 December 1973, p. 5.

Chapter 3

LAND USE, REDEVELOPMENT, AND URBAN DESIGN

This chapter deals with the effects of the alternatives on land use patterns in the Study Area and with redevelopment opportunities and urban design considerations.

LAND USE

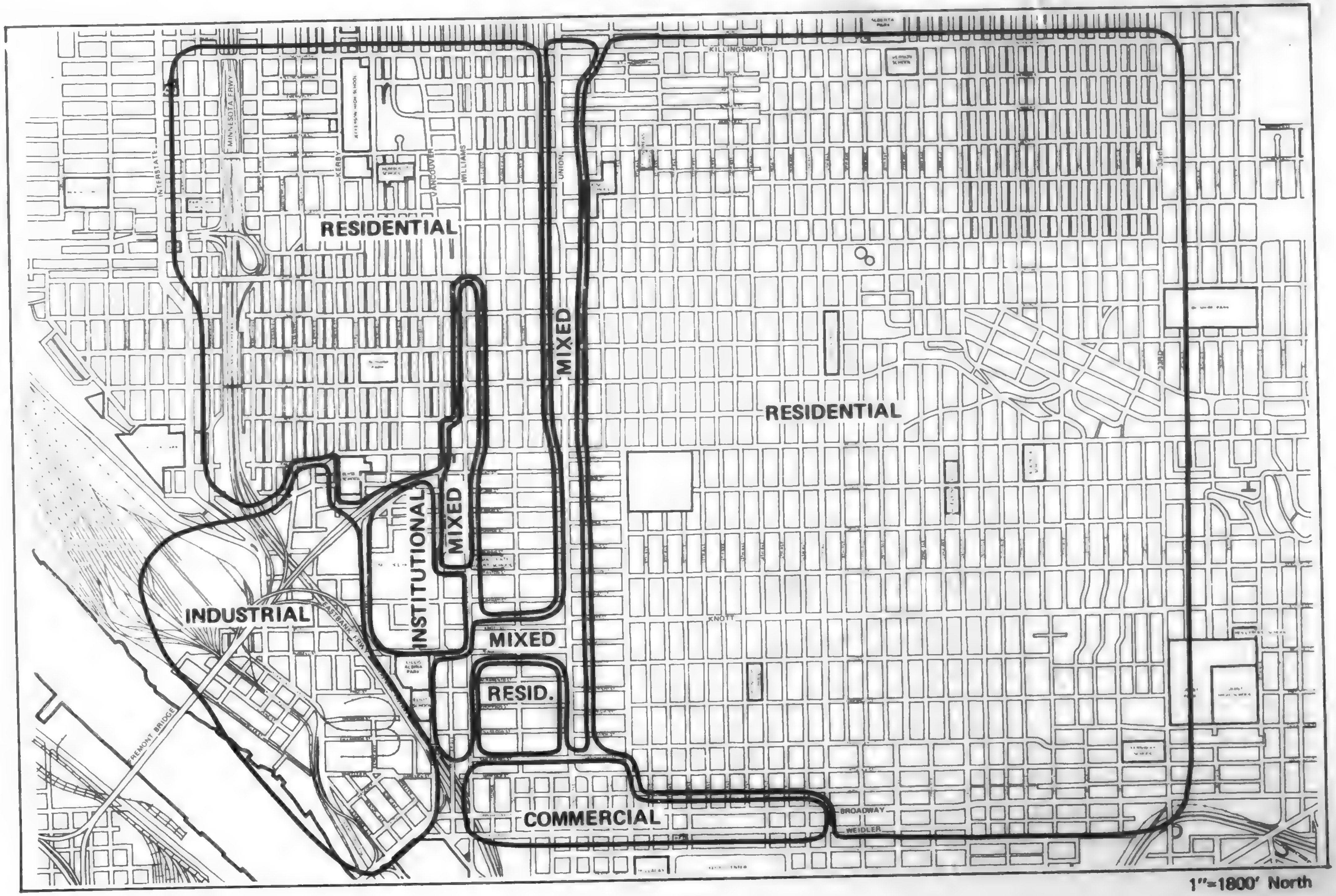
Generalized land use in the Study Area is shown in the figure on the following page. Land use in the Primary Impact Area is shown in more detail in the figure on page 109.

Opening the Fremont Bridge ramps will not, in itself, result in any land use conversions except possibly as a direct result of property acquisition for right-of-way expansion. Rather, the ramps will only be one of a number of influences on the use of land and the timing of development.

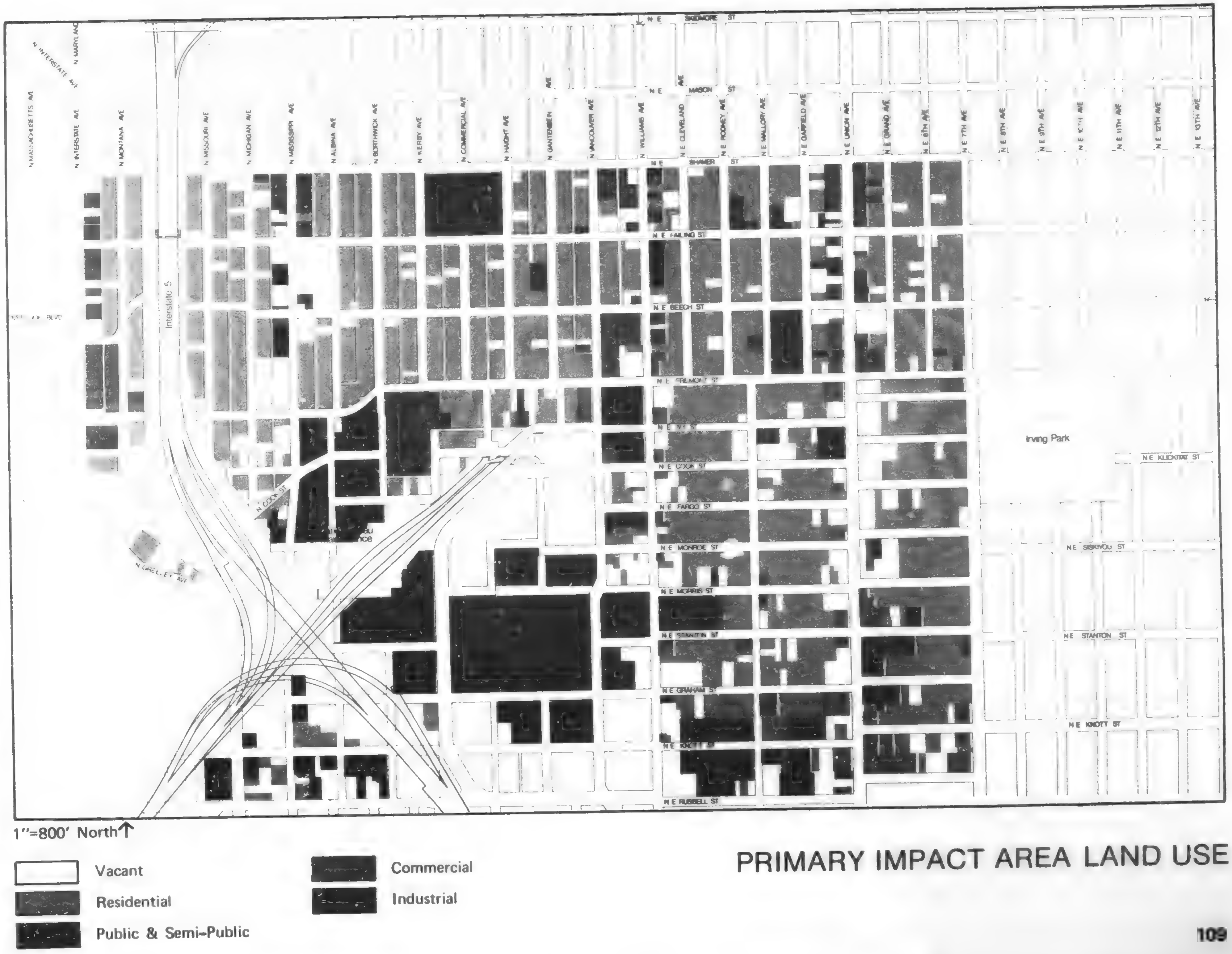
East of Union Avenue the present predominantly residential pattern of land use is well established. Because the traffic impact in this area will be minor, land use will not be affected.

Residential land use patterns in Boise and Humboldt neighborhoods are more vulnerable. Some nonresidential uses exist along Williams and Vancouver Avenues between Fremont and Alberta, and much of the housing is in poor condition. As the traffic projections in Chapter 1 of Part II show, the build alternatives will significantly increase traffic on these streets prior to the general decline in traffic levels anticipated by 1990. The most important influence on land use conversions along these streets will be neighborhood planning, which supports containment of nonresidential uses. However, the negative effect the increase in traffic will have on residential quality could make this policy more difficult to uphold.

All of the build alternatives sharply increase traffic on Fremont between Vancouver and Union. Land use patterns even here, however, are not expected to change significantly. Existing plans and zoning regulations, the availability of land on other busy streets, and limited demand for commercial and industrial properties, all make the conversion of residential land in this corridor unlikely. On the other hand, opening the ramps could influence the course of change in two parts of the Study Area where land use is unstable and public policy is less certain. These areas are along Union Avenue and in the Eliot neighborhood.


RESIDENTIAL
MIXED
RESIDENTIAL
INSTITUTIONAL
MIXED
INDUSTRIAL
MIXED
RESID.
COMMERCIAL
INTERSTATE
MINNESOTA FRWY
KERBY
JEFFERSON HIGH SCHOOL
VANCOUVER
WILLIAMS
UNION
KILLINGSWORTH
KNOTT
BROADWAY
WEIDLER
FREMONT BRIDGE
EASTBANK FRWY
1"=1800' North

STUDY AREA LAND USE


N MASSACHUSETTS AVE
N INTERSTATE AVE
N MARYLAND
N MONTANA AVE
Interstate 5
N MISSOURI AVE
N MICHIGAN AVE
N MISSISSIPPI AVE
N ALBINA AVE
N BORTHWICK AVE
N KERBY AVE
N COMMERCIAL AVE
N HAIGHT AVE
N GANTENBEIN AVE
N VANCOUVER AVE
N WILLIAMS AVE
N E CLEVELAND AVE
N E RODNEY AVE
N E MALLORY AVE
N E GARFIELD AVE
N E UNION AVE
N E GRAND AVE
N E 6TH AVE
N E 7TH AVE
N E 8TH AVE
N E 9TH AVE
N E 10TH AVE
N E 11TH AVE
N E 12TH AVE
N E 13TH AVE
N E SKIDMORE ST
N E MASON ST
N E SHAVER ST
N E FAILING ST
N E BEECH ST
N E FREMONT ST
N COOK ST
N E COOK ST
N E FARGO ST
N E MONROE ST
N E MORRIS ST
N E STANTON ST
N E GRAHAM ST
N E KNOTT ST
N E RUSSELL ST
N GREELEY AVE
Irving Park
N E KLICKITAT ST
N E SISKIYOU ST
1"=800' North↑
Vacant
Residential
Public & Semi-Public
Commercial
Industrial

PRIMARY IMPACT AREA LAND USE

UNION AVENUE

The rundown condition of properties along Union Avenue is well known and well documented. The city's Planning Bureau has prepared the Union Avenue Redevelopment Plan (Ref. 1), which proposes street improvements, public coordination, and other assistance to stimulate private redevelopment for a variety of commercial, light industrial, and residential uses. Good site planning and building design will help to minimize conflicts between the different kinds of activities. Although the proposed street improvements are given a high priority by the city, implementation depends on funding by the state. The State Highway Division is currently short of construction money. However, the city is taking steps to utilize funds transferred from the Mt. Hood freeway project. Local matching funds are available from Housing and Community Development block grants.

Impact Analysis

The Short Cock alternative will not affect land use on Union because it will not significantly affect traffic on Union or improve access to it. The Cook-Fremont and Fremont Boulevard alternatives will increase traffic on Union north of Fremont, decrease traffic south of Fremont, and cause a marginal improvement in access to Union. These alternatives will not in themselves significantly change land use along Union. However, the increase in traffic on Union north of Fremont may benefit retail businesses there.

Crime and the fear of crime, physical deterioration, low incomes in the primary market area for retail businesses, and competition from Lloyd Center and other East-side commercial areas are some of the causes of the depressed economic and physical conditions along Union. A program of street lighting and other crime preventive measures is designed as part of the Union Avenue Redevelopment Plan.

Even though their effects may be minor, the Cook-Fremont and Fremont Boulevard alternatives will be generally supportive of the improvement of Union Avenue. The projected increase in retail business volume and employment along Union north of Fremont could result in new investment. Connecting the ramps to Union will tend to lessen the dependence of local merchants on the immediate market area. Outlets for goods and services which can draw on a larger market area will be most benefited. The advantage of Cook-Fremont and Fremont Boulevard, then, is in adding an additional element in support of Union Avenue improvement.

ELIOT NEIGHBORHOOD

As with Union Avenue, incompatible land use patterns and deteriorated conditions lie behind the instability that characterizes the Eliot Neighborhood.[1] Freeway construction, clearance for the Emanuel Hospital Urban Renewal Project, and conversions to nonresidential uses have reduced residential land use to less than a quarter of the total. Vacant land or land containing derelict structures is the single largest category of land use in the neighborhood. If undeveloped land at the Emanuel Hospital Urban Renewal Project is added to this category, it accounts for nearly 30 percent of net usable land. The only part of the neighborhood where residential use still predominates is between Williams and Union Avenue north of Knott Street.

The Eliot neighborhood plan, which is part of the Model Cities Plan (Ref. 2 and 3), calls for extensive residential redevelopment, including the area south of Knott to Hancock Street. Public policy as it relates to the neighborhood is uncertain because (a) public financing opportunities are limited, (b) no progress has been made on the rezoning program included in the neighborhood plan, (c) light industrial and other nonresidential uses are well established in the area south of Russell Street between Williams and Union, (d) the continuing decline of Eliot as a residential neighborhood suggests that public sector efforts are ineffective and has demoralized many residents, and (e) wholesaling and other uses for which highway access is important may be more appropriate than residential uses in parts of Eliot because of its central location and proximity to the freeway system.

Impact Analysis

If plans for residential redevelopment in Eliot south of Russell are revised and conversion to light industrial and commercial uses is encouraged, opening the ramps under any of the three build alternatives will support this change. Because the area is centrally located in the metropolitan area and because it is near the Broadway-Weidler-I-5 interchange, access is very good. To the extent that the alternatives will relieve traffic on Vancouver Avenue near Broadway and Weidler and provide an alternative interchange for trips between Eliot and northwest and southwest parts of the metropolitan area, they will improve the level of access. These effects will benefit business and light industry more than residential uses. As with the recovery of Union Avenue, opening the ramps will not change land use in this part of Eliot, but will support it if other conditions are present.

REDEVELOPMENT

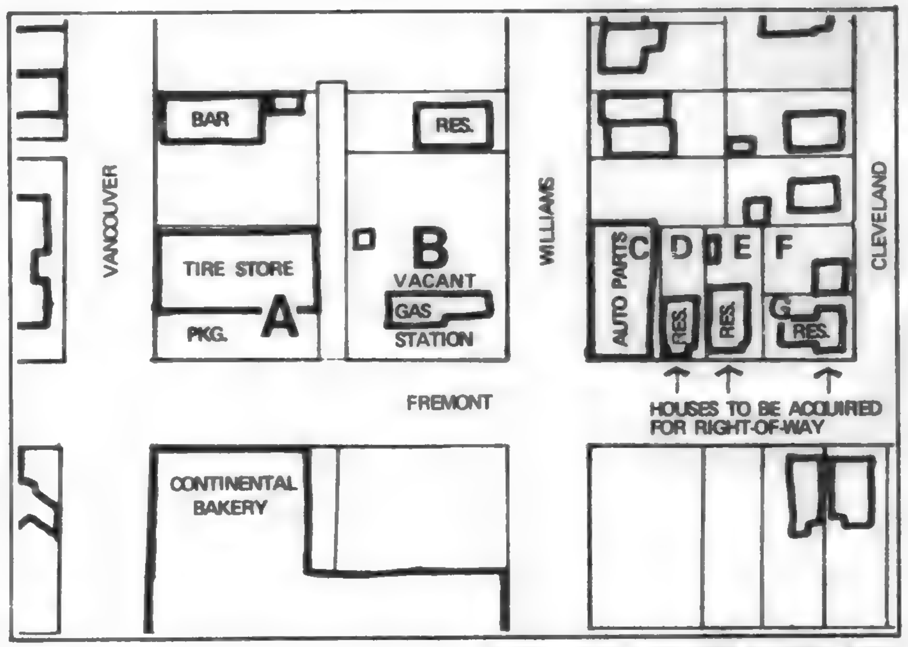
There are three locations where the alternatives will cause a need for redevelopment--on Fremont near Williams and Vancouver Avenues under the Fremont Boulevard alternative, at the location of the McDonald's Restaurant at Union and Fremont under the Cook-Fremont and Fremont Boulevard alternatives, and on the land occupied by the bridge ramps under the Ramp Removal variation of the No Build. This section addresses each of these and the effect of the alternatives on the Emanuel Hospital Urban Renewal Project and on Bureau of Maintenance operations at Stanton Yard.

REDEVELOPMENT ON FREMONT NEAR WILLIAMS AND VANCOUVER (FREMONT BOULEVARD)

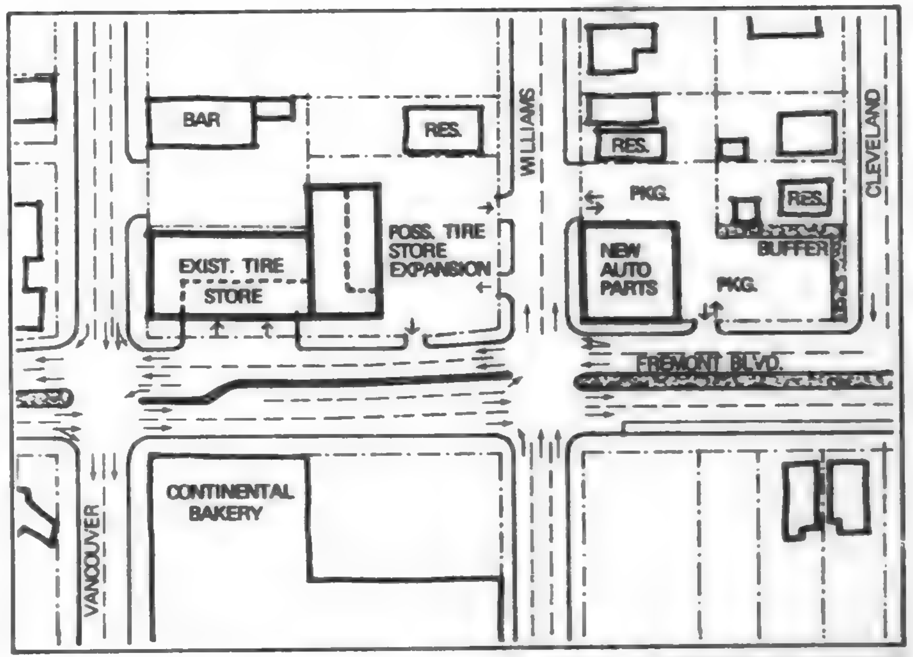
For the most part, residential land purchased for right-of-way on the north side of Fremont under the Fremont Boulevard alternative but not actually needed for right-of-way will be in parcels too small for reuse as individual lots. This land will be either sold to adjacent property owners or remain in public ownership. All commercial property acquired for right-of-way will be limited to what is actually needed. Nevertheless, the three businesses affected by these acquisitions near Williams and Vancouver will have to relocate or rebuild at the same location.

The diagrams on the following page show existing parcels and use and how two of the existing businesses could be resituated. Barring voluntary transfer of property rights (by sale or lease) of parcel B to the owner of parcel A, this could be accomplished through city intervention by use of its urban renewal authority. The properties affected are included in an area recommended as an urban renewal project by the Boise neighborhood plan (Ref. 4). Redevelopment along these lines would mitigate the adverse effects of the Fremont Boulevard alternatives on the businesses involved, improve the appearance of the area, and avoid leaving the property vacant.

After acquiring parcels D, E, F, and G for right-of-way expansion, the State Highway Division could sell what is not actually needed for right-of-way to the owner of parcel C.


VANCOUVER
BAR
RES.
TIRE STORE
PKG.
A
B
VACANT
GAS STATION
WILLIAMS
FREMONT
AUTO PARTS
C
D
E
F
G
RES.
RES.
RES.
CLEVELAND
HOUSES TO BE ACQUIRED FOR RIGHT-OF-WAY
CONTINENTAL BAKERY

EXISTING PARCELS AND USE


BAR
RES.
WILLIAMS
RES.
PKG.
RES.
CLEVELAND
POSS. TIRE STORE EXPANSION
EXIST. TIRE STORE
NEW AUTO PARTS
PKG.
BUFFER
FREMONT BLVD.
VANCOUVER
CONTINENTAL BAKERY

POSSIBLE REDEVELOPMENT

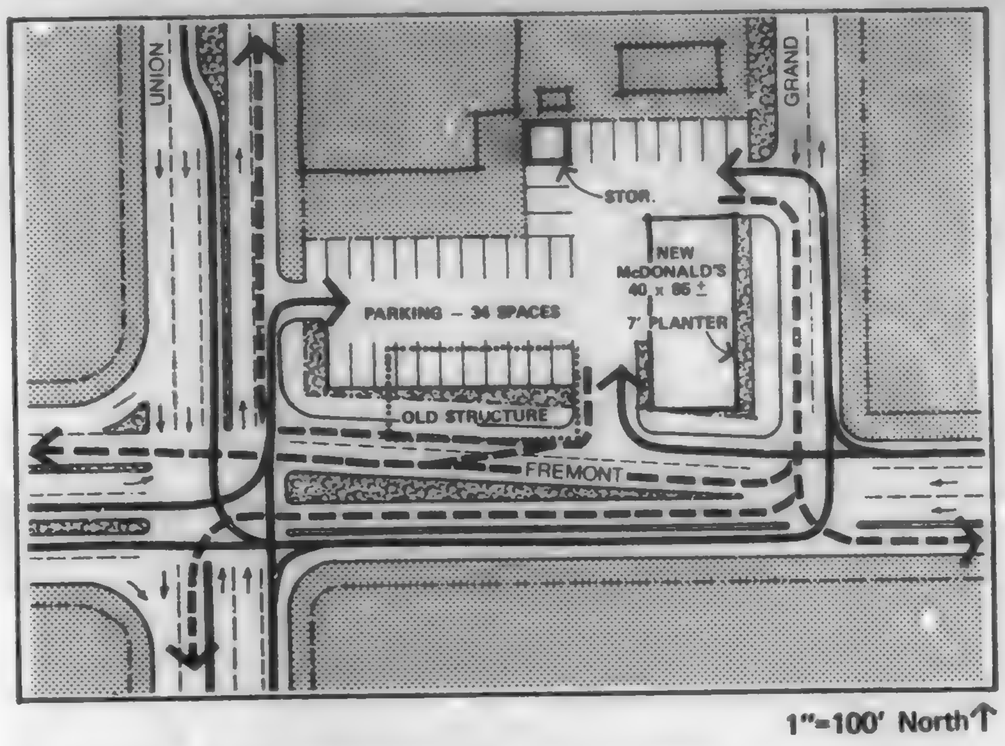
POSSIBLE REDEVELOPMENT
AT FREMONT AND
WILLIAMS/VANCOUVER

REDEVELOPMENT OF THE McDONALD'S RESTAURANT (COOK-FREMONT AND FREMONT BOULEVARD)

The Cook-Fremont and Fremont Boulevard alternatives will require the relocation of the McDonald's restaurant at the corner of Fremont and Union. The owner has indicated that the store will either be rebuilt at the same location or moved either off Union Avenue or outside the Study Area (i.e., either north of Killingsworth or south of Broadway). It is probable that conditions not related to the project will determine which course is taken. A critical factor within the scope of project design is the amount of land now occupied by the restaurant which is taken for right-of-way. As shown in the Street Improvements figures for Cook-Fremont and Fremont Boulevard, on pages 27 and 28, the amount of this land has been minimized.

The figure on the following page shows how the site could be redeveloped if the restaurant remains at the existing location. The site plan includes parking for two more cars than does the present one, and the buffer strip along the lot on Grand Avenue is reduced from 12 to 7 feet. Another feature of the plan is that it will allow construction of a new building before the demolition of the existing one.

Access to the lot, particularly from Union Avenue southbound, is the most significant constraint to redevelopment. Whereas the turn into the McDonald's lot will remain hazardous under the No Build and Short Cook alternatives, it is prohibited under Cook-Fremont and Fremont Boulevard. To enter the lot, southbound traffic on Union will have to turn left onto Fremont and then onto Grand Avenue. This is an appropriate function for Fremont, which is a collector street intended to distribute traffic to and from Union. However, the arrangement shown in the figure will put an added traffic burden on Grand Avenue, which is a local street.

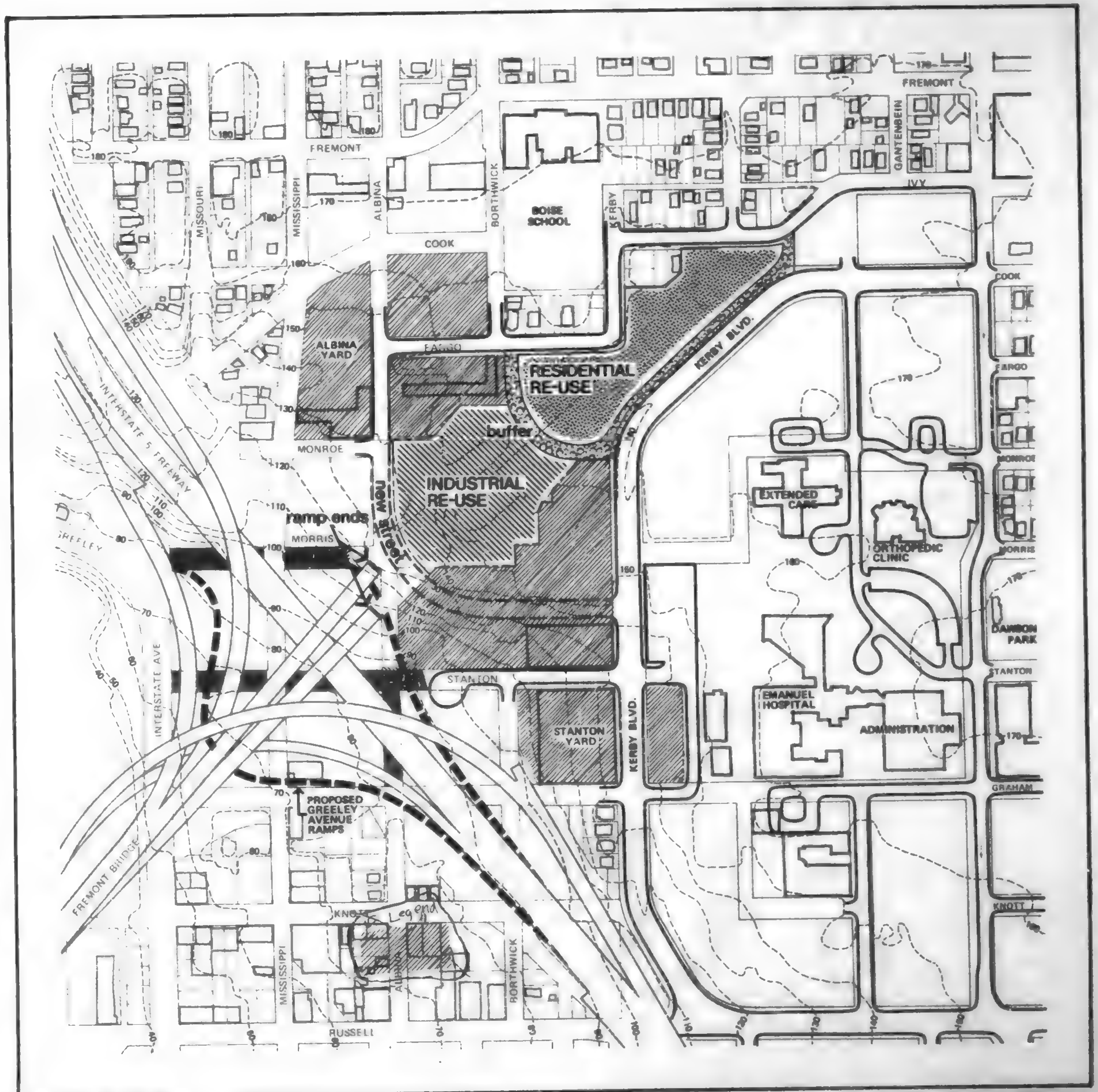


POSSIBLE REDEVELOPMENT OF McDONALD'S

REDEVELOPMENT IF THE RAMPS ARE REMOVED

The figure on page 115 shows how the land occupied by the ramps could be used if the ramps are removed, as proposed under the Ramp Removal variation of the No Build alternative, plus an additional portion of the off-ramp. Only the portion of the on-ramp built on fill would be removed under this site plan. The fill portion plus 260 feet of the structural portion of the off-ramp would be removed to accommodate a road along the ridge. Approximately 8 acres of buildable land would be made available.

Removing the additional 260 feet of the off-ramp


FREMONT
MISSOURI
MISSISSIPPI
ALBINA
BORTHWICK
COOK
BOISE SCHOOL
KERBY
GANTENBEIN
IVY
FARGO
ALBINA YARD
RESIDENTIAL RE-USE
buffer
INDUSTRIAL RE-USE
KERBY BLVD.
MONROE
INTERSTATE 5 FREEWAY
ramp ends
new street
MORRIS
GREELEY
EXTENDED CARE
ORTHOPEDIC CLINIC
DAWSON PARK
STANTON
STANTON YARD
EMANUEL HOSPITAL
ADMINISTRATION
GRAHAM
INTERSTATE AVE
PROPOSED GREELEY AVENUE RAMPS
FREMONT BRIDGE
KNOTT
RUSSELL
Albina

■ Street Closed by Greeley Ramps

▨ Bureau of Maintenance

1"=400' North↑

POSSIBLE REDEVELOPMENT WITH RAMPS REMOVED

would add an estimated $198,000 to the cost of removing the ramps, making the total cost of removal and regrading $482,000. The cost of the access road shown in the figure would be about $168,000. Assuming sale of the land in 1976 for the uses shown, the land would bring about $205,000.

No specific use of this land has been identified. One possibility is for the Bureau of Maintenance to use the land labeled "industrial re-use," thereby consolidating its facilities. The bureau could continue to use Stanton Yard, or the facility could be used wholly or in part by another city bureau, or sold. Similarly, the bureau could continue to use its property at the Albina Yards or sell some of it. Inquiries from private industry have been made about the availability of Albina Yard property. Funds from the sale of city property at the Stanton or Albina Yards, or elsewhere in the city, could be used to help finance redevelopment of the land.

THE EMANUEL HOSPITAL URBAN RENEWAL PROJECT

Emanuel Hospital and the current status of the Emanuel Hospital urban renewal project are described in Chapter 1 of Part II (p. 48), which concludes that all build alternatives and the "Hospital and Stanton Yard Only" variation of the No Build alternative will cause a significant improvement in the ease and convenience of access to the Emanuel Hospital campus. Because much of the land cleared as part of the urban renewal project remains undeveloped, attracting additional investment in compatible facilities is an important public issue. Unlike traffic from other parts of the Study Area, from a quarter to a third of the traffic generated by the facilities at Emanuel are projected to use the ramps if they are opened. Since access is an important consideration for public institutions, the availability of the ramps could affect a decision to locate there.

The projections of traffic using the ramps going to or from the Emanuel campus assume a relatively small increase in total traffic generation. Even if a major new medical facility were to locate within the project, the increase in traffic on streets to and from the ramps is not expected to be a problem. These streets have ample capacity. To the extent that increased traffic will contribute to congestion on other area streets, particularly Broadway and Weidler and Vancouver near Broadway, the ramps will provide an alternate route to and from the campus.

Access between the ramps and Emanuel Hospital under the build alternatives, as shown in the street improvements figures on pages 26, 27, and 28, was worked out with hospital staff to insure compatibility with the hospital's redevelopment and circulation plans.

THE BUREAU OF MAINTENANCE AND THE GREELEY AVENUE RAMPS

The city's Bureau of Maintenance facilities at Stanton Yard, located across Kerby Boulevard from Emanuel Hospital, and the facilities at the Albina Yards, located on the north side of the bridge ramps, are discussed briefly on pages 50.

The Greeley Avenue ramps are proposed to connect I-5 south with Greeley to relieve the I-5-Going interchange and Going Street, which now carry most of the traffic between I-5 and Swan Island. The Greeley ramps as proposed are shown in the figure on page 115 describing possible redevelopment with the east-end ramps removed.

Because they will serve different areas and different traffic demands, the Greeley Avenue ramps and the Fremont Bridge east-end ramps are related only in that they will both affect Bureau of Maintenance operations. The bureau describes its facilities at Stanton Yards as antiquated, incomplete, and unsuitable. The separation between Stanton and Albina Yards, and the lack of an off-street staging area where equipment can be assembled, cause operating inefficiencies.

As proposed, the Greeley Avenue ramps would further constrain access between the Stanton and Albina Yards by cutting off Stanton Street, which is now used for most trips between the two yards. A recent study conducted by the Maintenance Bureau indicated that the access problem could be partially resolved by reorganizing bureau operations. Its long-range goal is a consolidated maintenance facility. However, if the bureau continues to operate at both yards, and assuming that the Fremont ramps are not removed and the Greeley Avenue ramps are built as proposed, the only solution for the problem of acces between the two yards would be the construction of an interior road. Because of the steep terrain and the location of the ramps, this would cost in the range of $200,000.

At present, there are two traffic lanes in each direction on Kerby Boulevard. The Bureau of Maintenance uses the street for staging, i.e., assembling equipment for work crews. Although traffic on Kerby Boulevard is light, there is a conflict between traffic use and bureau use for staging, which causes a safety hazard. The bureau has prepared plans for modifications to the Stanton Yard buildings to remove some staging from Kerby and improve building utilization on an interim basis, and is seeking approval to restripe Kerby for one instead of two lanes in each direction. This and improved signing are expected to reduce the safety hazard.

Even with only one traffic lane in each direction, Kerby Boulevard is expected to have adequate capacity to accommodate the increase in traffic caused by opening the east-end bridge ramps. The added traffic will, nevertheless, increase the safety hazard. However, if a major traffic generator is developed in the southern portion of the Emanuel Hospital Urban Renewal Project in the future, the increased traffic volumes on Kerby Boulevard will clearly be incompatible with its use for staging. Both the increased safety hazard caused by opening the bridge ramps, and the possibility of having to relocate staging operations because of increased traffic could be avoided by establishing an off-street staging area for the bureau ahead of time, either as part of this project or otherwise.

Bureau personnel believe that the long-term solution to its facility problems is to consolidate operations at one site. The Albina Yards appear preferable for this purpose. Operation of heavy equipment on the steep streets that border Stanton Yards is difficult. Existing bureau property at the Albina Yards may be adequate to accommodate all operations if supplemented by the block located between Mississippi and Albina, Monroe, and Morris.[2] Bureau facilities were once located on this block but were cleared in anticipation of a ramp connecting I-5 with the Rose City Freeway that was planned at that time.

URBAN DESIGN

VISUAL IMPACT AND DESIGN CONSIDERATIONS

Three visual qualities of the area that will be affected by the build alternatives appear to be significant. One is the visual "edge" which roughly follows Williams and Vancouver Avenues. Closely spaced houses to the east give way to wider views allowed by the undeveloped property around Emanuel Hospital and the drop in terrain towards the Willamette River. The second characteristic is the "closed in" appearance of Fremont Street between Williams and Union, which is due to the narrow right-of-way and building setbacks and to the steep banks on the south side. The third visual characteristic is the generally dismal appearance of this strip of Fremont and its immediate vicinity. This is caused by the drabness of the nonresidential structures (e.g., the Continental Bakery and the School District building), vacant lots, deteriorated buildings, and sparse landscaping.

Street improvements along Fremont under the Short Cook and Cook-Fremont alternatives will be primarily within the existing right-of-way. Short Cook will allow more landscaping in the design, including additional street trees because less of the right-of-way will be occupied by roadway.

Only the Fremont Boulevard alternative will have a significant direct effect on the visual qualities described above. Widening the right-of-way will "open up" Fremont Street somewhat and the median strip will be landscaped. If the redevelopment discussed earlier is carried out, the appearance of the area can be improved. If not, the visual quality of the area is likely to remain unchanged in the foreseeable future.

Except as part of the redevelopment associated with them, the build alternatives do not offer significant opportunities for urban design.

Constructing the proposed noise barrier as an earth berm will minimize visual intrusion and provide opportunities for landscaping. An additional berm could be constructed along the south side of the connection between the ramps and Fremont to serve as a visual buffer between the roadway and the nearby houses. This berm would be ineffective as a noise barrier.

The pedestrian/bicycle overpass crossing the ramp connection under the Fremont Boulevard alternative should be designed for easy access from both sides. Because the area around it is open, the overpass will be very visible. Care should be taken to design an attractive structure. School District officials suggest that it be enclosed over the roadway to protect the traffic below.

URBAN FORM

Among the preliminary alternatives which would provide a connection between the Fremont Bridge ramps and Union Avenue to accommodate the total unconstrained projected demand for use of the route, Fremont Boulevard was selected in part because it minimizes property acquisition and disruption of the existing pattern of land use. It is also the least costly. Its selection reflects an appreciation that public intervention in the form of capital improvements can cause more harm than good in an area where social, economic, and physical conditions make the balance between decay and ongoing revitalization a delicate one. It also reflects the fact that public resources, both local and federal, are limited. Other proposals affecting the area, notably the Union Avenue Redevelopment Plan, reflect the same considerations.

Two basic and accepted principles of urban form are that traffic streets should skirt neighborhoods and that residential use should be organized in neighborhoods. For the most part, the existing land use pattern in the vicinity of the ramps respects these principles, as do the build alternatives. However, Fremont Boulevard will add to the isolation of residential properties south of Fremont and east of Commercial Avenue, and to the already incongenial residential environment of the houses near the ramps but not purchased for right-of-way. It may make sense to purchase these houses and assist their occupants in relocating. Not only are many of the houses in very poor condition, but their location is unsuitable, and will be made more so by opening the ramps. Barring redevelopment of the entire area between Boise School and Vancouver Avenue, alternative uses of this land are not apparent. It may be best to leave the entire area as landscaped open space.

FOOTNOTES

1. In this section, references to Eliot Neighborhood include only the area west of Union.
2. According to the bureau, "past studies have indicated in excess of 500,000 square feet would be necessary to accommodate all operations. The Albina and reacquired Morris Yard properties would provide less than 400,000 square feet. Additional study would be necessary to determine actual space needs" (Ref. 5). The Morris Yard property is the block described in the text.

REFERENCES

1. Portland Bureau of Planning, Union Avenue Redevelopment Plan Summary, October 1975.
2. Eliot Neighborhood Development Program, August 1973.
3. Draft Model Cities Comprehensive Plan, June 1973.
4. A Plan for Boise-Humboldt, undated.
5. Letter from Les Davis, Superintendent, Bureau of Maintenance, to John Lang, Bureau Chief, Bureau of Streets and Structural Engineering, 25 June 1976.

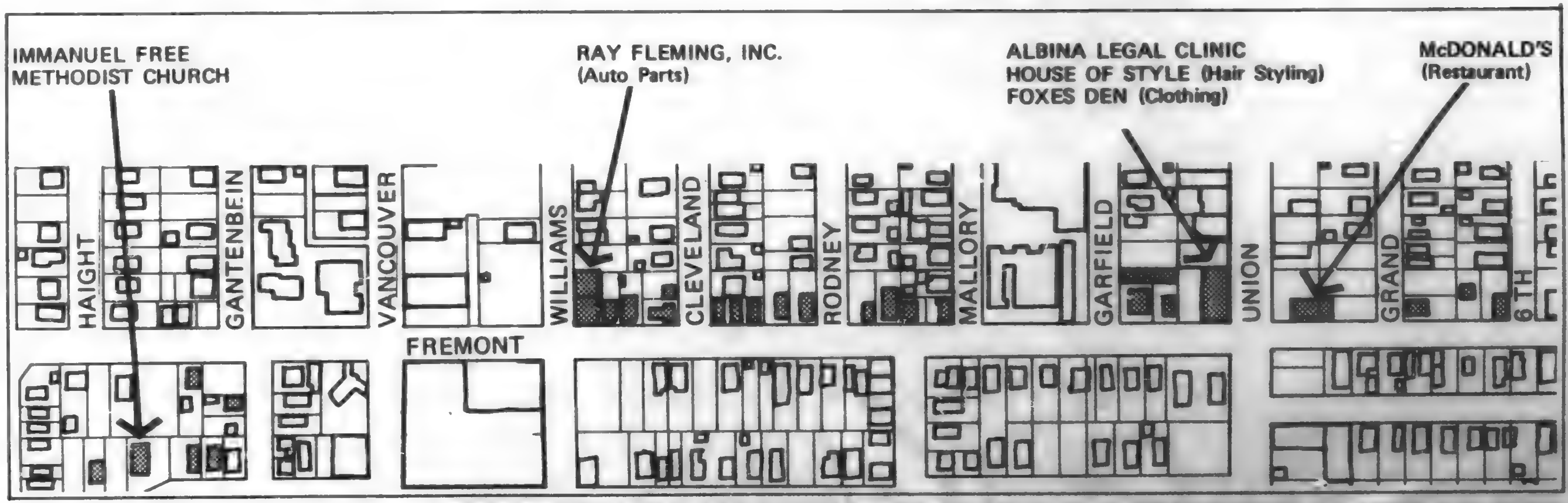
Chapter 4

RELOCATION

PROPERTIES AFFECTED BY PROJECT IMPACTS

All of the three build alternatives will require some property acquisition for increasing right-of-way. Short Cook will not require acquisition of any structures nor any relocation. Cook-Fremont requires acquisition and the relocation of only the McDonald's restaurant at the intersection of Fremont and Union Avenue. Fremont Boulevard will require acquisition of 20 houses and the buildings occupied by one church, one public service agency, and four businesses. All households occupying these houses, the four businesses, church and public service agency will have to relocate. Property acquisition under the alternatives is shown in the Street Improvements figures for each in Chapter 2 of Part I. Houses and nonresidential structures whose occupants will be eligible for relocation benefits under Fremont Boulevard are shown in the figure below.

In Chapter 1 of Part II, a special right-turn lane from Union Avenue southbound to Fremont Street westbound is suggested as one way to reduce congestion associated with these alternatives.


IMMANUEL FREE METHODIST CHURCH
RAY FLEMING, INC. (Auto Parts)
ALBINA LEGAL CLINIC
HOUSE OF STYLE (Hair Styling)
FOXES DEN (Clothing)
McDONALD'S (Restaurant)
HAIGHT
GANTENBEIN
VANCOUVER
FREMONT
WILLIAMS
CLEVELAND
RODNEY
MALLORY
GARFIELD
UNION
GRAND
6TH

LOCATION OF HOUSEHOLDS AND BUSINESSES ELIGIBLE FOR RELOCATION BENEFITS, FREMONT BOULEVARD ALTERNATIVE

Under Cook-Fremont, this would require acquisition of the building on the northwest corner of Union and Fremont (see figure on preceding page), and the building next door to it on Union, which houses the Maternal and Infant Care Clinic. Under Fremont Boulevard, the special right-turn lane would require the additional acquisition of the Maternal and Infant Care Clinic and the building next to it to the north, now a motorcycle shop. The occupants of these buildings would have to relocate.

Although many properties beyond the right-of-way for each of the alternatives are affected indirectly, only those needed for right-of-way expansion will be purchased. Owners of properties affected by noise, reduced air quality, or other impacts are not eligible for compensation unless their properties are acquired for right-of-way.

WHO WILL BE RELOCATED

A door-to-door survey (Ref. 1) was conducted during the fall of 1975 in an area roughly bounded by Beech Street, Union Avenue, Kerby Avenue, and Fargo Street. The survey was designed to provide information about the social and economic characteristics of residents potentially affected by the range of street improvement alternatives considered during the course of this study. The findings of the survey for those households relocated by the Fremont Boulevard alternative are as follows:

1.	Number of Residential Structures	20
2.	Number of Dwelling Units	24
3.	Number of Occupied Dwelling Units	17
4.	Number of Occupants	40
5.	Number of Owner-Occupied Units	10
6.	Number of Renter-Occupied Housing Units	7
7.	Average Length of Residence in Units	9 (Range: 1 to 26 years)
8.	Average Length of Residence in Neighborhood	15 (Range: 1 to 29 years)
9.	Percent Racial Minority Residents	93 (37 black)
10.	Median Square Footage Range of Dwelling Unit	500-999
11.	Median Household Income Range	$5,000-5,999
12.	Average Household Size	2.4 (Range: 1 to 7
13.	Total Occupants under 18	10

14. Number of Occupants 65 and Over	7
15. Number of Occupants 65 and Over Living Alone	3
16. Number of Households Without Car	6
17. Number of Households Without an Employed Person	8 (Each receives public assistance)
18. Number of Households With Employed Persons Riding Bus to Work	3
19. Number of Households With Employed Persons Walking to Work	0

This information suggests some of the general needs which must be considered in formulating a relocation plan if the Fremont Boulevard alternative is implemented. Assuming that (1) households currently owning their home will choose to purchase a replacement house and (2) renters able to afford monthly payments of $200 will choose to purchase their new dwelling, ten houses in the $20,000 to $30,000 price range must be available for purchase.[1] Of these, nine are for one- or two-person households (one of these must have good access to bus transit) and one must accommodate a four-person family including two small children.

Rental units having the following characteristics must be available to accept relocated households:

Monthly Rent	Number of Units Needed	Characteristics
$40 or less	4	3 will accommodate elderly persons without a car needing transit service.
$83 - 104	2	Needs good bus transit access and special transit consideration for elderly person.
$125 - 146	1	Must accommodate 6-person family including 4 small children and needs good transit access.
$146 - 167	1	Needs good bus transit access and special transit consideration for elderly person.
$300	1	Must accommodate 7 persons including two small children and needs good transit access.

The relocation of elderly persons is always of special concern. Many elderly people have no personal transportation and need to be within walking distance of needed services or depend upon other persons for mobility. Three households consist of an elderly individual living alone and two others of elderly individuals left alone during the day. Relocation of these persons will have to take into account their transportation requirements.

One relocation unit for purchase and two for rent must be suitable for families of from four to seven persons, each having small children. The units must be of adequate size and room arrangement, the neighborhood environment must be suitable for children, and schools should be easily accessible.

RELOCATION BENEFITS

Oregon State Highway Division (OSHD) policy stipulates that when property is taken "no family or individual will be required to vacate any dwelling until having found or been offered adequate replacement housing. Further, any replacement housing considered will be fair housing open to all persons regardless of race, color, religion, sex, or national origin" (Ref. 2).

To implement this policy, OSHD has developed a Relocation Assistance Program which compensates individuals and families displaced by its actions. The program has two basic thrusts--providing information to those being displaced, and providing monetary compensation where possible to relieve the cost of relocation.

Information is made available at the OSHD office in Portland. There are maintained current lists of replacement dwellings and business locations as well as current data on required deposits for utilities, closing costs, typical down payments, interest rates, and FHA and VA mortgage loan requirements. Also available are maps showing the location of schools, parks, playgrounds, shopping areas, and public transportation routes. Right-of-way personnel are directed to insure that all displaced individuals and families are aware of the assistance available to them.

Monetary compensation is available to displaced families and individuals for moving and storage costs and replacement housing costs as described in the following discussion. The figures presented here are generally the maximum amounts available. The actual benefits to which owners or tenants are entitled are determined by the right-of-way agent assigned to interview the occupants, purchase their property, and assist them with relocation.

INDIVIDUAL AND FAMILY MOVING EXPENSES

Moving expenses will be reimbursed upon filing a written claim with the State Highway Division. Payment will either be equal to a reasonable expense for moving personal property within a 50-mile radius or to the nearest available and adequate site, or according to the following set schedule:

$ 60	(1 room)
100	(2 rooms)
140	(3 rooms)
180	(4 rooms)
220	(5 rooms)
260	(6 rooms)
300	(7 rooms or more)

In addition each displaced homeowner or renter will be paid a $200 dislocation allowance.

STORAGE OF PERSONAL PROPERTY

In addition to recovery of moving expenses, persons displaced may also receive payment for the cost of up to 1 year's storage of personal property, if the circumstances make this action beneficial to both the owner and the state.

REPLACEMENT HOUSING

OSHD will pay a displaced homeowner a purchase price equal to the fair market value of his property. In the event that a replacement house cannot be purchased for that price, OSHD is authorized to make up the difference. It is also authorized to compensate the owner for the increased interest costs of financing the replacement dwelling and for closing costs. However, the combined total of this payment may not exceed $15,000, and is available only to owners occupying their dwelling for not less than 180 days prior to the beginning of negotiations for purchase of the property.

Owners occupying their dwelling for less than 180 days but 90 days or more prior to the beginning of negotiations may be eligible for additional payments of up to $4,000. The payment received will be equivalent to the amount necessary to make a down payment on the purchase of a replacement dwelling and to reimburse the displaced owner for his actual closing costs. OSHD does not consider deposits for taxes or insurance as closing costs.

If the owner-occupant for less than 180 days but 90 days or more chooses to rent rather than purchase a replacement dwelling, he is eligible for a payment to rent a suitable replacement dwelling. The actual payment will be the amount determined by OSHD as necessary to rent a comparable dwelling for 48 months, not to exceed $4,000. To be eligible, the displaced owner must rent a "decent, safe and sanitary" replacement dwelling within 1 year after the date of displacement from the dwelling acquired by OSHD.

The benefits and eligibility requirements to displaced renters are similar to those for owner-occupants for less than 180 days but 90 days or more. The replacement housing benefit, however, will be the increase in rent necessary to rent a comparable dwelling for 48 months, or the amount determined by OSHD as necessary to rent a comparable dwelling for 48 months, whichever is less. Again, the total payment will not exceed $4,000.

Public Law 91-646, Title II, Section 216, insures that no payment received as a relocation benefit "shall be considered as income for the purposes of the Internal Revenue Code of 1954; or for the purpose of determining the eligibility or the extent of eligibility of any person for assistance under the Social Security Act or any other Federal Law."

BUSINESSES AND NONPROFIT ORGANIZATIONS

Displaced businesses and nonprofit organizations will be reimbursed for the cost of moving personal property up to 50 miles or to the nearest available and adequate site. The actual cost of searching for a replacement location may be claimed up to $500.

In lieu of moving expenses, a displaced or discontinued business may be eligible to receive an amount equal to the average annual net earnings of the business during the two tax years preceding the year in which the business is displaced. The payment cannot exceed $10,000 and will not be less than $2,500. Those who choose the "in lieu" payment are not eligible for any other relocation payment.

AVAILABILITY OF REPLACEMENT HOUSING

Policies of the Oregon State Highway Division and the Federal Highway Administration prohibit the dislocation of any household without the availability of "decent, safe, and sanitary" replacement housing. Potential replacement housing must be suited to the requirements of the households to be relocated.

Replacement housing is found from one of three sources. The primary source is the private housing market, with limitations imposed by the relocation benefits available. Second, the Housing Authority of Portland will give first priority on any of its vacant units to eligible households displaced by public action but not able to secure adequate housing on the private market. When neither of these sources produces a suitable dwelling unit, "housing of last resort," can be provided as part of the project expense--by new construction if necessary. The federal Uniform Relocation Assistance and Land Acquisition Policies Act of 1970, Section 206(a), allows project funds to be used for construction of necessary housing when there is no alternative source.

There is no way to say with any certainty that adequate replacement housing will be available just when it is needed for all of the individuals and families that may be replaced. However, the relatively small number of dwellings that will be acquired, together with recent relocation experience, suggests that sufficient relocation housing can be found.

Between 1971 and 1974, approximately 170 families were relocated as part of the Emanuel Hospital urban renewal project. Most of these families were relocated within a mile of their former location and in housing substantially better than the housing they occupied before.

More recently the Portland Development Commission has assisted 74 families to relocate as part of the Eliot I and Eliot II projects. On the basis of this experience, the commission staff indicates that replacement housing can readily be found for the 17 households that would need to be relocated if Fremont Street is improved.

The Housing Authority of Portland (HAP) will give priority to displacees for any vacancies it may have at the time relocation occurs. However, units will not be held open in anticipation of the need for replacement housing. As of April 21, 1976, HAP managed approximately 4,600 public housing units in the Portland area, and every unit was occupied. The waiting list for vacant units now has more than 4,000 names. Persons on the waiting list since 1971 and 1972 are only now being provided for. Therefore, a relocation plan for the Fremont Bridge Ramp project cannot depend on HAP for replacement housing.

In view of the city's experience with finding relocation housing, it is unlikely that "last resort" housing will be needed.

FOOTNOTES

1. One renter household's payment capability exceeds $200 monthly, but total income is brought in by 4 wage earners not likely to remain as a single household for the financing period of a new house purchase.

REFERENCES

1. CH2M HILL, Project Area Survey, Fremont Bridge Access Study, August 1975.

2. Oregon State Highway Division, Moving Because of the Highway, Salem, Oregon, 1974.

Chapter 5
SOCIAL CONDITIONS AND IMPACTS

While it is difficult to break out strictly "social" issues as against economic issues or concerns with the physical condition of the area, the analysis in this chapter attempts to identify significant characteristics and impacts related to the livability of the neighborhoods affected by the project.

EXISTING CONDITIONS

The various studies prepared in the last several years for the Model Cities program describe in general and in particular the past and present conditions in the west half of the Study Area. Aside from conditions that are easily observed, for purposes of this study perhaps the most important social fact affecting the lives of those who live and work in this part of the city is the uncertainty they feel about public actions affecting their future.

Eliot neighborhood, in particular, has experienced continuing economic pressure for changes in land use zoning in some areas, little or no demand for the properties in other areas, and a major relocation of many of its residents in recent years. For the most part the remaining residents are poor and black and many of them are elderly.

Boise neighborhood, to the north, is generally more stable and has a smaller proportion of run-down properties.

The following information summarizes some relevant facts about or affecting social conditions in the Study Area. Boise and Eliot neighborhoods, taken together, are compared with the Study Area as a whole.

1. Thirty-seven percent of the Study Area population is black. Boise and Eliot neighborhoods are 69 percent black.
2. Twenty-three percent of Study Area households are at or below the federal poverty level. The proportion is 39 percent in Boise and Eliot.
3. Some form of public assistance is part or all of 12 percent of household incomes in the Study Area. In Boise and Eliot alone the figure is 31 percent.
4. Unemployment is about 10 percent in the Study Area; 15 percent in Boise and Eliot.
5. The Study Area consists of predominately stable single-family residential neighborhoods. Boise and Eliot have a high propor-

tion of substandard housing. Much of the single and multifamily housing in Eliot has been demolished for freeways and urban renewal projects. Much of the housing in the south part of Eliot has been replaced by commercial and light industrial use.

6. Since 1966, a substantial amount of federal money has been spent for housing rehabilitation in Study Area neighborhoods but not in Eliot because badly blighted conditions gave Eliot a lower priority rating for these funds.

This information and its more complete presentation in Working Paper 2 was obtained primarily from 1970 Federal Census reports, from visual surveys of the area, and from communication with persons involved with public and social service agencies and programs, institutions, and community organizations operating within the study area.

Earlier analysis has indicated that primary impacts are limited mainly to the area roughly bounded by Kerby Avenue, Beech Street, Union Avenue, and Fargo Street. This is true with reference to institutions, community facilities, elderly and handicapped residents, residents in general, and pedestrian circulation and access.

The table on page 131 presents information about residents of this area. The table also shows the characteristics of households living in structures exposed to noise levels above the Federal Highway Administration design standard by the Cook-Fremont and Fremont Boulevard alternatives. Characteristics are shown for households affected in both years for which noise predictions were made. Most of the households affected in 1990 will be exposed to noise levels above the standard in 1980 even under the No Build alternative.

SOCIAL IMPACTS

Social impacts are caused by changes in traffic volumes, automobile and pedestrian circulation patterns, noise levels, air quality, and visual quality. This analysis is focused mainly on those portions of the Study Area receiving the most significant impacts.

There is a street life in Eliot and Boise neighborhoods that serves a social function which is sensitive to the street environment. Beyond that, the environment of the street in any neighborhood has a great deal to do with its livability. Heavy traffic is noisy, smelly, and dangerous. Even in neighborhoods where people spend more time indoors or in their backyards, heavy traffic is incongenial to neighborhood amenity. All of the day-to-day activities that go on in a neighborhood are

SOCIAL CHARACTERISTICS OF RESIDENTS DIRECTLY IMPACTED

	NUMBER OF HOUSEHOLDS	NUMBER OF PERSONS	NUMBER OF PERSONS 65 YEARS AND OLDER	NUMBER OF PERSONS UNDER 18 YEARS	% HOMEOWNER HOUSEHOLDS	% BLACK (non-white)	AVERAGE LENGTH OF RESIDENCE IN NEIGHBORHOOD	AVERAGE LENGTH OF RESIDENCE IN DWELLING	MEDIAN HOUSEHOLD INCOME (annual)	% OF HOUSEHOLDS WITH TOTAL INCOME FROM PUBLIC ASSISTANCE	NUMBER OF VACANT UNITS
PROJECT AREA RESIDENTS [1]	274	781	103	271	55	86	10	11	6,000 – 6,999	39	40
HOUSEHOLDS EXPOSED TO NOISE ABOVE FHWA DESIGN STANDARD BY ALTERNATIVE											
1980											
FREMONT BOULEVARD	18	45	4	13	28	93	17	9	4,000– 4,999	9	1
COOK-FREMONT [2]	1	–	–	–	–	–	–	–	–	–	–
SHORT COOK	0										
1990											
FREMONT BOULEVARD	49	106	20	29	31	94	15	8	3,000– 3,999	29	4
COOK-FREMONT	29	61	10	17	59	89	18	14	6,000– 6,999	13	10
SHORT COOK [2]	1	–	–	–	–	–	–	–	–	–	–

NOTES: 1. COVERS AREA ROUGHLY BOUNDED BY KERBY AVENUE, BEECH STREET, UNION AVENUE AND FARGO STREET.

2. INFORMATION PERTAINING TO A SINGLE HOUSEHOLD WITHHELD.

influenced by the characteristics of the traffic on the street--its volume, rate of flow, and mix of vehicle types.

The present street environment in the Study Area is generally supportive of the types of activities that occur there. There are exceptions, such as Fremont Street between Vancouver and Union Avenue, where volume of traffic, noise, and vehicle exhaust are already bothersome to the people who live there or who walk along the street.

Each of the alternatives has a different effect on the street environment, as described below.

No Build Variations

Ramp Removal. Removal of the at-grade portions of the bridge ramps will make possible a street between the area northwest of the ramps and Kerby Boulevard and improve local access to Boise School and Emanuel Hospital by car and foot.

Permanent Closure. Permanent closure of the ramps without removing the at-grade portions will leave unsettled for some people the question of their future use. This condition may detract from efforts to upgrade the area's residential environment. Pedestrian access to Boise School will remain unchanged.

Limited Access. By maintaining use of the ramps in the present limited manner, the same effects as described for the Permanent Closure variation will occur.

Hospital and Stanton Yard Only. Providing use of the bridge ramps to Emanuel Hospital will support the long-term improvement of the street environment by improving the feasibility and thereby speeding completion of the hospital's expansion project. Filling in portions of the large areas lying vacant around the hospital will improve the area's aesthetic (visual) quality and development continuity, and will tend to stimulate other improvements that will serve the social needs of those who live and work there. Pedestrian access to Boise School will remain unchanged.

For all No Build variations, the street environment along Fremont Street from Williams to Union Avenue will remain as it is today, assuming improvements are made to the Fremont/Union intersection. With no physical improvements to the street, the present traffic congestion will intensify.

Short Cook

Short Cook offers Emanuel Hospital full use of the bridge ramps with the same potential benefits to the street environment described for the hospital and Stanton Yard only variation of the No Build alternative. The effects on Fremont Street are similar to those for the No Build although the adverse effects of congestion will be mitigated by street improvements as part of the project to increase capacity. Williams Avenue north of Fremont will also have traffic volumes above capacity in 1980. However, the mixed-use environment there is not as sensitive to the impacts of heavier traffic as the solid line of residences along Fremont Street.

Cook-Fremont

This alternative has the same impact on Emanuel Hospital and Williams Avenue north of Fremont described for the above alternatives. Fremont Street, projected to carry twice the traffic it presently does, will be improved. Even so, the residential street environment will deteriorate further with heavier traffic and restrictions on on-street parking.

Restricting on-street parking will also reduce the accessibility of social service agencies near the Fremont Street/Union Avenue intersection. Although the pedestrian circulation pattern will be unchanged, greater traffic volumes, higher noise levels, and poor air quality will degrade the pedestrian environment along Fremont from Union Avenue to Vancouver Avenue. Pedestrian access to Boise School from Eliot neighborhood will be adversely affected, but not significantly.

Fremont Boulevard

The effect on the local residential environment associated with improving access to Emanuel Hospital will be the same as described above. The social impacts of the Fremont Boulevard alternative in comparison to the other alternatives arise from the fact that it will eventually cause more traffic between the ramps and Union Avenue. It will have the greatest effect on pedestrian circulation and residential quality.

Pedestrian crossing on the south side where the ramp connection intersects with Fremont Street will be prohibited. Pedestrians on Fremont will have to use the north side. Access to Boise School from Eliot neighborhood will not be cut off because of the pedestrian overpass crossing the connection between the ramps and Fremont Street proposed as part of the project. The location of this overpass coincides with the route used by most Eliot neighborhood school children who attend Boise School; Fremont Boulevard will be the safest of the build alternatives for these children. Fencing along the connection will discourage pedestrians on the roadway.

Combined with the intersection design, the high traffic volumes under Fremont Boulevard will make pedestrian circulation at the intersection of Fremont and Union difficult. Pedestrian access to some uses there is important. Whereas conditions are not good for pedestrians today, they will worsen under Fremont Boulevard. Crossing Fremont anywhere between the ramp connection and Union will become more hazardous. Fremont must be crossed to get to the grocery store which is nearest to the residential area just south of it.

In 1980, the amount of traffic on Fremont between Vancouver and Union Avenue under Fremont Boulevard will be the same as under Cook-Fremont. By 1990, however, there will be considerably more traffic. This traffic will adversely affect the residential quality of the adjoining properties in both cases. The effect will be lessened by the greater degree of street improvements under Fremont Boulevard. These will mean less congestion, and the relocation under Fremont Boulevard will avoid exposure of the affected residents from the effects of the traffic. In terms of both its physical appearance and the traffic using it, Fremont between Vancouver and Union will be a major arterial closely comparable to Union Avenue. Its suitability for residential use will be similar.

Because of capacity deficiencies on Union in 1980, there will be extensive traffic diversion to Williams and Vancouver Avenues north of Fremont. Whereas the other alternatives primarily affect Williams, which is largely nonresidential, in this respect, Fremont Boulevard will also affect Vancouver Avenue, which is mostly residential. The diversion to Williams and Vancouver will not occur in 1990, but in the interim the residential quality along these streets will decline.

As pointed out in the preceding chapter, Fremont Boulevard requires the Albina Legal Clinic and Immanuel Free Methodist Church to relocate.

Chapter 6

ENGINEERING AND CONSTRUCTION

DESIGN CHARACTERISTICS

From an engineering standpoint, the project alternatives are basically designs for arterial or collector streets.

COMPLIANCE WITH DESIGN STANDARDS

Oregon State Highway Division standards for urban arterial and collector streets were generally used as design criteria in the layout of the alternatives. An exception to these standards was made for the Cook-Fremont alternative. Under this alternative, the pavement width of Fremont Street is 46 feet, which conforms to the City of Portland standard for four moving lanes within a 60-foot right-of-way. However, the Oregon State Highway Division standard calls for a 47-foot minimum pavement width.

DESIGN PROBLEMS

Under the Hospital and Stanton Yard Only variation of the No Build alternative, the connection between the ramps and Kerby Boulevard has a relatively tight turning radius. Traffic coming from the Fremont Bridge must be adequately warned by signing to allow reduction in speed. The turn should be no problem for traffic to the bridge.

The intersection between the ramp connection and Kerby Boulevard for both the Short Cook and the Cook-Fremont alternatives has an alignment that is less than desirable. This alignment was selected because of the expansion plans of Emanuel Hospital and the low traffic volumes expected to use the intersection. A deceleration lane with adequate signing will enable the traffic coming from the bridge to negotiate the curve at this intersection without hazard.

As described on page 18, the Short Cook alternative includes traffic controls on Williams and Vancouver Avenues to prevent lane changes between Fremont and Cook Streets. The purpose is to restrict direct access between the bridge ramps and Fremont east of Williams. These controls will require drivers northbound on Williams who desire to turn right on Fremont to be in the right lane before reaching Cook Street, two blocks south of Fremont. Similarly, drivers southbound on Vancouver who desire to turn right on Cook Street to get onto Kerby Boulevard, Gantenbein Avenue or the bridge must be in the right lane before reaching Fremont. Confusion can be avoided by signing.

UTILITY RELOCATION

Relocation of existing utilities will be minor in all cases and should not involve interruption of service. Utility poles for power and telephone will be relocated behind the new curb lines. Some high voltage lines will need to be relocated, but these too can be moved without interrupting service.

CONSTRUCTION

DURATION

The table shows the estimated time needed to construct each alternative. These estimates are based on similar projects of the same magnitude. Shorter construction times will increase the intensity of construction impacts. Construction unduly shortened by contract will increase construction costs.

DURATION OF CONSTRUCTION

ALTERNATIVE	ESTIMATED DURATION OF CONSTRUCTION
NO BUILD VARIATIONS	
RAMP REMOVAL	5 MONTHS
PERMANENT CLOSURE	1 MONTH
LIMITED BRIDGE ACCESS	1 MONTH
HOSPITAL AND STANTON YARD ONLY	4 MONTHS
SHORT COOK	10 MONTHS
COOK-FREMONT	12 MONTHS
FREMONT BLVD.	14 MONTHS

CONSTRUCTION IMPACTS

Because of the similarity between the build alternatives, the impacts caused by the construction of these alternatives will be generally very similar.

Circulation and Access

No Build Variations. The construction of any of the No Build variations will have almost no effect on existing traffic circulation. Kerby Boulevard, which is affected by all of the variations, has a very low volume capacity ratio. Construction on Kerby Boulevard will be very minor and should not restrict traffic.

Short Cook and Cook-Fremont Alternatives. These alternatives are almost identical in construction up to Union Avenue. Fremont Street is 6 feet wider under the Cook-Fremont alternative. The effect of construction on traffic circulation will be the same for these two alternatives up to Union Avenue.

It is probable that Kerby Boulevard would be closed for up to 2 months between Monroe Street and Gantenbein. This will partially restrict access to Stanton Yard but should otherwise have little effect.

Construction on Williams and Vancouver will at times restrict traffic to one lane. This will cause congestion during rush hours and restrict access to the abutting properties. Because these streets are one way, the effect will not be as serious as on Fremont Street.

Maintaining two-way traffic on Fremont Street during construction will necessitate removal of all on-street parking. Even then, heavy congestion will occur during rush hours. Access to residences and businesses along Fremont will be reduced and for short periods will be eliminated.

Increased congestion on Williams, Vancouver, and Fremont Streets will cause motorists to find alternative routes around the construction area. Several methods can be used to reduce congestion and protect against the use of local streets by through traffic.

The contractor can be required to limit his hours of work so that construction activity is restricted during peak traffic hours. This will increase the cost of the project, and it will not discourage those motorists who chose to avoid the construction from using neighborhood streets.

A more positive method would be to direct through traffic away from the construction by placing signs at intersections where traffic can be directed to other arterials. Under the Cook-Fremont alternative, the signal at Fremont and Union could be installed early and the intersection striped for a left-turn lane from Union, or the entire east end of the project could be completed before construction is started on Fremont west of Union and on Williams and Vancouver.

Neighborhood streets can also be protected by installing all proposed traffic diverters before construction on Fremont, Williams, and Vancouver is started.

Construction of the Cook-Fremont alternative will cause congestion at Union and to the east. This project should be phased so that construction on Union Avenue is completed before construction is started on Williams and Vancouver.

Fremont Boulevard Alternative. Although this project is larger, its impact during construction will not be so severe as with Short Cook or Cook-Fremont. Most of the construction is on Fremont Street. Almost all property adjacent to and north of Fremont Street between Williams and 6th Avenue will be purchased. This confines access problems to properties on the south side of Fremont. It will also allow the two lanes on the north half of Fremont Street to be constructed with relatively minor disruption to the existing traffic on Fremont between Vancouver and Union.

This project should also be phased so that construction does not occur simultaneously on the Williams-Vancouver couplet and on Union Avenue.

Air Quality and Noise

The impacts during construction on air quality and noise will vary directly with the size of the proposed project, with the exception of the ramp removal variation of the No Build alternative.

No Build Variations. Ramp removal will generate dust and noise, affecting Boise School and Emanuel Hospital. Grading the site into a useable parcel of land will open a large area of bare soil. This can cause a dust problem for the immediate vicinity.

Seeding the bare soil immediately after grading will help reduce dust. Seeding can only be effective if done at the proper time of year. The contract should be let so that work will be completed in the fall.

The construction equipment used in removing the ramp pavement and grading the site will cause a noise problem for Boise School, unless construction occurs during the summer months.

The other No Build variations are minor construction projects and will have only minor air and noise impacts.

Build Alternatives. Any street construction project in an urban area will cause air and noise pollution. Since no large quantities of earth will be moved, dust will be a problem only when subgrade is excavated and exposed. Proper watering will greatly reduce dust.

Air and noise pollution caused by the operation of construction equipment can be minimized by enforcing existing city regulations. The proposed city noise ordinance would further reduce noise from construction. The contract should include requirements for watering the subgrade.

Water Quality

Rainfall runoff from fine grain, erodable soils which have been bared by construction will carry the soil particles into the Willamette River. The effect of soil-laden runoff on the receiving stream is dependent on the relative quantities, which are dependent on the area opened by the construction. The relative area of any of the alternatives is extremely small. In addition, areas opened to bare soil under all alternatives except the Ramp Removal variation of the No Build would not be expected to remain open during the winter months but would be paved with at least a bituminous base course.

To control both dust and soil erosion, the construction contract should include provisions requiring that bare areas be watered and immediately seeded or mulched. It should also require that straw or hay bales be placed in runoff channels to reduce sediment.

Utility Disruption

Relocation of power and telephone lines will be accomplished without disrupting service.

Problems may be expected with the old waterlines when the streets are rebuilt. These lines are cast iron and have either lead or mortar joints. Construction activity on the subgrade may cause some of the joints to leak. Repair will mean shutting down the affected line between valves, usually two to three blocks apart, for about 2 hours. These temporary shutdowns will leave some residents and businesses without water. Because of the adequate number of fire hydrants, there will be no fire danger from closing the lines for short durations.

PROJECT COSTS

The table on the following page shows the estimated cost of implementing the alternatives assuming all costs are incurred in 1976. The figures for the Ramp Removal variation of the No Build cover only removing the portion of the ramps built on fill and regrading the land. Costs associated with redevelopment are addressed in Chapter 3 of Part II.

All costs listed are believed eligible for federal participation amounting to 78 percent under the Federal Aid to Urban Arterials Program. The remaining 22 percent will be shared equally by the Oregon State Highway Division and the City of Portland.

The figures in the table represent the costs of the alternatives as they are described in Chapter 2 of Part I. Measures suggested in this report to mitigate the adverse effects of the alternatives would add to these costs. Replacing the garages

ESTIMATED 1976 PROJECT COSTS

	NO BUILD VARIATIONS					
	RAMP REMOVAL	PERMANENT CLOSURE OR LIMITED BRIDGE ACCESS	HOSPITAL AND STANTON YARD ONLY	SHORT COOK	COOK-FREMONT	FREMONT BOULEVARD
CONSTRUCTION	$203,000	$10,600	$139,100	$1,104,000	$1,373,000	$1,466,000
NOISE BARRIER						42,000
ENGINEERING AND CONTINGENCIES	81,200	4,200	55,600	441,600	549,200	603,200
PROPERITY ACQUISTION						
RESIDENTIAL AND VACANT				2,000	600	171,000
COMMERCIAL					53,700	173,800
ADMINISTRATION				300	8,100	51,700
TOTAL				2,300	62,400	396,500
RELOCATION						
RESIDENTIAL						94,600
COMMERCIAL					6,500	26,000
ADMINISTRATION					1,000	18,100
TOTAL					7,500	138,700
TOTAL PROJECT COST	$284,000	$ 15,000	$195,000	$1,548,000	$1,992,000	$2,646,000

NOTE: TOTAL PROJECT COSTS ROUNDED TO NEAREST THOUSAND.

on the north side of Fremont which are narrow and close to the sidewalk with open parking spaces, as discussed in page 57, would add an estimated $10,000 to the cost of Cook-Fremont. Constructing open off-street parking spaces in front of houses on the north side of Fremont which do not have off-street parking would add about $8,000 to the cost of this alternative.

A special right-turn lane from Union southbound to Fremont westbound, as discussed on page 62, would add an estimated $203,000 to the cost of the Cook-Fremont alternative and an estimated $149,000 to the cost of Fremont Boulevard. Metering traffic at the ramps under the Short Cook and Fremont Boulevard alternatives, which is discussed on pages 62-63 would not add to the cost of these alternatives.

Chapter 7
ECONOMICS

What will be the economic impacts of alternative solutions for the Fremont Bridge ramps? To help answer this question, a variety of economic costs and benefits are considered. Properties affected are identified where possible. Quantifiable impacts are summarized in a cost-benefit analysis. A judgment is made of how the alternatives may affect the long-term economic destiny of the Study Area.

IMPACTS

GENERAL

High unemployment and low incomes have persisted in Eliot and Boise neighborhoods for years. Public programs have helped to improve economic conditions. But without public or private intervention on a massive scale, the prospect is for continuing depressed economic conditions in the foreseeable future. Alternative ramp opening plans could affect economic conditions for specific areas and for specific properties.

Opening the ramps will have some favorable impact on current and future programs which generally aim at improving economic conditions in the Boise-Eliot-Union Avenue area. Hospital-related development, Union Avenue redevelopment, investment in the Walnut Park shopping area, and employment and income-boosting programs are examples of intervention which individually would not significantly alter existing unfavorable economic trends, but which taken together might have an important cumulative impact in the long run.

Opening the ramps will be supportive of hospital-related development. Improved access would be important in a decision to locate the Veterans Administration Hospital or any other major medical facility in the immediate vicinity of Emanuel Hospital. An expanded major medical complex could also create additional business and employment opportunities and therefore might result in some economic gains for the immediate area.

The effect of ramp opening on the redevelopment of Union Avenue will be mixed. The portion of Union Avenue north of Fremont will probably benefit from the Cook-Fremont and Fremont Boulevard alternatives because they will send more traffic north on Union from Fremont. Businesses along Union Avenue south of Fremont will in general be adversely affected by reduced traffic volumes, assuming that traffic is positively correlated with more retail business. Larger traffic volumes on commercially oriented streets in general result in increased sales and employment. These impacts will vary between alternatives because of the differing magnitudes of traffic impacts involved.

In general, opening the ramps will improve private investment opportunities around the intersection of Union Avenue and Killingsworth Street (Walnut Park) because of increased traffic. However, the amount of traffic from the ramps in the case of the Short Cook and Cook-Fremont alternatives is small. Only the Fremont Boulevard alternative is likely to encourage investment in the Walnut Park area to any significant degree.

In summary, the economic impacts of opening the ramps are not clearly positive or negative. They vary according to location, type of business or property affected, and the alternative under consideration. The remainder of this chapter identifies these impacts more specifically. A general conclusion is that opening the ramps alone does not significantly improve the long run economic outlook in the Study Area as a whole. Opening the ramps may be supportive of other efforts that, taken together, may have a significant impact on the economy of the area.

COMMERCIAL ACTIVITY

Eliot Neighborhood

Ramp opening is unlikely to stimulate much retail business development in the Eliot neighborhood. Traffic volumes are projected to decline when compared with those of the No Build alternative on the major existing or potential commercial streets, which include Union, Vancouver, and Williams Avenues. As a result, investment in outlets for retail goods and services will be less attractive in most of the Eliot area. The exception is along Fremont Street from the ramps to Union, ignoring existing neighborhood plans to preserve housing. Relatively high traffic volumes, improved access, and a location between Northeast Portland residential areas and downtown could promote commercial development along this portion of Fremont. However, current planning and zoning policies, congestion, parking restrictions, and the available land on Union Avenue, discourage such development.

The overall effect is uncertain, although there probably will be some net incentive for new retail establishments to locate in the immediate vicinity of the ramps if permitted. Businesses like gas stations, fast-food outlets, and convenience-type grocery stores may try to locate near the ramps.

Boise and Humboldt Neighborhoods

Benefits to business appear more positive for the Boise and Humboldt neighborhoods, including Union Avenue north of Fremont. The build alternatives generate more traffic to existing or potential commercial locations than does the No Build alternative. Increased traffic can result in higher sales of retail goods and services in two ways. Automobile-related and convenience goods businesses depend on traffic directly as the source of much of their demand, and retail establishments in general benefit from visibility. Examples of firms likely to benefit are furniture and appliance stores, automobile dealerships, restaurants, and specialty stores. The commercial impacts will tend to be most positive on portions of Union Avenue. Williams and Vancouver Avenues may realize lesser, but still positive impacts, and Mississippi Avenue is expected to be adversely affected. Mississippi has several small, economically marginal retail businesses that could be negatively affected by reduced traffic. Except at its intersection with Union, the impact on Killingsworth is expected to be small because the traffic impact is small at that distance from the ramps.

Part of the economic problem for businesses in the Boise, Humboldt, and Eliot neighborhoods is the low average income levels in these areas. The neighborhoods comprise the primary market for most of the businesses there, particularly the retail stores, and low income levels cause low levels of demand for goods and services. Opening the ramps is unlikely to expand significantly the markets for these firms because Downtown, the Lloyd Center, and several other locations will still be closer and more attractive to West-side residents. People driving through Boise and Humboldt neighborhoods may have a tendency to shop more along Union Avenue. However, Lloyd Center, the Hollywood District, and Broadway-Weidler are such strong competitors for purchasing power in Northeast Portland that the market area of Union Avenue businesses will probably expand only slightly.

Other Areas

Locations east of Union Avenue will not be significantly affected by any of the alternatives. Traffic impacts are too small and distances from the ramps too great to affect commercial development in any significant manner on such streets as Killingsworth east of Union, 33rd Avenue, Fremont east of Union, and Broadway-Weidler.

INDUSTRY

General

Access to and from freeways, other industrial areas, railroads, customers, and suppliers determine in large part the suitability of an area for industrial development. Thus, the impacts of ramp opening depend significantly on how access is improved.

Eliot and Boise Neighborhoods

The businesses along Mississippi, Vancouver, and Williams Avenues that are engaged in manufacturing, wholesaling, and distribution will benefit from opening the ramps. Access to the Northwest Portland industrial area will be improved. The magnitude of these benefits, however, is not large. The estimated driving time to Northwest Portland for most of these firms is about 3 minutes less by way of the Fremont Bridge than by alternate routes. Time savings of from 1 to 3 minutes are expected for trips to Beaverton and Downtown. In terms of attracting new light industry, the small improvement in access alone would probably be insufficient to attract new investment to the Study Area rather than to Northwest Portland, Beaverton, or other industrial locations in the metropolitan area.

Traffic will not be a problem for industrial or wholesale firms if the ramps are opened. Most of the existing firms are located well away from direct traffic impacts of any of the alternatives. Potential problems for large trucks in parking or backing up to loading docks therefore do not appear significant. As concluded in Chapter 1 of Part II, it appears that any problems for Continental Bakery in this regard should be manageable.

PUBLIC SERVICES

Ramp opening will have a positive effect for emergency and public service vehicles. Access to Emanuel Hospital will be improved. Emergency police and fire protection to the immediate area will be somewhat improved. However, the time savings for ambulance, police, and fire vehicles is not large, and the number of emergency vehicle trips is small. There is no way to estimate the number of lives that might be saved if the ramps were opened.

Opening the ramps may also enable use by the

Tri-Met mass transit system, but because the time savings per vehicle to most destinations is small, the economic benefits of potential mass transit use, if any are expected to be correspondingly small. Tri-Met has no plans to change service if the ramps are opened.

Direct-service bus routes between Northeast Portland and major employers in the Beaverton area have been mentioned as one way to encourage minority employment. Opening the Fremont Bridge ramps might reduce the travel time involved in this type of service. A faster route, however, is not expected to encourage employers to hire more Northeast Portland residents. Similarly, it is not expected that these residents would be more likely to accept a job offer because of 1 to 3 minutes in time savings. Therefore, direct service itself might encourage minority employment, but the issue of ramp opening or closure is unrelated.

PROPERTY VALUES

Residential

Property values are affected by access and pollution, among other things. As a general matter, good access has a favorable impact on property values. Pollution has a negative impact. The components of pollution are air quality and, more important in this case, noise.

Property values in the immediate vicinity of the ramps and along Fremont Street to Union Avenue are low. This is caused by the age and condition of the houses, the poor quality of Fremont Street for residential use, the prospect that homes will be acquired for right-of-way (a condition that has existed for at least the past 5 years), and to the generally depressed property values in the area.

It seems likely that improving access will cause at least a small increase in the value of residential properties that are not affected adversely by heavier traffic. There may also be some indirect positive effects on residential values. Institutional development at the Emanuel site may be stimulated by opening the ramps and in turn generate demand for housing nearby, and therefore increase property values.

The value of houses near the connection between the ramps and Fremont Street under the Fremont Boulevard alternative will probably decline. These houses will be severely impacted by traffic noise and will become even more isolated than they are now from the surrounding neighborhoods. Some are now in very poor condition and there is no prospect for their rehabilitation.

The Model Cities Plan is for redevelopment of properties along Fremont Street for higher density residential use. With extensive redevelopment (i.e., clearance and rebuilding), property values will no doubt increase significantly as a result of the improvements. This could happen in any case, although access to the Fremont Bridge would probably help to stimulate redevelopment. Redevelopment on this scale could be made compatible with the use of Fremont as a major traffic street under any of the alternatives.

The increased noise caused by traffic under the build alternatives will clearly have an adverse effect on the quality of residential properties along Fremont unless or until extensive redevelopment takes place. This will exert a negative pressure on property values, but it is unlikely that their value will decline. Demand for the affected properties as low-income housing will remain, and the trend in property values in this area, as everywhere, is upward. Moreover, landscaping under the Fremont Boulevard alternative will improve the appearance of the street.

Property values along Fremont will not increase because of the Cook-Fremont and Fremont Boulevard alternatives, but they will probably not decline.

Commercial

Increasing access to commercial properties increase their value somewhat. If the ramps are opened, the value of commercial properties along Union north of Fremont may increase from improved access, although the amount of increase is unlikely to be high and is dependent on other environmental conditions. The value of properties along Union Avenue south of Fremont may be adversely affected because of a decrease in the amount of traffic there. This should be more than offset by implementation of the Union Avenue Redevelopment Plan.

COST-BENEFIT ANALYSIS

A cost-benefit analysis attempts to quantitatively measure the net benefits or costs of a proposed project. The result is usually expressed in terms of the value of benefits per dollar of investment. The cost-benefit analysis for this study follows the standard methodology. However, because some important costs and benefits are not quantifiable, the results should be viewed as only partially indicative of the net effect of each alternative.

ASSUMPTIONS

Costs and benefits were estimated relative to the No Build alternative. Future costs and benefits were converted to the base year of 1976. Types of costs and benefits considered are listed in the table on the following page.

Project costs are from the table on page 140. They include estimated construction costs, property acquisition costs, relocation costs, and engineering and contingencies. Utility expenses will be borne by utility companies to relocate or modify facilities to accommodate project construction.

Business payroll impacts represent the decline in employment associated with business relocation and changes in traffic volumes. The effect of the latter is based on an assumption that retail employment is proportional to traffic volumes and that the relationship between traffic volumes and retail employment in 1975 in individual parts of the Study Area will remain constant. The impact on business sales was based on the employment impact using ratios of sales per employee.

Time savings represent the dollar value of reduced driving time within the Study Area afforded by each build alternative. Similarly, the vehicle operation cost savings represent savings from decreased travel distances afforded by the build alternatives.

The property value impacts reflect assumptions based on the experience of other communities when transportation improvements were made. These are that residential property values tend to be increased by improved access and decreased by noise and air pollution, and that commercial property values are affected by traffic volumes. Under all build alternatives, the value of residential property not abutting a traffic route is assumed to increase. The increases are in the range of 5 to 10 percent of current values. Residential properties along a traffic route are assumed not to significantly change in value because of the generally offsetting effects of access and pollution. The value of some commercial properties is estimated to increase and the value of others to decrease.

A more detailed discussion of the assumptions made in the cost-benefit analysis is contained in the Technical Appendix.

COST-BENEFIT ANALYSIS SUMMARY

PRESENT VALUE OF COSTS AND BENEFITS OVER 15 YEARS
(Benefits are in *italics*)

	NO BUILD VARIATIONS					
	RAMP REMOVAL	PERMANENT CLOSURE OR LIMITED BRIDGE ACCESS	HOSPITAL AND STANTON YARD ACCESS ONLY	SHORT COOK	COOK-FREMONT	FREMONT BOULEVARD
PROJECT COSTS	$284,000	$15,000	$195,000	$1,548,000	$1,952,000	$2,646,000
UTILITY EXPENSE				10,000	10,000	25,000
PROJECT IMPACTS						
BUSINESS PAYROLLS				1,198,000	2,341,000	1,006,000
BUSINESS SALES				8,543,000	16,738,000	7,180,000
TIME SAVINGS				*7,088,000*	*10,051,000*	*9,677,000*
VEHICLE OPERATION COST SAVINGS				*755,000*	*1,445,000*	*439,000*
PROPERTY VALUES						
RESIDENTIAL				*294,000*	*545,000*	*624,000*
COMMERCIAL				*20,000*	*95,000*	*166,000*
TOTAL				*314,000*	*638,000*	*790,000*
ACCIDENT COSTS						51,000
TOTAL COSTS	$284,000	$15,000	$195,000	$11,299,000	$21,041,000	$10,908,000
TOTAL BENEFITS				*8,157,000*	*12,136,000*	*10,906,000*
NET COSTS	$284,000	$15,000	$195,000	$ 3,142,000	$ 8,905,000	$ 2,000
BENEFIT/COST RATIO				.72	.58	1.00

NOTE: PRESENT VALUE OF FUTURE COSTS
AND BENEFITS DERIVED USING A
DISCOUNT RATE OF 7%.

FINDINGS

The analysis indicates that none of the alternatives result in net economic gains. From a strict cost-benefit standpoint using the assumptions in the analysis, the most favorable alternative is Fremont Boulevard, followed closely by the Permanent Closure and Limited Bridge Access variations at the No Build alternative.

Only the cost of removing the fill portion of the ramps and regrading the land is included in the cost-benefit analysis summary table for the Ramp Removal variation of the No Build alternative. If the additional costs associated with redevelopment and resale value of the land as described in Chapter 3 of Part II are considered, the net cost would be $445,000.

Decline in business sales is the largest cost item for all build alternatives. Under Fremont Boulevard, the cost in business sales reflects the largest decline in employment due to business relocation. However, the redistribution of traffic to commercially oriented streets under this alternative is expected to ultimately cause a net increase in retail employment. This is in contrast to Cook-Fremont, under which both relocation and traffic distribution are anticipated to reduce retail employment. This decline in employment accounts for the relatively greater negative impact on payrolls and sales. Under Short Cook, no loss due to relocation is expected, but a loss due to redistribution of traffic from more to less commercially oriented streets is expected.

The results of the cost-benefit analysis are more sensitive to changes in the assumptions made in estimating payroll and sales impacts than to changes in other assumptions. However, it does not appear that reasonable changes in these assumptions would make either the Short Cook or Cook-Fremont alternative economically justified, nor would they change the relative ranking of the build alternatives. One assumption, which, if changed, would result in a positive benefit-cost ratio for the Fremont Boulevard alternative relates to the relocation of the McDonald's restaurant at Union and Fremont. If it is assumed that the McDonald's will relocate within the Study Area, the ratio would be over one.

Chapter 8

OTHER IMPACTS

SHORT-TERM USE VERSUS LONG-TERM PRODUCTIVITY

The National Environmental Policy Act requires that an environmental impact statement address "the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity." This section briefly identifies some trade-offs of this nature to give an added perspective to the comparison of alternatives. The focus is on the extent to which alternatives would foreclose future options for the use of the environment.

RAMP REMOVAL

If the ramps are removed, the short-term gains will be the avoidance of any adverse impacts caused by bridge traffic through the neighborhoods, and the potential of reclaiming from 6 to 8 acres of land for urban uses. Lost will be the use of the ramps and the improved cross-river access their use would afford. If, over the long-term, the intensity of land use in the vicinity of the ramps significantly increases, the magnitude of this lost access will become greater. Based on the pattern of land use change near the Willamette River in northeast Portland over the last 20 years, it is conceivable that such an intensification could occur in parts of the Eliot neighborhood and along Union Avenue. This could increase traffic demand even if public transit improves.

LIMITED BRIDGE ACCESS AND HOSPITAL AND STANTON YARD ONLY

These alternatives will afford improved access to the Emanuel Hospital Urban Renewal Project. In the short-term, this may help attract new uses for the undeveloped land in this project. In the long-term, activity at the project grows, use of the ramps will also increase. These alternatives will preclude reclaiming the land occupied by the ramps for other uses. In addition, although these alternatives would not foreclose the possibility of expanding the level of access to the bridge via the east-end ramps in the future, doing so then may be at a greater cost than at present.

BUILD ALTERNATIVES

Potential environmental gains and losses, in both the short and long-term, will be greater with the build alternatives. Short-term gains will be improved access to the Primary Impact area and

Union Avenue, which may encourage or support commercial activity and redevelopment in these areas, and some improvements in traffic flow. Short-term losses will be the conversion of some residential land to street right-of-way, increased noise and air pollution levels, and a decline in the residential quality of streets carrying additional traffic. The importance of improved access could increase if land use becomes more intensive in the long-term. Long-term losses include the adverse effects of a motor vehicle-based transportation system, which the ramps will help sustain as part of the highway network. If, in conjunction with other attributes of the area, the build alternatives encourage conversions of land use type as well as intensity, the role of the area near the ramps as a source of low income housing could also be lost.

In addition to these trade-offs between short-term and long-term environmental effects, there are others identified in the transportation, air quality, and noise analyses. According to the 1980 projections of traffic, the build alternatives will cause congestion on some streets, but by 1990 their net effect will be to reduce congestion. Similarly, Cook-Fremont and Fremont Boulevard alternatives will initially cause violations of the carbon monoxide standard where they would not occur under No Build alternative. By 1990, they will not cause violations, assuming enforcement of motor vehicle emission controls. With respect to noise, the impact will in some ways be greater in the short-term than in the long-term, and in other ways will be lesser in the short-term.

IRREVERSIBLE COMMITMENT OF RESOURCES

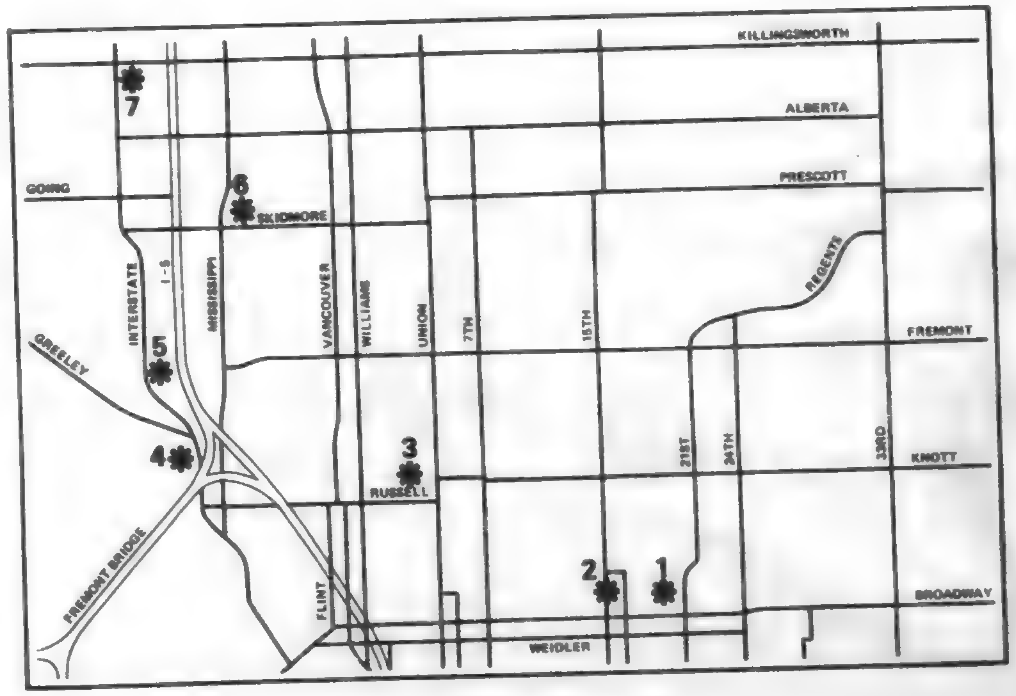
Related to the question of long-term productivity is the commitment of unrecoverable resources. The National Environmental Policy Act requires that an impact statement identify "any irreversible and irretrievable commitments of resources that would be involved in a proposed project if it is implemented."

Aside from the use of the land occupied by the ramps and the proposed connection to the local street system, there are no resource commitments which can be tied exclusively or with certainty to the project. Most impacts will be indirect. Resource uses which will be affected by the alternatives, which consist primarily of surrounding land uses, are and will be influenced more strongly by factors other than access or traffic. Nevertheless, the alternatives will have the effect of supporting some community objectives with respect to land use and working against others. Objectives the alternatives will support are redevelopment at the Emanuel Hospital Urban Renewal Project and along Union Avenue. Preserving residential use along Williams and Vancouver Avenues north of Fremont Street is a community objective which the alternatives would work against.

HISTORICAL AND CULTURAL RESOURCES

None of the properties in the Study Area are listed in the National Register of Historic Places. As indicated by the figure below, seven properties in the Study Area have been designated as historical landmarks by the Portland Historical Landmarks Commission. None of these properties are in the immediate area of the project and none will be directly affected by any of the alternatives. None of the properties will be indirectly affected by any of the impacts described in Chapter 3, Part II.

According to the State Historic Preservation Office, the Statewide Inventory of Historic Sites and Buildings contains no properties in the Study Area (Ref. 1). However, this inventory is not considered complete.


KILLINGSWORTH
ALBERTA
PRESCOTT
GOING
SKIDMORE
INTERSTATE
I-5
MISSISSIPPI
VANCOUVER
WILLIAMS
UNION
7TH
15TH
21ST
24TH
33RD
REGENTS
FREMONT
KNOTT
BROADWAY
GREELEY
FREMONT BRIDGE
RUSSELL
FLINT
WEIDLER
1
2
3
4
5
6
7

1. **Central Lutheran Church**
   2104 N.E. Hancock
   1950
   Pietro Belluschi
2. **Freiwald Residence**
   1810 N.E. 15th
   1906
3. **Yee Residence**
   202 N.E. Graham
   1894
4. **Union Pacific Smokestack**
   U.P. Railroad Yards at
   N. Interstate
   1885
5. **Town Hall**
   3425 N. Montana
   1907
6. **Sauter Residence**
   4314 N.E. Mississippi
   c.1894
7. **Interstate Firehouse**
   5340 N. Interstate
   1910
   MacNaughton, Raymond
   and Lawrence

Source:
Portland Historical Landmarks Commission, How Do We Know It's Us Without Our Past, 1974.

PORTLAND HISTORICAL LANDMARKS

Based on available information, none of the structures removed by the Fremont Boulevard alternative are believed to have special historical, cultural, or architectural signficance.

Three structures within one block of Fremont may have significance. These are the churches shown in the figure on page 3 just north of Fremont on Mallory and at the intersection of Rodney and Ivy, and the School District building located on the north side of the block bounded by Fremont, Beech, Mallory, and Garfield (the building on the south side of this block is not thought to be significant). Noise levels at these locations will be affected by the Cook-Fremont and Fremont Boulevard alternatives, but will remain below an L_{10} of 70 dBA.

The Portland Historical Landmarks Commission was consulted in evaluating the preliminary alternatives. The potential significance of the church at Rodney and Ivy, and the school building beside it, were taken into account. The commission concluded that the Fremont Boulevard alternative was preferable to the other preliminary alternatives that would use Ivy or Cook Street for the connection to Union Avenue (Ref. 2).

Potentially significant structures that are affected by a federally sponsored project must be identified and their disposition agreed upon by state and federal officials responsible for historic preservation (Ref. 3). If a build alternative is selected, surveys will be conducted to identify any significant historical, architecttural, or cultural resources affected. These surveys will be accomplished prior to completion of the Final Environmental Impact Statement and will be coordinated with the State Historic Preservation Officer.

REFERENCES

1. Letter from Paul B. Hartwig, State Historic Preservation Office, to CH2M HILL, 17 August 1976.
2. CH2M HILL, Working Paper No. 7, Evaluation of Preliminary Alternatives, Fremont Bridge Access Study, December 1975.
3. Advisory Council on Historic Preservation, "Procedure for the Protection of Historic and Cultural Properties," 36 CFR Part 800, 39 Federal Register.

Chapter 9

ADVERSE IMPACTS THAT CANNOT BE AVOIDED

This chapter briefly summarizes those impacts that cannot be altogether avoided if the project is undertaken.

TRANSPORTATION

The build alternatives redistribute traffic in the Study Area west of 7th Avenue. Some individual properties may be adversely affected by changes in access. This is caused chiefly by street closures or other traffic control devices. The inconvenience caused by these changes is considered to be small and, on the whole, beneficial by protecting against unnecessary traffic. Some properties may be adversely affected by increased traffic if the mitigating measures proposed for each alternative are not sufficient to avoid congestion.

AIR QUALITY

There will be a decline in air quality along streets that will carry increased traffic.

NOISE

People who live or walk along streets that carry increased traffic will be subjected to higher noise levels. Noise along Fremont Street west of Union Avenue under the Cook-Fremont and Fremont Boulevard alternatives cannot be reduced by berms or similar barriers.

LAND USE

Properties immediately adjacent to heavy traffic may be considered less desirable for residential use.

RELOCATION AND SOCIAL IMPACTS

Despite monetary benefits and other assistance available to those families and businesses who are displaced, there is bound to be some amount of trauma associated with having to move. This is especially the case for older people and those with limited resources.

ECONOMIC IMPACTS

The value of some residential properties that are affected by heavy traffic may decline marginally, even though property values are already low. The redistribution of traffic may adversely affect some businesses, especially traffic-dependent businesses located along streets where traffic volumes will be reduced.

IMPACTS DURING CONSTRUCTION

Construction activities are certain to cause some temporary adverse impacts. These will include construction noise, air pollution (including dust), and minor detours that will increase the volume of traffic on some streets.

FHWA-OR-EIS-76-04-D

Fremont Bridge (I-405) to Union Avenue
City of Portland, Multnomah County, Oregon

TECHNICAL APPENDIX

ADMINISTRATIVE ACTION

DRAFT
ENVIRONMENTAL IMPACT STATEMENT

U.S. Department of Transportation
Federal Highway Administration

Oregon Department of Transportation
State Highway Division

City of Portland, Oregon
Department of Public Works

Submitted pursuant to 42 U.S.C. 4332(2)(C), 23 U.S.C. 128(a).

Earth Metrics, Inc.

CH2M Hill

P9253.00

TABLE OF CONTENTS

Appendix Page

A TRANSPORTATION A-1

B AIR QUALITY B-1

C NOISE C-1

D WATER QUALITY D-1

E ECONOMICS E-1

Appendix A
TRANSPORTATION

Effective analysis of alternative designs for the Fremont Bridge Access Study required the assignment of projected future travel demands to the individual alternatives.

BASIC TRANSPORTATION PLANNING INPUT

Early in the study, the participating official agencies agreed to use the latest revised population and employment data developed by CRAG. This data provides trip generation and distribution input to the transportation models used to forecast estimated 1990 vehicular and public transportation travel demands for the Portland-Vancouver Metropolitan Area. It was also decided that the CRAG Interim Transportation Plan would be utilized as the basic street plan for the study. Table A-1 lists CRAG population and employment data for 1970 and 1990 for the area approximately bounded by Killingsworth, 33rd, I-80N, and I-5. Most of the employment increase projected between 1970 and 1990 is in the portion of the area south of Broadway.

The projected 1990 trip tables were developed on the assumption that a 1990 public transportation plan similar to the one recommended by De Leuw, Cather & Company would be in operation[1]. The basic 1990 trip tables were developed by ODOT and are based on an analysis zone plan comprising 738 traffic zones (including 51 external stations).

---

[1] Columbia Region Association of Governments, 1990 Public Transportation Master Plan, Portland-Vancouver Metropolitan Area, prepared by De Leuw, Cather & Company, 1973.

Table A-1

POPULATION AND EMPLOYMENT PROJECTIONS

PVMATS Zones	Fremont Bridge Zones	POPULATION 1970	POPULATION 1990	Difference 1970-1990	EMPLOYMENT 1970	EMPLOYMENT 1990	Difference 1970-1990
244	1-6	4,301	3,600	-701	1,092	800	-292
245	7-9	3,504	2,900	-604	916	500	-416
246	10-12	3,050	2,900	-150	468	400	-68
247	13-14	2,708	2,500	-208	297	300	+3
248	15-16	2,298	2,200	-98	275	300	+25
249	17	2,236	2,100	-136	159	200	+41
250	18-19	2,445	2,300	-145	396	200	-196
251	20-21	2,479	2,400	-79	169	100	-69
252	22-25	1,234	700	-534	2,551	3,000	+449
253	26-29	2,244	1,600	-644	1,010	700	-310
254	30-33	3,745	3,600	-145	208	200	-8
255	34-39	5,690	5,400	-290	424	200	-224
256	40-44	1,248	1,200	-48	2,339	3,500	+1,161
257	45-48	199	0	-199	3,235	6,500	+3,265
258	49-51	2,689	2,900	+211	759	3,000	+2,241
259	52	130	0	-130	2,243	3,000	+757
260	53	32	0	-32	174	1,500	+1,326
261	54-58	4,080	4,000	-80	1,065	4,250	+3,185
201	59-62	277	100	-177	2,802	3,500	+698
TOTAL		44,589	40,400	-4,189	20,582	32,150	+11,568

Source: Columbia Region Association of Governments

REVISED ANALYSIS ZONE PLAN

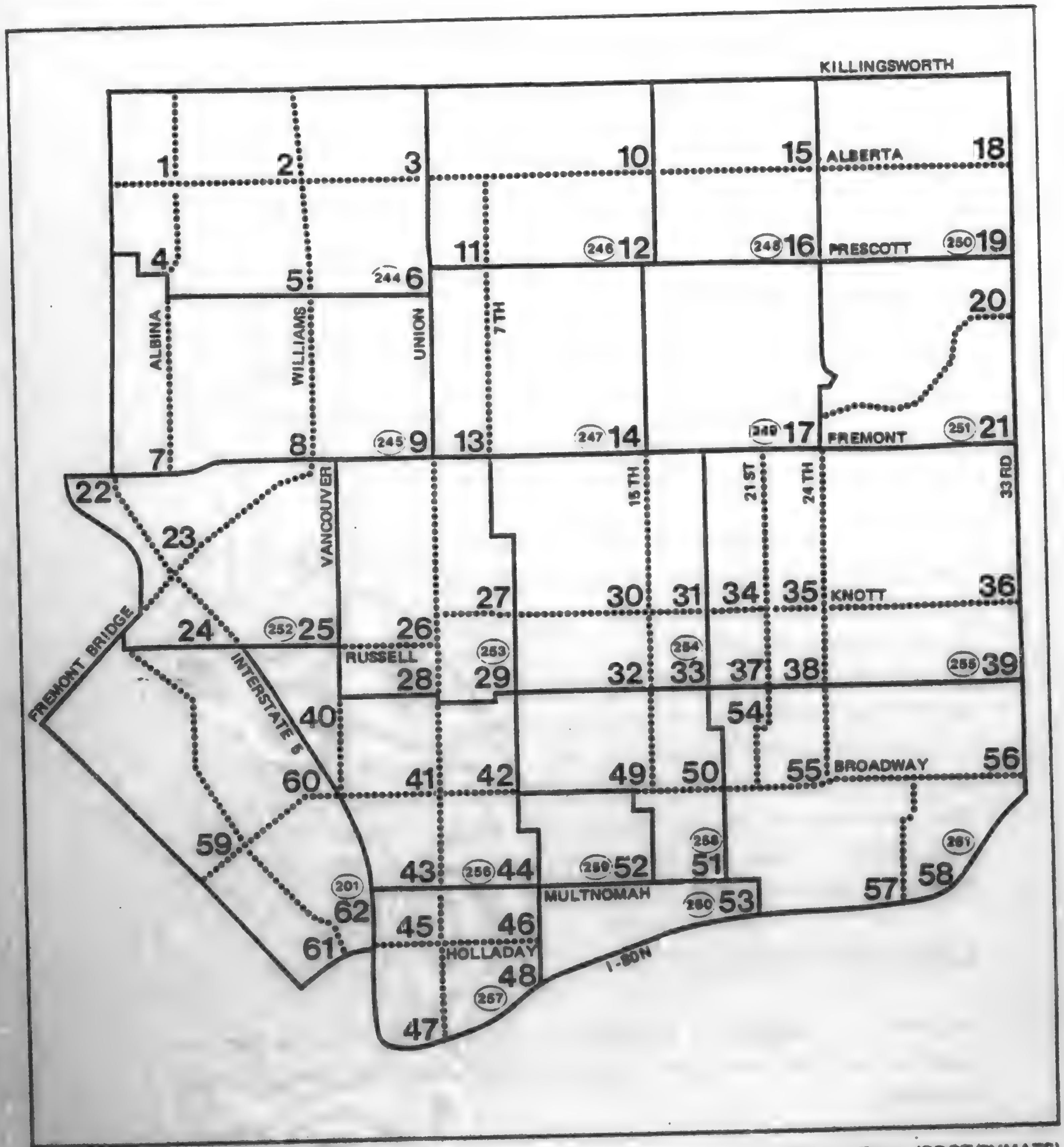
A revised analysis zone plan was developed for use in this study. This was desirable because of a need to: (1) have more sensitive travel assignments in the Fremont Bridge study area; and (2) reduce the number of zones in areas remote from the Fremont Bridge to make the traffic assignment process quicker and more economical.

In the area at the east end of the Fremont Bridge, a total of 19 original traffic zones were subdivided into 62 smaller zones. This provides for more detailed and refined assignments for the primary area of interest. This revised plan is shown on Figure A-1, in relation to the original analysis zone plan.

A ring of traffic zones surrounding the study area was retained from the original 738 zone plan for use in this study. Outside this ring, the original traffic zones were combined into super zones consisting of two or more original zones. In many cases, the Portland-Vancouver Metropolitan Area Transportation Study (PVMATS) super zones developed by ODOT were used. The revised zone plan consists of a total of 191 zones (including 62 zones in the study area), with external stations being combined with the super zone near their entry point. This revised zone plan was used for all traffic assignment work on this project. Table A-2 lists zonal equivalents for the ODOT and Fremont Bridge zone plans.

ADJUSTED 1990 TRIP TABLES

The 1990 trip tables were developed for the 738 zone plan by ODOT based on the CRAG revisions in 1975 of 1990 population and employment estimates.


KILLINGSWORTH
ALBERTA
PRESCOTT
FREMONT
KNOTT
RUSSELL
BROADWAY
MULTNOMAH
HOLLADAY
I-80N
FREMONT BRIDGE
INTERSTATE 5
ALBINA
WILLIAMS
UNION
7TH
VANCOUVER
15TH
21ST
24TH
33RD
1
2
3
10
15
18
4
5
244 6
11
246 12
248 16
250 19
20
7
8
245 9
13
247 14
249 17
251 21
22
23
24
252 25
26
27
30
31
34
35
36
RUSSELL
28
253 29
32
254 33
37
38
255 39
40
54
60
41
42
49
50
55
56
59
43
256 44
259 52
258 51
57
261 58
201 62
45
46
260 53
61
48
257
47

REVISED TRAFFIC ANALYSIS ZONES

——— Original Zones (ODOT/PVMATS)

········ New Zones (Fremont Study)

(256) Original Zone Number

34 New (Fremont Study) Number

Table A-2

ZONE EQUIVALENTS FOR VEHICLE TRIPS
ODOT AND FREMONT BRIDGE ZONE PLANS

Fremont Bridge Zone	ODOT Zones or Super Zones[1] (738 Zone Plan)
1-6[2]	244
7-9	245
10-12	246
13-14	247
15-16	248
17	249
18-19	250
20-21	251
22-25	252
26-29	253
30-33	254
34-39	255
40-44	256
45-48	257
49-51	258
52	259
53	260
54-58	261
59-62	201
63	81
64	82
65	80
66	108
67	109
68	67-68,139
69	64-66
70	62-63
71	53-56,60-61
72	57-58,71
73	69-70
74	52-59
75	171-174
76	72-73
77	79
78	77
79	78
80	188
81	189-190
82	196
83	199-200
84	197-198
85	194-195
86	193
87	74-76
88	208,212,214-217
89	211
90	210
91	207
92	209
93	206
94	205
95	204
96	203
97	242
98	243
99	239
100	237
101	202
102	223
103	222
104	213
105	224
106	241
107	240
108	238

Table A-2, Continued

Fremont Bridge Zone	ODOT Zones or Super Zones[1] (738 Zone Plan)
109	218-221
110	236
111	226
112	228
113	233
114	227,276-277
115	225
116	232
117	230,266
118	234
119	231
120	263
121	264
122	265
123	269-270
124	262
125	267
126	268
127	229,271-274
128	281-282
129	94-95,283-286,300,302-303
130	83
131	84
132	85
133	86
134	87
135	88
136	89
137	90
138	91
139	92-93
140	235
141	110
142	105
143	106
144	103
145	104
146	101
147	102
148	100
149	591-594
150	111,116-120,125-128,134,136-138
151	107
152	(2)
153	(3)
154	(5)
155	1,(8)
156	(11)
157	(12)
158	31-33,(13)
159	37-39,(14)
160	34-36,(15)
161	28-30,(16)
162	26-27,(17)
163	(18)
164	21-25,(19)
165	(20)
166	(21)
167	(22)
168	(23)
169	19-20,(24)
170	(25)
171	(26)
172	(27)
173	(28)
174	(29)
175	18,(30)
176	17,(31)
177	13-16,(32)

Table A-2, Continued

Fremont Bridge Zone	ODOT Zones or Super Zones[1] (738 Zone Plan)
178	(33)
179	(34)
180	11-12, (35)
181	6-10, (36)
182	3-5, (37)
183	2, (38)
184	(39)
185	(40)
186	(41)
187	49-51, (42)
188	46-48, (43)
189	(44)
190	41-45, (45)
191	40, (46)

---

[1] Number in parentheses represents a super zone number.

[2] Original ODOT Zone 244 was subdivided into Zones 1 through 6 for the Fremont Bridge Study.

1990 Vehicle Trips

The 1990 vehicle trip tables were adjusted to fit the revised zone plan. In the Fremont Bridge study area, factors were developed to allocate trips to and from the original traffic analysis zones to each of the revised zones. The factors, expressed as percentages of the original zonal total, are listed in Table A-3.

These factors were used as input to a Federal Highway Administration computer program (TRPVERT) to adjust the trip table to match the revised zone plan. This program subdivided zones, combined zones into super zones, and renumbered the new zones, with the output representing an adjusted trip table for the revised zone plan.

1990 Public Transportation Trips

A table of 1990 public transportation trips (based on 738 zones) was obtained from ODOT. A public transportation network had not then been developed for the metropolitan area; therefore, these trips could not be treated in the same manner as the vehicle trips. The 738 zone trip table was compressed into a trip table representing the original 19 traffic zones in the study area and the PVMATS super zones for analysis on a "desire line" basis. The resulting trip table consisted of 68 zones. Table A-4 lists the ODOT-Fremont Bridge equivalent zone numbers. Table A-5 lists the 1990 passenger trip ends and the total vehicle trip ends for the ODOT zones in the study area. Note that the ratios between the two are not modal splits because the divisors are vehicle trip ends rather than total person trip ends.

ADJUSTMENTS TO THE BASIC NETWORK

As stated earlier, the basic network used for this study consists of the transportation facilities included in the CRAG Interim Transportation Plan. This coded network was furnished by ODOT. Adjustments were required so that the network was in proper form for use in this study.

Table A-3

SUBZONE ALLOCATION FACTORS

ODOT Zone	Fremont Bridge Zone and Factor (In Percent)[1]
201	59-42;60-43;61-4;62-11
244	1-9;2-17;3-20;4-6;5-22;6-26
245	7-17;8-46;9-37
246	10-52;11-12;12-36
247	13-29;14-71
248	15-52;16-48
249	17-100
250	18-56;19-44
251	20-66;21-34
252	22-2;23-5;24-11;25-82
253	26-39;27-28;28-11;29-22
254	30-45;31-17;32-29;33-9
255	34-15;35-11;36-40;37-6;38-5;39-23
256	40-11;41-16;42-32;43-11;44-30
257	45-7;46-78;47-7;48-8
258	49-54;50-17;51-29
259	52-100
260	53-100
261	54-5;55-7;56-18;57-33;58-37

---

[1] ODOT Zone 201 is subdivided into four Fremont Bridge zones. Trip origins and destinations for ODOT Zone 201 were allocated to Fremont Bridge zones as follows: Zone 59-42 percent; Zone 60-43 percent; Zone 61-4 percent; and Zone 62-11 percent.

Table A-4

ZONE EQUIVALENTS FOR PUBLIC TRANSPORTATION TRIPS
ODOT AND FREMONT BRIDGE ZONE PLANS

Fremont Bridge Zone	ODOT Zones or Super Zones[1] (738 Zone Plan)
1	52-82,108,109,139,171-174,188-190,193-200
2	(2)
3	(3)
4	(4)
5	(5)
6	83-95,229-232,234,235,262-274,281-286,300,302,303
7	202-212,214-217
8	1,(8)
9	(9)
10	(10)
11	(11)
12	(12)
13	31-33,(13)
14	37-39,(14)
15	34-36,(15)
16	28-30,(16)
17	26,27,(17)
18	(18)
19	21-25,(19)
20	(20)
21	(21)
22	(22)
23	(23)
24	19,20,(24)
25	(25)
26	(26)
27	(27)
28	(28)
29	(29)
30	18,(30)
31	17,(31)
32	13-16,(32)
33	(33)
34	(34)
35	11,12,(35)
36	6-10,(36)
37	3-5,(37)
38	2,(38)
39	(39)
40	(40)
41	(41)
42	49-51,(42)
43	46-48,(43)
44	(44)
45	41-45,(45)
46	40,(46)
47	201
48	237
49	239
50	242,243
51	244
52	245
53	246
54	247
55	248
56	249
57	250
58	251
59	252
60	253
61	254
62	255
63	256
64	257
65	258
66	259
67	260
68	261

---

[1] Number in parentheses represents a super zone number.

Table A-5

TRANSIT PASSENGER AND TOTAL VEHICLE TRIP ENDS

Area Bounded by I-5, Killingsworth, 33rd Avenue, and I-80N

	1990 TRIP ENDS		
ODOT Zone	Transit Passenger	Total Vehicle	Ratio of Total Transit Passenger Trip Ends to Total Vehicle Trip Ends
201	4,100	9,250	0.44
244	1,860	11,450	0.16
245	1,570	8,690	0.18
246	1,310	7,470	0.18
247	1,260	6,970	0.18
248	980	5,600	0.18
249	970	5,030	0.19
250	1,000	5,940	0.17
251	1,060	5,550	0.19
252	1,390	10,550	0.13
253	1,220	7,250	0.17
254	1,560	7,770	0.20
255	3,140	10,800	0.29
256	5,380	14,060	0.38
257	8,940	22,430	0.40
258	5,880	15,960	0.37
259	7,950	25,620	0.31
260	1,760	3,670	0.48
261	3,980	21,300	0.19
TOTALS	55,310	205,360	0.27

Source: Oregon Department of Transportation

The primary adjustment required was due to the revised zone plan developed for the study. The original network was coded for 738 zones, while the revised zone plan consists of only 191 zones. Therefore, it was necessary to delete all of the original zone connectors and replace them with connectors for the revised zone plan.

CALIBRATION OF NETWORK AND TRIP TABLE

The adjusted vehicle trip table for 1990 was assigned to the adjusted basic network, which used the same street system as provided by ODOT for the 738 zone plan. The resulting traffic assignment was then compared with the results of the ODOT capacity restrained and unrestrained assignments based on 738 zones. Actual ground counts taken in 1974 and 1975 were also used for comparison purposes.

The initial loading and comparison showed several areas where the results did not provide satisfactory agreement between the two assignments. Speed adjustments were made on several network links and the trips were loaded again. This load-compare-adjust calibration process was repeated until satisfactory comparisons were obtained.

The ODOT network used in the calibration process did not include a Fremont Bridge-Union Avenue connection. Therefore, the calibrated network represented the no-build alternative.

DEVELOPMENT OF ALTERNATIVE NETWORKS

A number of alternative design concepts for connecting Fremont Bridge with the surface street system east of the Willamette River were developed. Selected design alternatives were then coded for testing by loading 1990 vehicle trips on the network. All of the alternative designs assumed that Union Avenue will be reconstructed as a four-lane boulevard with left-turn lanes in the median at major signalized street intersections.

One of the guidelines provided by the Portland City Council for studying the alternative designs was to limit the increase in traffic on Fremont Street east of Union Avenue. To determine the magnitude of demand for this movement, an initial loading was made to an Ivy Boulevard alternative (with an at-grade intersection at Union) with no attempt to restrict traffic. This test loading resulted in an assignment of nearly 26,000 vehicles on the bridge ramps and an assignment of 14,000 vehicles per day on Fremont Street east of 7th Avenue. This Fremont Street assignment represented an increase of 4,600 vehicles over the no-build alternative.

This projected volume of traffic was considered excessive in terms of the stated objectives of the study. Therefore, the alternative designs were developed with features to restrict the direct movement of vehicles from the Fremont Bridge to Fremont Street east of Union. Even with the restrictions, it is possible for traffic to reach Fremont Street by "filtering" through the grid system of local streets. It was not considered practical to apply the restrictions for a distance of more than two blocks. For the second traffic assignment, the "filtering" movements were incorporated but penalized in travel time to represent the necessity of going around the block and through additional traffic controls on minor streets.

On the second loading of 1990 traffic to the Ivy Boulevard alternative, the assigned ramp volume was 23,000 daily vehicles, while the volume on Fremont Street east of 7th Avenue was 10,300; the latter representing a 900-vehicle increase over no-build. Even though the restrictions reduced the traffic on Fremont Street, an undesirable side effect was identified. Approximately 4,000 daily vehicles trips were estimated to be making the "filtering" movement. Since there are various ways for these "filtering" movements to be made, it is not possible to estimate how many of these 4,000 vehicles would use any one local street.

The alternative designs were developed under the assumption that restrictions would be placed on direct movements between Fremont Bridge and Fremont Street east of 7th Avenue. The amount of "filtering" traffic varies depending on the alternative designs.

Table A-6 contains details about network coding changes for various alternatives.

PUBLIC TRANSPORTATION

Early in the study, an alternative that would allow only transit vehicles to use the Fremont Bridge was discussed. A conference with Tri-Met officials was held on the subject. The conference revealed that Tri-Met does not have specific plans beyond a 5-year period; however, the possibility of significant future use of the Fremont Bridge ramps by public transport seems to be remote.

The public transport system is currently oriented to serve trips to and from the Central Business District (CBD). The west end of the Fremont Bridge gives access to surface streets in the vicinity of 15th Avenue (west), which is ten blocks west of the core of the CBD. Thus, buses from Northeast Portland would be taken too far west by the Fremont Bridge to gain any advantage when going to the CBD. The Broadway, Steel, and Burnside bridges provide shorter, more convenient routes than the Fremont Bridge.

A possibility of limited service, probably during peak hours, on the Fremont Bridge would be to serve the northwest major employment areas. However, this would probably be limited to only a few buses per day.

It was decided that an alternative for transit-only use of the Fremont Bridge ramps would not be appropriate unless all of the "build" options are rejected. In that case, the "transit only" solution could be reconsidered.

Table A-6

NETWORK DEVELOPMENT

NO BUILD:	Update of CRAG network furnished by ODOT. New zone system was coded and speed adjustments were made to have good comparisons with ODOT assignments, restrained and unrestrained, and with current volumes.
IVY BOULEVARD: (without restrictions)	Update of No Build. New ramp was added with all turns allowed and no special penalties.
IVY BOULEVARD: (with restrictions)	Update of No Build. New ramp was added as before. Now, time penalties were added for turns wanting to go (or come from) east on Fremont to (or from) Williams, Vancouver and Union. Penalties were calculated by adding travel times it would take to go around-the-block to avoid the restrictions. Penalty links were: 5632-5633; 5636-5639; 5642-5646; and 5646-5644. Detailed coding was also necessary to make these links work properly. Because of this, the centroid connections for Zones 25 and 26 had to be changed where they connect with Vancouver and Williams.
IVY BELOW GRADE:	Update of No Build. New ramp was added and penalty links were used as with Ivy Boulevard. The penalty links were: 5611-5612; 5617-5618; 5654-5653; and 5656-5657. Again, detailed coding was required to make the penalty links work properly. Additional changes were required for centroid connectors from Zones 8, 9, 25 and 26 to Vancouver and Williams.
SHORT COOK:	Update of No Build. New ramp was added, including penalty links at Vancouver and Williams. Penalty links are: 5632-5635 and 5636-5637. Again, the detailed coding was required, including the special centroid connector coding.
FREMONT BOULEVARD:	Update of No Build. New ramp was added. In this case the penalty for movement to and from the east of Union on Fremont was imposed by a traffic signal penalty at the intersection of Union and Fremont. The penalty was to apply to only those trips going straight east or west through the intersection. A two-way penalty link 5603-5604 was added with additional travel time to reflect an extra one-cycle signal delay. Because of a planned center median on Fremont Boulevard between Williams and Union, turn restrictions were needed for the centroid connectors to Fremont from Zones 9 and 26.
COOK-FREMONT:	Updated from Short Cook. The physical connection is the same as for Short Cook. However, the restrictions to the use of Fremont east of Union are different. In this case, metering by traffic signal is used at two locations. First, a two-way penalty link was added on the ramp just east of the Zone 25 centroid connection (link 5623-5638). Ramp traffic to or from Zone 25 (Emanuel Hospital) is not penalized. The second location for metering is at the intersection of Union and Fremont. This penalty link (5639-5640) is the same as it was for Fremont Boulevard. The penalty links in the Short Cook network (5632-5635) and (5636-5637) were recoded to zero travel time; therefore, no penalty was added here.
OTHER PLANS:	Because of the similarity of some of the preliminary alternatives considered, the same traffic assignments were used for both plans, and were manually adjusted, as required. These are: 1. Hospital & Kerby Blvd. South - Adapted from No Build 2. Short Ivy - Adapted from Short Cook 3. Cook-Ivy Couplet - Adapted from Ivy Boulevard 4. Cook Boulevard - Adapted from Ivy Boulevard In addition, the Ivy Boulevard plan shown in Working Paper 7 was adapted from Ivy Boulevard and Ivy Below Grade, since the original Ivy Boulevard assignment did not include the grade separated ramp shown.

ALTERNATIVE NETWORK TRAVEL

Vehicle-miles, vehicle-hours, and average travel speeds were calculated for streets within the study area for each alternative. These values are listed in Table A-7.

1980 TRAVEL

Trip tables for 1980 were not available; therefore, it was necessary to develop these travel projections by another method. It was considered unlikely that significant changes in population, employment, or the status of the public transportation system would occur prior to 1980. Therefore, it was assumed that traffic volumes would continue to change in accordance with recent past trends.

Traffic volume projections for the 1980 no-build alternative were developed in the following way. Existing traffic volumes were increased by about 10 percent, except for facilities that have current volumes at or near capacity. The volumes for these facilities were left at existing levels. Street segments that had no current volume count were estimated by using relationships from the 1990 volumes. For example, if the estimated 1980 volume at a count location was 500 vehicles per day more than the projected 1990 volume, this 500 difference was also added to the 1990 volume on adjacent street segments.

The Fremont Bridge volume was allowed to grow at a 5 percent annual rate from 50,100 vehicles per day in 1975 to 63,800 in 1980. This estimated growth rate is in accordance with trends data. Volumes on ramps connecting to Interstate 5 were adjusted accordingly.

Interstate 5 north of the Fremont Bridge was allowed to grow at a 3.5 percent annual rate (based on trends data) from 109,000 vehicles per day in 1975 to 129,500 in 1980. This volume was then reduced

Table A-7

1990 VEHICLE-MILES, VEHICLE-HOURS, AND AVERAGE SPEED
FREMONT BRIDGE RAMP ALTERNATIVES

Alternative and Street Classification	Vehicle-Miles	Vehicle-Hours	Average Speed
No Build (Total)	518,600	15,200	34
Freeways (1)	296,600	7,500	40
Arterials (2)	139,700	4,700	30
Collectors (3)	82,300	3,000	27
Short Cook (Total)	516,200	15,100	34
Freeways	292,800	7,400	40
Arterials	144,600	4,800	30
Collectors	78,800	2,900	27
Cook-Fremont (Total)	514,000	15,100	34
Freeways	291,400	7,400	39
Arterials	146,200	4,900	30
Collectors	76,400	2,800	27
Fremont Boulevard (Total)	518,500	15,100	34
Freeways	287,000	7,200	40
Arterials	155,600	5,100	31
Collectors	75,900	2,800	27

---

(1) Freeways - Expressways and Connecting Ramps - CRAG.
(2) Principal and Minor Arterials - CRAG.
(3) Collectors - CRAG plus other local streets, such as; Flint, 7th, and Regents.

due to the assumed opening of Interstate 205 by 1980. A test using 1990 volumes indicated that the diversion to Interstate 205 would reduce Interstate 5 volumes to 87 percent of the 1990 volume if Interstate 205 were not open. Thus, the final 1980 volume on Interstate 5 north of the Fremont Bridge was 112,700 vehicles per day. Volumes on Interstate 5 south of the Fremont Bridge and north of Alberta were also adjusted without changing ramp volumes.

These basic 1980 volumes for the no-build alternative were used to develop 1980 volumes for the individual build alternatives. These volumes were derived by taking the difference between 1990 volumes for the build alternatives and the 1990 no-build values and adjusting the 1980 no-build volumes by a similar amount.

The ramp volumes for the build alternatives were obtained by comparing 1980 and 1990 volumes on several screen lines. The average difference was about 24 percent, with 1980 values being higher. Therefore, 1990 ramp volumes were increased by 24 percent to obtain 1980 volumes.

Union Avenue volumes were in excess of capacity for both the Cook-Fremont and Fremont Boulevard Alternatives. Adjustments were made by diverting some of this traffic to Vancouver and Williams and some to Interstate 5.

Appendix B

AIR QUALITY

INTRODUCTION

This appendix presents details of existing and future air quality in the study area. Also presented are details of monitoring and analysis methodologies used in obtaining the results. The appendix is presented in two parts, the first part dealing with existing air quality in the study area; the second part discusses projected air quality in 1980 and 1990 for each of the alternates under consideration (including the no-build alternate).

SUMMARY OF RESULTS

Although air quality in the Study Area is projected to exceed Federal and State standards in the future, this excess is primarily associated with Interstate 5. There are no significant differences between the alternates in their air quality impacts.

EXISTING AIR QUALITY

INTRODUCTION AND SUMMARY OF RESULTS

In order to describe existing air quality in the vicinity of the Fremont Bridge Ramps, an air measurement program was set up in the study area (shown in Figure 1). Included in the program were the monitoring of carbon monoxide (CO), particulates, and wind speed and direction. The particulate data was analyzed for both lead content and total weight. Lead, which is probably the single most harmful component of particulate, is considered separately from total suspended particulate because of concern in the Portland area regarding this pollutant. Carbon monoxide and lead were chosen as the air pollutants to be monitored both because their main source is motor vehicle exhaust and because they occur in significant concentrations in the Portland area. In addition, unlike nitrogen dioxide and oxidant which are also related to motor vehicle exhaust,their effects are highly localized rather than regional. (Nitrogen dioxide, sulfur dioxide and total oxidant will be discussed in the following pages in terms of their regional effects and trends.) Table B-1; which shows ambient air quality standards set by both the State of Oregon and the Federal Environmental Protection Agency, will be a useful reference in reading the following sections.

The measurement program showed that the federal 8-hour CO standard is probably exceeded in the study area; the 1-hour standard is not exceeded. Particulate monitoring demonstrated that the primary 24-hour federal standard for particulate is probably not exceeded in the study area. However, the primary federal standard relating to annual geometric mean particulate concentrations is probably exceeded at certain locations in the study area. The lead standard is not exceeded.

RESULTS OF THE MEASUREMENT PROGRAM

Carbon monoxide data for the study area was obtained by continuous monitoring of CO at Emanuel Hospital and by CO bag sampling near roadways at various locations in the study area.

Table B-1 STATE OF OREGON
DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY CONTROL DIVISION
AMBIENT AIR STANDARDS

CONTAMINANT	FEDERAL STANDARDS		STATE OF OREGON STANDARDS
	PRIMARY	SECONDARY	
Carbon-Monoxide	(1) 10 mg/M^3 max. 8-hr average	Same as primary	(1) 10 mg/M^3 max. 8 hr average
	(2) 40 mg/M^3 max. 1-hr average	Same as primary	(2) 40 mg/M^3 max. 1-hr average
Sulfur-Dioxide	(1) 80 $\mu g/M^3$ annual arithmetic mean		(1) 60 $\mu g/M^3$ annual arithmetic mean
	(2) 365 $\mu g/M^3$ max. 24-hr concentration	1300 $\mu g/M^3$ max. 3-hr average	(2) 260 $\mu g/M^3$ max. 24-hr average
			(3) 1300 $\mu g/M^3$ max. 3-hr average
Photochemical Oxidant	160 $\mu g/M^3$ max. 1-hr average	Same as primary	160 $\mu g/M^3$ max. 1-hr average
Nitrogen-Dioxide	100 $\mu g/M^3$ annual arithmetic mean	Same as primary	100 $\mu g/M^3$ annual arithmetic mean
Reactive Hydrocarbons	160 $\mu g/M^3$ max. 3-hr average 0600-0900	Same as primary	160 $\mu g/M^3$ max. 3-hr average 0600-0900
Suspended Particulate	(1) 75 $\mu g/M^3$ annual geometric mean	(1) 60 $\mu g/M^3$ annual geometric mean as a guide	(1) 60 $\mu g/M^3$ annual geometric mean
	(2) 260 $\mu g/M^3$ max. 24-hr concentration	(2) 150 $\mu g/M^3$ max. 24-hr concentration	(2) 100 $\mu g/M^3$ 24-hr concentration more than 15% of time
			(3) 150 $\mu g/M^3$ maximum 24-hr concentration

Carbon Monoxide

The carbon monoxide data obtained from the continuous monitoring was reduced to one-hour averages. From these, daily maximum one-hour and eight-hour averages were calculated and are shown in Table B-2. To summarize, the highest one-hour concentration recorded was 5.8 mg/m^3. (The one-hour carbon monoxide standard set by Federal EPA is 40 mg/m^3.) The average of the daily one-hour maximums was 2.9 mg/m^3. The highest eight-hour concentration recorded was 3.4 mg/m^3. (The eight-hour federal carbon monoxide standard is 10 mg/m^3). Both the maximum one-hour and eight-hour concentrations occurred on July 4, in the early morning hours. Winds at the time were blowing from the northwest to northeast, making the site upwind of nearby streets. It can be seen from the above figures that the concentrations recorded were very low in relation to federal standards. This is true for two reasons: 1) Carbon monoxide varies seasonally, with the highest concentrations occurring in winter when meteorology is most stagnant. Since the monitoring was performed in the summer months when stagnant conditions do not typically occur, relatively low CO concentrations are to be expected; 2) for reasons of security and limited suitable monitoring sites at the hospital, the CO analyzer and inlet tube were positioned upwind of the two nearby streets (Graham Street and Vancouver Avenue) giving background rather than maximum concentrations.

In order to correct for seasonal variation, and obtain a worst case background level, a factor has been derived from DEQ data at two nearby monitoring stations, the Continuous Air Monitoring (CAM) station at 718 West Burnside and the Hollywood station at 41st Avenue and Sandy Boulevard. In deriving the factor, the summer months, June and July of 1974 were used to correspond with the months during which the monitoring in the study area was performed. The month at each station with the highest average concentration in the winter of 1974-1975 was used for the winter values. Thus a seasonal variation factor was derived for each of the two stations. These two values were averaged and resulted in a factor of 2.3. A second factor was derived from DEQ archival data whereby an approximate eight-hour CO concentration can be calculated from a one-hour average. This factor was derived by comparing monthly maximum one-hour mean concentrations with monthly maximum eight-hour mean concentrations.

Table B-2 Results of Continuous Carbon Monoxide Monitoring

Date	Maximum 1-Hr. Average (mg/m^3)	Maximum 8-Hr. Average (mg/m^3)
6/12/75	2.7	2.3
13	4.1	3.1
14	2.2	1.4
15	1.5	1.0
16	2.4	2.0
17	3.6	2.4
18	3.1	2.2
19	2.2	---
20	2.9	2.1
21	1.8	1.5
22	1.8	1.3
23	2.4	1.7
24	3.5	2.3
25	2.4	1.3
26	2.8	1.6
27	4.3	3.1
28	2.5	1.8
29	2.4	1.9
30	3.3	1.9
7/1/75	2.9	2.7
2	3.4	2.2
3	4.7	3.0
4	5.8	3.4
5	2.1	1.6
6	2.1	2.0
7	3.3	2.5
8	3.5	---
9	2.3	---
10	2.3	---
11	2.9	---
12	2.1	1.6
13	2.2	1.7
14	3.7	3.1
15	2.9	2.7

Table B-2 - continued

Date	Maximum 1-Hr. Average (mg/m^3)	Maximum 8-Hr. Average (mg/m^3)
7/16/75	2.9	2.7
17	2.9	2.0
18	3.3	2.5
19	1.4	1.0
20	1.6	1.0
21	3.5	2,0
22	2.9	2.2
23	3.0	2.0
24	2.7	---
25	3.9	---

Only the summer months of June and July, 1974, were used so that the factor could be applied effectively to bag samples taken in June and July to yield an approximate eight-hour maximum. When the seasonal factor is applied to this eight-hour maximum, an approximation of an eight-hour average near a street in a worst case situation (stagnant winter meteorology) is obtained. The one-hour to eight-hour factor was calculated to be 1.5 (The four factors averaged from the two stations varied by no more than .01)

Applying the seasonal factor to the maximum one-hour and eight-hour concentrations recorded during the continuous monitoring in the study area results in an estimated maximum one-hour concentration of 13.4 mg/m^3 and an eight-hour maximum of 7.8 mg/m^3. The concentration of 7.8 mg/m^3 does approach the federal eight-hour standard of 10 mg/m^3 and it is possible that this standard might be exceeded at the hospital in the winter on a day when the meteorology was particularly stagnant.

Bag samples were taken at eleven locations in the study area. The results of the samples are shown in Table B-3. When the seasonal variation factor is applied to the bag samples an indication of winter CO concentrations due to traffic plus background is given. Figure B-1 shows the locations of the bag samples, the maximum concentration measured at each location, and the estimated winter concentrations based on the seasonal variation factor developed above. Of particular interest is a 30-minute bag sample taken on the southeast (downwind) corner of the intersection of Graham Street and Vancouver Avenue (the intersection nearest the continuous monitoring station). The measured bag sample concentration was 7.3 mg/m^3 while the average concentration of the monitoring station during the same time period was 2.9 mg/m^3. When the seasonal variation factor of 2.3 is applied to the bag sample concentration, the one-hour concentrations become 16.8 mg/m^3 downwind and 6.7 mg/m^3 upwind. The 16.8 mg/m^3 is well below the federal one-hour standard of 40 mg/m^3. However, if both the seasonal variation factor and the one-hour to eight-hour factor are applied to these concentrations, the comparable eight-hour concentrations become 11.3 mg/m^3 and 4.4 mg/m^3, respectively. In this case, which is common, although the one-hour standard was not approached, the federal eight-hour CO standard of 10 mg/m^3 would have been exceeded, according to the calculated eight-hour, winter concentration.

Table B-3 Results of Carbon Monoxide Bag Sampling*

Location	Time	Traffic (total volume/hour)	Concentration
Wiedler and 7th	7:15a.m.[1]	--	7.5
	7:25a.m.	1230	10.4
	12:40p.m.	908	11.5
Union and Broadway	7:55a.m.	2022	4.6
	12:40p.m.	2504	13.2
Union and Fremont	8:30a.m.	1208	12.7
	1:15p.m.	1736	9.8
Fremont and Williams	8:55a.m.	660	10.4
	1:15a.m.	1088	9.8
Commercial and Cook	9:25a.m.[2]	8	4.6
Alberta and Minnesota	4:10p.m.	968	13.8
Union & Killingsworth	4:40p.m.	2572	11.5
15th and Fremont	12:05p.m.	712	8.6
33rd and Fremont	12:40p.m.	1288	10.9
Vancouver and Alberta	1:10p.m.	684	7.5
Graham and Vancouver	4:08p.m.[3]	668	7.2

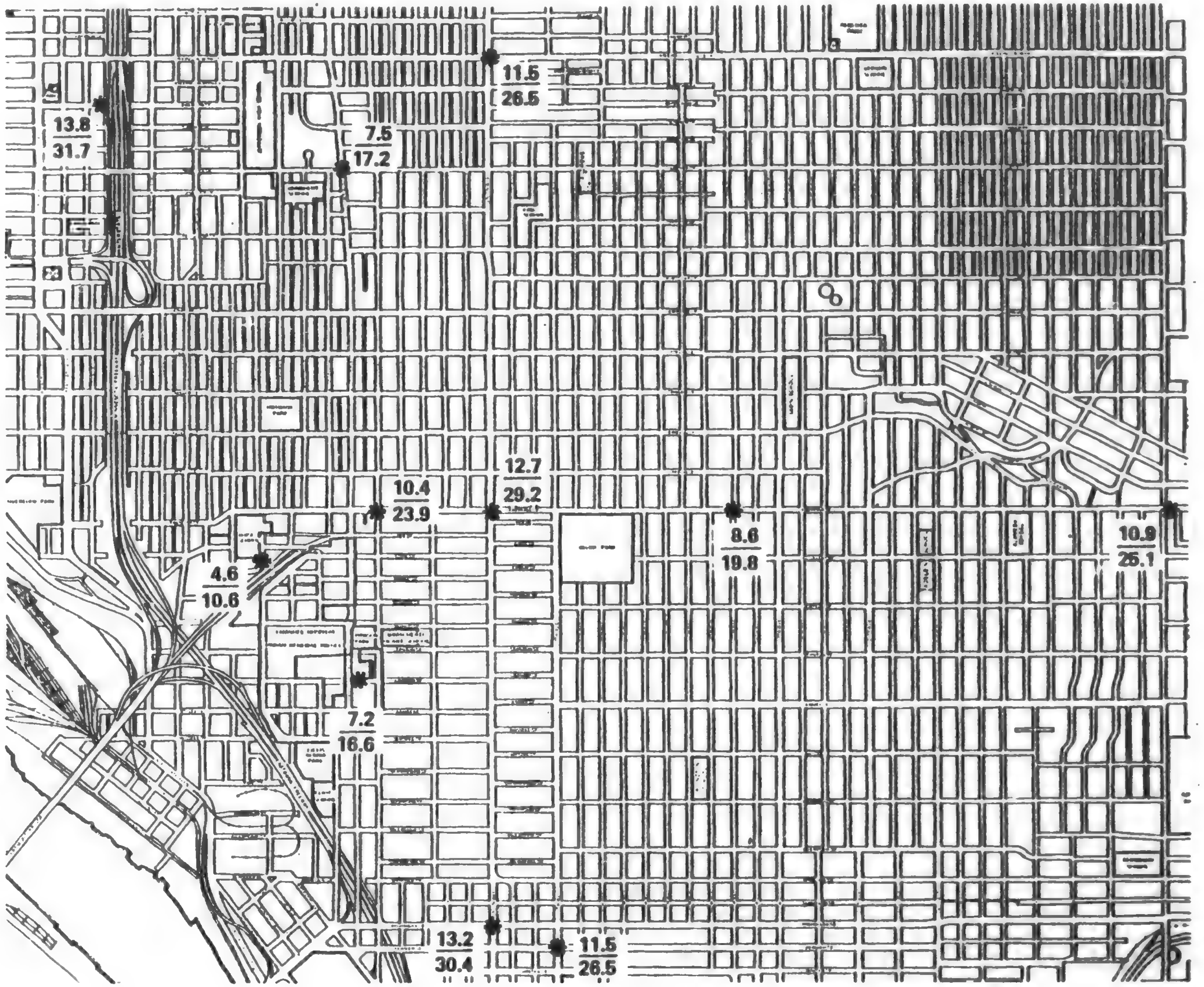
---

*Unless otherwise specified, all samples were of 15-minute duration, downwind, and taken at 10 feet from the curb; the time noted is the beginning time of the sample.

[1] This sample was 10 minutes long and upwind.

[2] This sample was taken at 3 feet from the curb.

[3] This sample was of 30-minute duration.



13.8
31.7
11.5
26.5
7.5
17.2
12.7
29.2
10.4
23.9
4.6
10.6
8.6
19.8
10.9
25.1
7.2
16.6
13.2
30.4
11.5
26.5

Figure [illegible]

ESTIMATED 1–HOUR CARBON MONOXIDE CONCENTRATIONS

Fremont Bridge Access Study

N
0'
600'
1800'

LEGEND

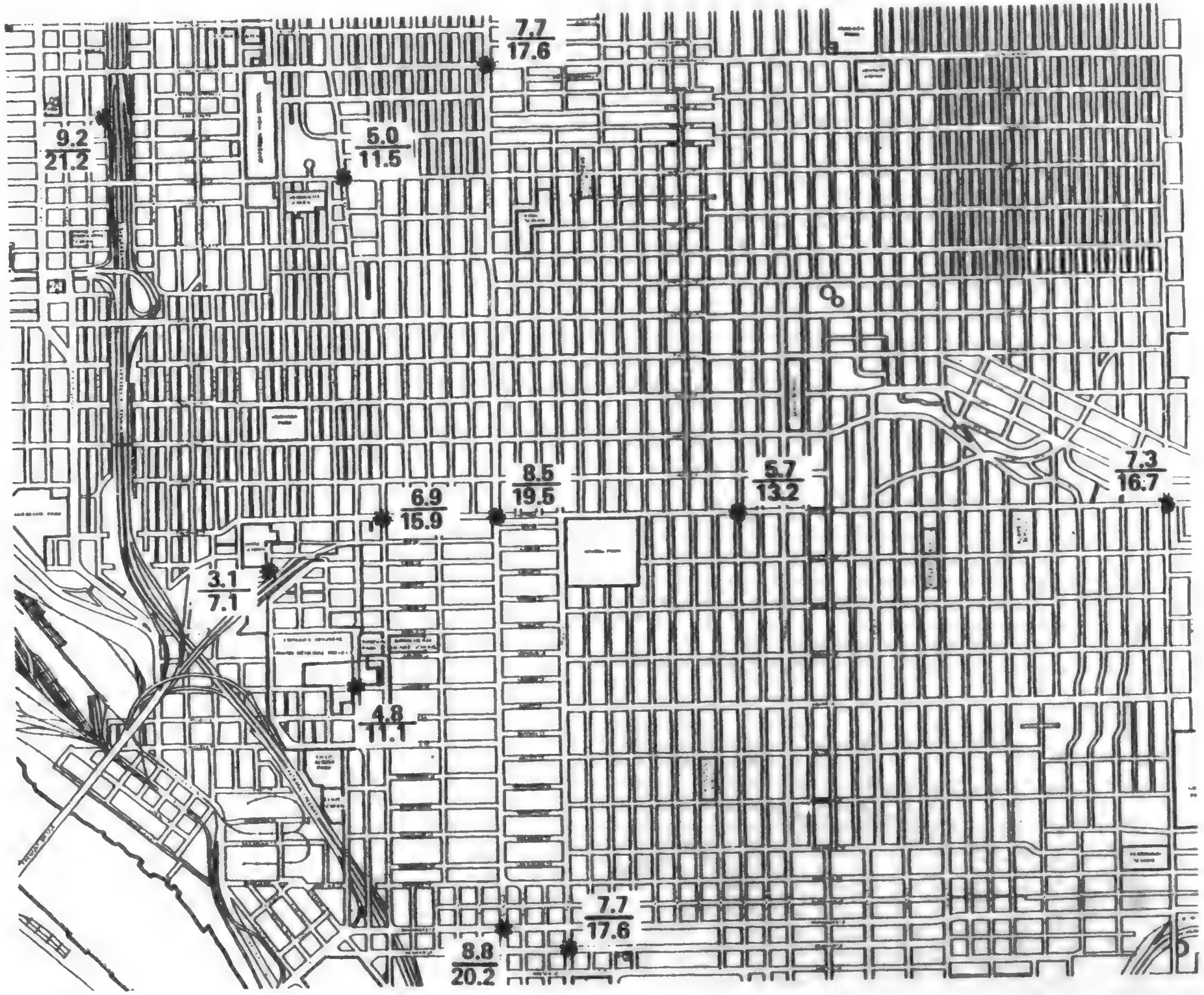
$\frac{7.2}{16.5}$ Summer concentration in milligrams per cubic meter (mg/m^3)

Winter worst case concentration in milligrams per cubic meter (mg/m^3)

THE FEDERAL PRIMARY STANDARD IS 40 mg/m^3.

Of the bag samples taken, the highest concentration found was 13.8 mg/m^3 at the intersection of Vancouver Avenue and Alberta Street. When the seasonal factor is applied, a concentration of 31.7 mg/m^3 results, which does not exceed the federal one-hour standard. Again, when the one-hour to eight-hour factor is applied to the 31.7 mg/m^3, the eight-hour winter concentration is calculated to be 21.2, which is far above the eight-hour standard. Figure B-2 shows estimated summer and winter eight-hour concentrations based on the bag samples, the seasonal variation factor, and the one-hour to eight-hour factor. If only the one-hour to eight-hour factor is applied to the bag sample, a concentration of 9.2 mg/m^3 results, showing that even in summer the eight-hour standard may be exceeded at some locations in the study area.

The results of the continuous monitoring and bag sampling indicate that the background level in the study area does not approach the one hour CO standard, but that the eight hour standard is exceeded near streets both in winter and summer.


7.7
17.6
9.2
21.2
5.0
11.5
8.5
19.5
6.9
15.9
5.7
13.2
7.3
16.7
3.1
7.1
4.8
11.1
7.7
17.6
8.8
20.2
N
0'
600'
1800'

LEGEND

8.8 Summer concentration in milligrams per cubic meter (mg/m^3)

20.2 Winter worst case concentration in milligrams per cubic meter (mg/m^3)

THE FEDERAL PRIMARY STANDARD IS 10 mg/m^3.

Figure B-2

ESTIMATED 8–HOUR CARBON MONOXIDE CONCENTRATIONS

Fremont Bridge Access Study

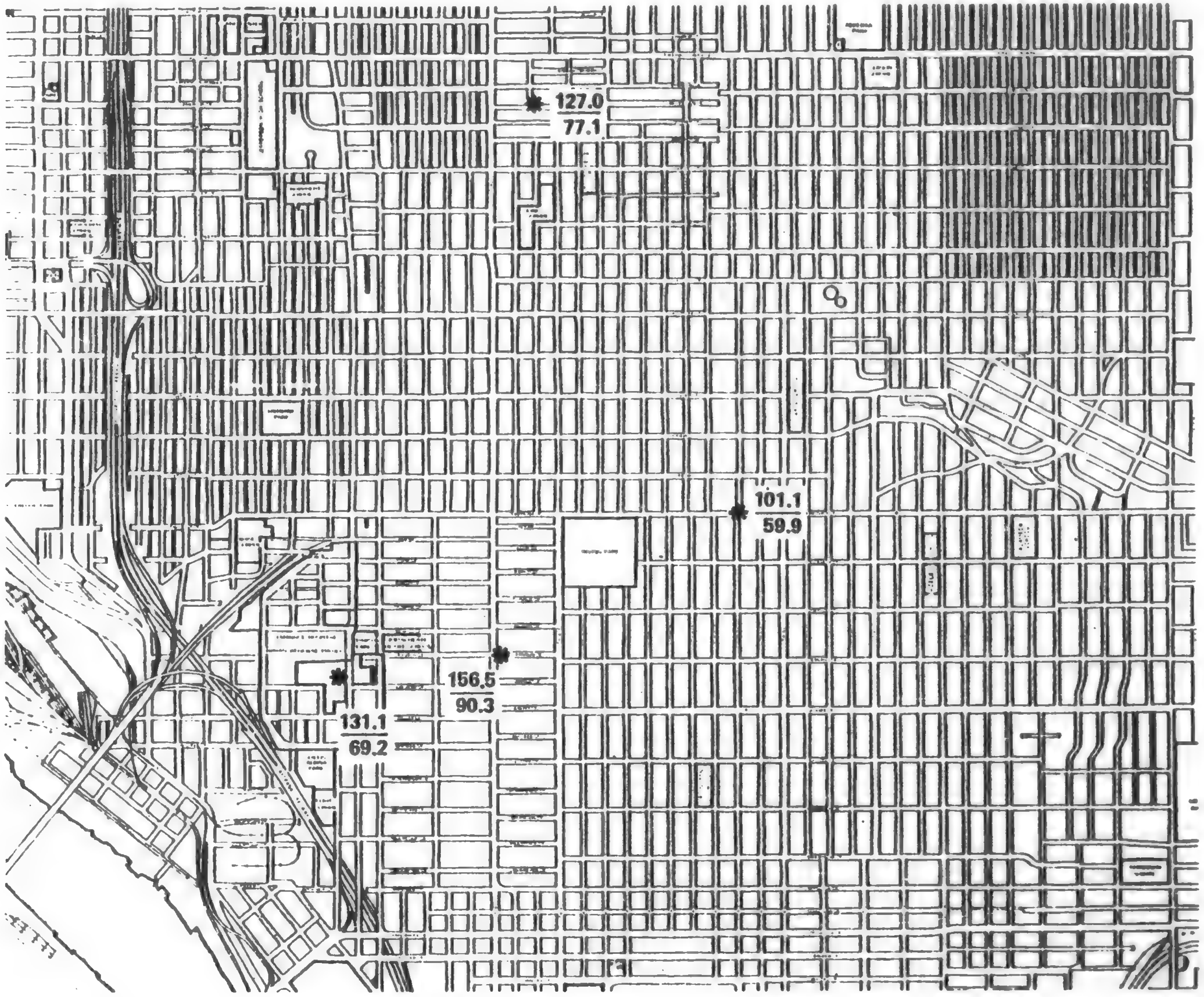
Total Suspended Particulate

Total suspended particulate was monitored at four sites in the study area. The particulate samples were subsequently analyzed for lead content. The primary federal ambient air quality standards for total suspended particulate call for a maximum annual geometric mean of $75\mu g/m^3$ and a maximum 24-hour concentration of $260\mu g/m^3$ to be exceeded no more than once a year. These primary standards are based on the levels of air quality necessary to protect the public health with an adequate margin of safety. The federal secondary standards call for a maximum annual geometric mean of $60\mu g/m^3$ and a maximum 24-hour concentration of $150\mu g/m^3$. The secondary standards are levels necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant. The State of Oregon has set standards for particulate comparable to the federal secondary standards (see Table 1).

Fig. B-3 shows the locations of each of the particulate monitoring sites with the maximum 24-hour concentration measured at each site. Also shown in Figure B-3 is the geometric mean concentration at each site, for the time during which measurements were taken (approximately one month at each site.) It should be noted that this is not an annual geometric mean and therefore cannot be compared directly to federal or state standards for annual geometric mean. Table 4 shows the daily 24-hour concentrations which were measured at each site. The following paragraphs describe the results of the total particulate monitoring in detail for each of the four monitoring sites. Figure B-3 and Table 4 will be used as references in the following paragraphs.

The monitoring on Fremont Street at 17th Avenue resulted in a geometric mean of $59.8\mu g/m^3$. In comparing this with primary and secondary federal standards, it should be remembered that the standards are in terms of an annual average, while the monitoring included only the summer period; the more stagnant winter meteorology was not represented nor were the potentially lower concentrations on the weekends. The highest 24-hour concentration found at this site occurred from May 15 to May 16 and was $101.1\mu g/m^3$.

The particulate monitoring at the second site, which was on Vancouver Avenue at Graham Street, yielded a slightly higher geometric mean of $69.2\mu g/m^3$, based


127.0
77.1
101.1
59.9
156.5
90.3
131.1
69.2
0'
600'
1800'

TOTAL SUSPENDED PARTICULATE

Fremont Bridge Access Study

LEGEND

131.1 Maximum 24–hour concentration in micrograms per cubic meter ($\mu g/m^3$)

THE FEDERAL PRIMARY STANDARD IS 260 $\mu g/m^3$

THE SECONDARY STANDARD IS 150 $\mu g/m^3$.

69.2 Geometric mean concentration in micrograms per cubic meter ($\mu g/m^3$)

THE FEDERAL PRIMARY STANDARD IS 75 $\mu g/m^3$.

THE SECONDARY STANDARD IS 50 $\mu g/m^3$.

Table B-4 Total Suspended Particulate (TSP) and Lead (Pb) Concentrations

N.E. Fremont at 17th Avenue			N. Vancouver & N. Graham			N.E. Union near Stanton			N.E. Roselawn near 6th Avenue		
Date	TSP ($\mu g/m^3$)	Pb ($\mu g/m^3$)	Date	TSP ($\mu g/m^3$)	Pb ($\mu g/m^3$)	Date	TSP ($\mu g/m^3$)	Pb ($\mu g/m^3$)	Date	TSP ($\mu g/m^3$)	Pb ($\mu g/m^3$)
5/5	39.3	.62	6/12	77.5	.35	7/10	70.1	.62	8/14	127.0	.68
5/6	55.1	.87	6/16	47.4	.29	7/14	84.7	1.08	8/15	80.4	.41
5/7	60.9	.69	6/17	71.1	.70	7/15	54.8	.90	8/18	64.3	.65
5/8	77.1	.93	6/18	83.8	.77	7/16	129.2	.72	8/19	53.7	.67
5/9	63.2	.68	6/19	80.4	.69	7/17	84.5	.65	8/20	65.6	.48
5/12	50.1	.38	6/20	78.5	.50	7/18*	134.2	1.15	8/21	70.5	.75
5/13	76.6	.90	6/23	57.4	.48	7/21	79.6	.75	8/22	85.8	.46
5/14	60.1	.52	6/24	49.2	.73	7/22	156.5	1.01	8/25	71.5	.69
5/15	101.1	.54	6/25	62.8	.56	7/23	136.7	1.47	8/26	82.2	.85
5/16	68.7	.31	6/26	53.0	.70	7/24	92.7	.82	8/27	66.2	.64
5/19	66.3	.60	6/27	61.0	.85	7/25*	229.4	1.01	8/28	63.4	.48
5/20	59.4	.61	6/30	97.8	.71	7/28	97.1	1.35	8/29	63.6	.51
5/21	54.3	.23	7/1	59.5	.84	7/29	84.1	1.41	9/2	75.2	.56
5/22	50.0	.46	7/2	48.6	.29	7/30	83.6	1.04	9/3	83.2	.79
5/23	44.9	.44	7/3	131.1	1.67	7/31	97.1	.78	9/4	78.4	.51
5/27	45.3	.35	7/7	91.0	.47	8/1*	230.8	1.87	9/5	94.4	.38
5/28	55.7	.32	7/8	70.9	.22	8/4	85.4	.84	9/8	117.5	.69
5/29	66.4	.33				8/5	68.3	.80			
5/30	70.6	.34				8/8*	187.0	.99			
6/2	58.6	.33									
6/3	59.8	.41									
6/4	58.9	.30									
6/5	60.4	.21									
**Mean	59.9	.49		69.2	.64		90.3	1.01		77.1	.60

* 9 hour samples

** "Mean" refers to the geometric mean for total suspended particulate and to arithmetic mean for lead.

on 17 samples, each 24 hours in length. A maximum 24-hour concentration of 131.1μg/m^3 occurred on July 3. Again, the sampling for each week ended on Saturday morning.

The third particulate monitoring site was on Union Avenue. As expected, because of higher traffic volumes, particulate concentration found at this site were consistently higher than those at the other two sites. A geometric mean of 90.3 μg/m^3 was calculated, based on 15 24-hour samples. (Four additional samples were taken, but were not included in the geometric mean, since they were only nine-hour samples.) At this site, it was not possible to turn the instrument off on Saturdays and so the last sample of the week ended on Friday evenings. The highest 24-hour particulate concentration found at this site was 156.5μg/m^3 and occurred on July 23. The highest of the nine-hour concentrations measured was 230.8μg/m^3.

At the fourth particulate monitoring site on Roselawn Avenue, fairly high total suspended particulate and lead values were measured. Based on seventeen 24-hour measurements, a geometric mean of 77.1 μg/m^3 was found for particulate. The highest 24-hour concentration of total particulate measured at this site was 127.0 μg/m^3.

Although the concept of a seasonal variation factor seems to be appropriate for particulate, archival data show that the details of such a variation are not clear; while September and October appear to be months of the highest particulate concentration, January also appears quite high; June and July appear to be comparatively low. Therefore no seasonal factor was applied.

Of the three locations sampled for particulate it seems that none presently exceed the primary 24-hour standard, and that only the Union Avenue site may exceed the secondary standard; however it is probable that the primary federal standard for geometric mean may be exceeded at at least one of the three sites and it is possible that the secondary standard for geometric mean may be exceeded at all three stations.

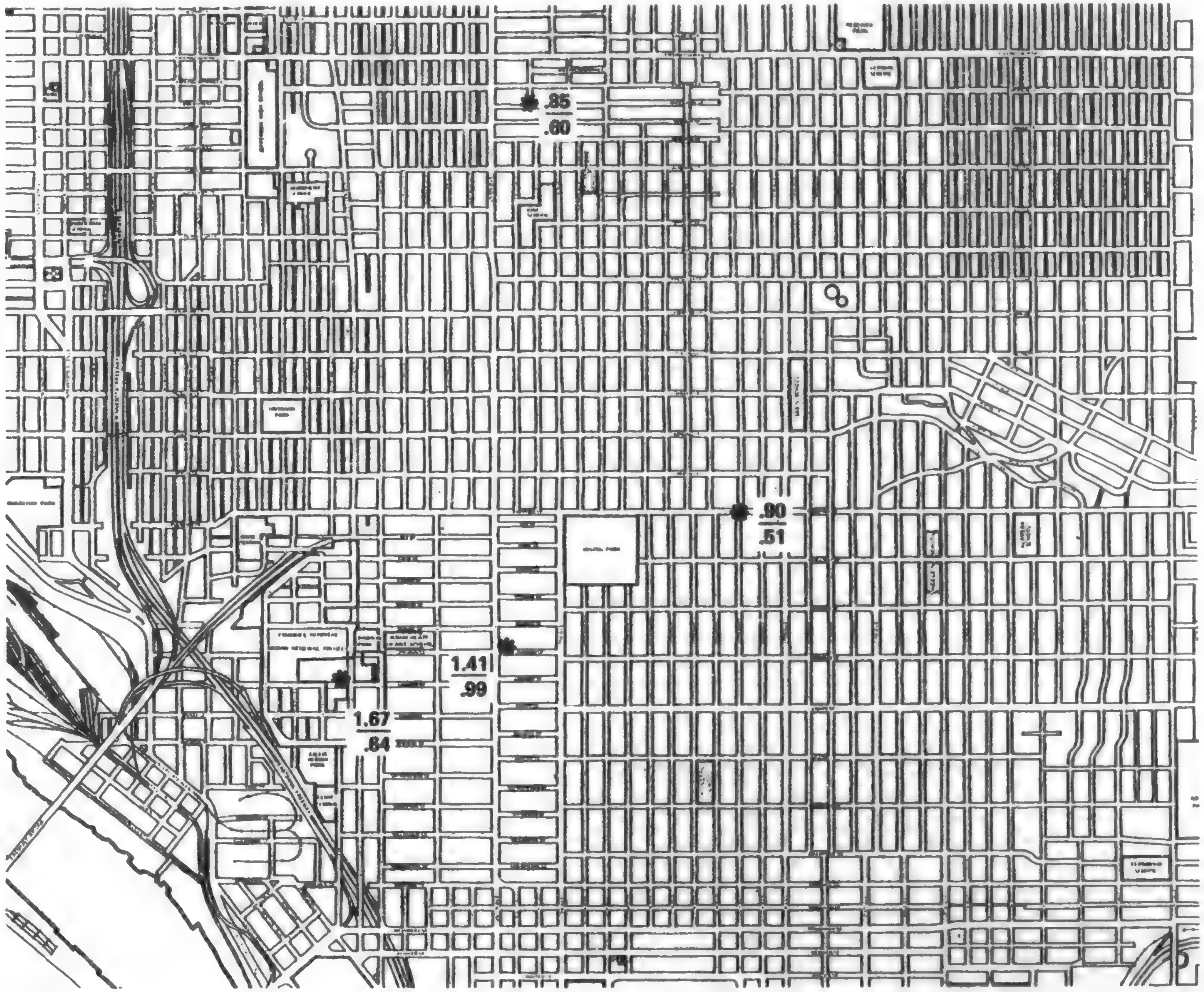
Lead

As mentioned in the previous section, the total suspended particulate samples were analyzed for lead content. Although there is no federal standard for lead, Oregon considers this pollutant to be a problem and has set a monthly standard if 3.0 $\mu g/m^3$. This standard states that the arithmetic mean of samples taken in a month at a given site should not exceed 3.0 $\mu g/m^3$. Figure B-4 shows maximum 24-hour lead concentration measured at each monitoring site; also shown is the arithmetic mean concentration of lead at each monitoring site. Figure B-3 can be referred to for the daily concentrations.

At the monitoring site on Fremont Street at 17th Avenue, the arithmetic mean based on 22 samples was .51 $\mu g/m^3$. The maximum 24-hour lead concentration was .93 $\mu g/m^3$. It seems that this area is not in danger of exceeding the Oregon standard.

At the monitoring site near the hospital, an arithmetic mean of .64 $\mu g/m^3$ was calculated. Although the 24-hour average on July 3 was 1.67 $\mu g/m^3$, the next highest value found at that site was .85 $\mu g/m^3$. It should be noted that relatively high carbon monoxide concentrations were also measured July 3, suggesting that possibly something unusual was going on near the hospital - perhaps unusually heavy traffic due to the July 4 holiday, or unusually heavy construction near the hospital.

The monitoring site on Union Avenue had higher lead concentrations than the first two sites. An arithmetic mean of .99 $\mu g/m^3$ was calculated (if four 9-hour samples had been included in the calculation, the arithmetic mean would have been 1.05 $\mu g/m^3$.) The highest of the 24-hour concentrations was 1.47, while the highest of the 9-hour concentrations is 1.87. Since this site was adjacent to a body shop where some painting of cars takes place, it is possible that the values found here are somewhat higher than would be found at another location on Union Avenue. (Spray painting is done inside the building for approximately 1-1½ hours per workday; a filter, which was approximately 20


.85
.60
.90
.51
1.41
.99
1.67
.64

LEGEND

1.67 / .64

Maximum 24–hour concentration in micrograms per cubic meter (μg/m3)

Arithmetic mean concentration in micrograms per cubic meter (μg/m3)

THE OREGON STANDARD IS 3.0 μg/m3

0'
600'
1800'

Figure B-1

LEAD CONCENTRATIONS

Fremont Bridge Access Study

meters from the sampler, filters approximately 60% to 65% of the paint from being blown outside.) For this reason, the fourth monitoring site was also chosen near Union Avenue.

At the last monitoring site near Union Avenue at Roselawn Street and Sixth Avenue, the arithmetic mean based on 17 samples was .60μg/m^3. The highest 23-hour concentration measured was .85 μg/m^3.

The discussion of a seasonal variation factor presented in the preceding section on total suspended particulates is applicable to lead as well, since lead is a particulate. The results of the monitoring and subsequent lead analysis show that the lead standard set by the State of Oregon is probably never exceeded in the study area at present. This finding is even true if the carbon monoxide seasonal factors are applied to the data; a procedure which may have validity for lead since this pollutant (unlike total particulate) is primarily caused by motor vehicle transportation.

Nitrogen Dioxide (NO_2)

The annual arithmetic mean of NO_2 has been measured at the CAM station since 1970. This average has remained at close to half of the air quality standard (within 10 percent).

Sulfur Dioxide (SO_2)

The stringent 24 hour Oregon sulfur dioxide standard has been exceeded in Portland although the Federal standards were not (through April, 1975). This pollutant is generally found in relatively high concentrations on the West Coast only in the vicinity of refineries. The high values in Portland have been measured primarily in the northwest and Rivergate areas which also tend to exhibit a greater variation in day-to-day concentrations than of transportation controls; in 1970 transportation sources contributed 4 percent to the total SO_2 emission for the Portland area. This figure is projected to be 6 percent in 1975 and 5 percent in 1985.

Total Oxidant

The oxidant standard was exceeded in Portland every year from 1967 to 1973; the number of times this one hour standard was exceeded ranges from 22 in 1967 to one in 1973 and zero in 1974. Since 1975 oxidant data is not yet available the possibility of a trend cannot really be substantiated. However, DEQ feels that oxidant is still a problem in Portland.

FIELD MEASUREMENT PROGRAM

Carbon Monoxide

Carbon monoxide was monitored continuously at Emanuel Hospital between June 12 and July 25, 1975. The carbon monoxide analyzer was placed in an office on the first floor of the hospital on Graham Street. Tygon tubing was extended from the instrument through a window to a position approximately one meter from the side of the building. This air sample inlet tube was approximately 2 meters above street level, 10 meters from the edge of Graham Street and 30 meters from Vancouver Avenue. In addition to the continuous monitoring, 16 air bag samples were taken at various locations throughout the study area. These location are shown on the map in Figure 1, which is presented in an earlier section of this appendix.

Lead and Total Suspended Particulates

Lead and total suspended particulates (TSP) were monitored at four sites for approximately one month at each site. Twenty-four hour samples were taken daily on week-days. When possible, 24-hour samples on weekends were also obtained. The location of each of the four sites is shown in Figure 3, which is presented in an earlier section of this appendix.

Between May 2 and June 5, 1975, lead and TSP were monitored at a residence on Fremont Street at 17th Avenue (on the northeast corner of the intersection). The high volume sampler was approximately 8 meters from 17th Avenue and 7 meters from Fremont Street. On June 11, the instrument was moved to the roof of a building at Emanuel Hospital on Vancouver Avenue at Graham Street (northwest corner of the intersection.). At this site the instrument was approximately 3 meters above street level, 9 meters from Vancouver Avenue and 29 meters from Graham Street. On July 10, after a month of operation at the hospital the high volume sampler was moved to the roof of a small building adjacent to a body shop at 2920 northeast Union Avenue near Stanton Street. At this location, the sampler was approximately 10 meters from Union Avenue and approximately 2.5 meters above street level. The high-volume sampler remained at this location through August 8. On August 14, it was moved to a residence on N.E. Roselawn, where it remained until approximately September 12. At this site the sampler is approximately 175 meters from Union Avenue and 125 meters from Killingsworth Street.

Meteorology

The mechanical weather station was mounted 3 meters above the highest portion of the roof of the north wing of Emanuel Hospital, which was 6 stories above ground level. Wind direction was monitored from June 20 through July 21, 1975. Due to a mechanical failure monitoring of wind speed was not begun until June 23 and continued through July 21, 1975. The daily average and minimum wind speeds and the prevailing wind direction are shown in the Table B- 5.

MONITORING EQUIPMENT AND PROCEDURES

Carbon Monoxide

Continuous monitoring of carbon monoxide was accomplished by use of an instrument called the Ecolyzer, made by Energetics Science Incorporated. This instrment detects CO via an oxidation reaction on a membrane with a potential across it. The reaction is $CO + H_2O \quad CO_2 + H + 2e$.

The ambient air flow through the instrument, which is an important factor in obtaining accurate results, was set at 700 c.c. per minute (suggested by the manufacturer) at the onset of the monitoring. It was also checked twice before the monitoring was concluded; both times the flow had not shifted. An external filter was used to eliminate interfering substances. The instrument was calibrated and the zero level checked at least once every day except on week-ends.

Table B-5 Summary of Meterological Data

Day	Daily Average Wind Speed, mph	Minimum 8 hrs. Wind Speed, mph	Predominant Direction
6-23	4.62	4.31	Southwest
6-24	5.13	3.29	South
6-25	9.14	6.83	South
6-26	6.41	4.45	South
6-27	6.77	5.89	South
6-28	4.72	3.11	South & North
6-29	6.38	4.81	West & North
6-30	7.05	5.30	Southwest
7-1	4.40	3.41	Southwest
7-2	4.87	3.59	West
7-3	5.84	3.01	North, South
7-4	5.07	4.84	Northeast
7-5	5.82	5.69	North, South & East
7-6	4.99	3.59	West
7-7	5.46	4.17	Northwest
7-8	7.19	6.09	North
7-9	6.98	5.37	North
7-10	7.48	5.21	North
7-11	8.66	8.50	North
7-12	7.84	5.21	Northwest
7-13	5.03	4.09	Northwest
7-14	5.30	4.46	Northwest
7-15	7.28	4.51	Northwest
7-16	6.04	4.56	Northwest
7-17	5.27	3.66	Southwest
7-18	4.78	3.74	Southwest
7-19	6.47	3.92	Northwest
7-20	7.72	5.91	West & North
7-21	6.15	3.47	North

A certified calibration gas (carbon monoxide in air), purchased from Air Products, Incorporated was used. The CO concentration of the gas was labelled at the factory as 37 ppm (parts per million). In order to help insure accurate measurements, the calibration gas was analyzed with the CO analyzer at a monitoring station of the Department of Environmental Quality, both at the onset and at the conclusion of the monitoring, and was found to be within reasonable limits of the factory labelled concentration.

Before continuous monitoring for the measurement program was begun, the Ecolyzer was operated for 24 hours next to the CO analyzer at a DEQ air quality monitoring station. All hourly averages recorded from the Ecolyzer were less than 4 mg/m^3, while all hourly averages recorded from the DEQ analyzer were less than 3 mg/m^3. The two CO analyzers agreed to within 1 mg/m^3 during their simultaneous operation. Since the instruments are calibrated near the middle of their range (usually at around 50 ppm) a higher level of accuracy than what was observed, is not expected at the low concentrations occurring on the test day.

A strip-chart recorder made by Esterline Angus (Model MS401B) was used to produce a permanent time index record of all continuous monitoring. Both the recorder and the Ecolyzer were supplied with 120 volt AC lines during the monitoring.

Bag samples of ambient air were acquired with a constant flow regulated battery operated acquarium pump; six-liter tedlar bags were used. Each sample was analyzed within 3 hours of its collection. The Ecolyzer was zeroed and calibrated before each set of bags was analyzed.

Total Suspended Particulate and Lead

Total suspended particulate samples were obtained by use of a Microchemical Specialties high-volume sampler, Model 680. The samples were collected on Whatman 41 cellulose filters.

The flow rate through the filter was noted just after the filter was installed and just before it was removed. The average flow rate was used to calculate the total volume of air through the filter. After removal from the instrument, the filters were folded in half with the "dirty" face folded upon itself. Each folded filter was stored in a clean envelope for later analysis.

The filters were each weighed before being placed in the sampler and weighed again after exposure. This information plus the flow was used to compute values for 24-hour particulate concentrations at the monitoring site.

The filters were also analyzed for elemental content at the University of California, Davis Cyclotron with the element of most interest being lead. The analysis at Davis consists of observing x-rays emitting from the filter while it is being bombarded with an x-ray tube from the cyclotron. This causes the elements in the filter to emit their characteristic x-rays. These x-rays are analyzed by a high resolution silicon detector. Since each element has its own unique characteristic x-rays, the x-ray spectrum can be analyzed for the elemental composition of the filter. This method allows simultaneous detection of all elements with a heightened sensitivity to lead, and thus produces a minimum amount of interference.

Meteorology

Wind speed and direction data was collected continuously by a Meteorology Research Inc. Mechanical Weather Station Model 1071 supplied with Eveready E91 batteries. This device's accuracy has been tested by MRI for wind speeds of less than 0.75 mph to more than 100 mph, a response distance of 18 feet (63% recovery) and an overall accuracy of ± 2%. Wind direction is measured by means of a damped 33-1/2" aluminum vane with a delay distance of eight feet (50% recovery), damping ratio of 0.5 to 0.6 and an overall accuracy of ± 1% full scale. The device was factory calibrated before shipment.

METHODOLOGY AND ANALYSIS

Introduction

Air contour maps were produced for carbon monoxide and lead, for the years 1980 and 1990. They were based on traffic, meteorology, emission factors and mathematical prediction models for those pollutants. In addition, tables of expected concentrations of nitrogen dioxide and hydrocarbons were developed, based on vehicle miles travelled and emission factors. All traffic information was provided by CH_2M Hill's traffic engineers and is discussed in Appendix A. Emission factors and prediction methodology are discussed separately in the following two sections. A discussion of the meteorological conditions assumed for the predictions is incuded in the section describing the prediction models and their application.

Emission Factors

Motor vehicle emission factors for carbon monoxide (CO), nitrogen oxides (NO_x), reactive hydrocarbons (HC), lead, and total suspended particulate (TSP), were calculated according to the method described in Supplement No. 5 for Compilation of Air Pollutant Emission Factors, Second Edition (April 1975). In this section, the emission factors for each pollutant are presented together with a discussion of the parameters used in calculating each.

The following two alternate sets of assumptions have been made regarding the future federal 1975-1976 emission controls in computing the emissions used in this analysis. One: these controls will be imposed as presently (September 1975) required by law, and will operate as they are legally expected to. This is called the minimum emission strategy. Two: the 1975-1976 controls will be rescinded; this is the maximum emission calculation. Predictions of future air quality have been made for both 1990 (minimum and maximum strategies) and 1980 (maximum strategy).

The following information regarding parameters and application of emission factors is applicable to CO, NO_x, and HC: (For a more complete discussion of the significance of each parameter, the reader is directed to Supplement No. 5 for Compilation of Air Pollutant Emission Factors).

Mean emission factors used in the calculations were taken directly from "Supplement 5". Non-California, low altitude figures were used.

For light-duty vehicles the fraction of annual travel by model year was obtained from the DEP for Multnomah County for the calendar year 1974. This data, which gives fraction of annual travel as a function of auto age, was applied to the 1980 and 1990 emission factors, as it is the best possible estimate of future vehicle age mix. For heavy-duty vehicles, fraction of annual travel by model year was taken directly from Appendix D in Supplement No. 5.

Becuase more detailed data for the study area was not available, a hot/cold vehicle emission factor of 1.0 was assumed. This implies that 20% of the miles driven will be driven by cars in a cold transient phase, 27% in a hot transient phase, and 53% in a stabilized phase. If, at some later date, more information pertinent to this factor is available, a new factor can be calculated and applied directly to the concentration shown on the contours.

Emission factors were calculated with speed correction factors for the mean speeds of 25 mph, 30 mph, and 45 mph. (These are average speeds for the study area on arterials, ramps, and the freeway.) In drawing contours, the appropriate factors corrected for speed, were used for each road modelled.

Vehicle mix was provided by the traffic engineers. Emission were calculated for the appropriate mix of light duty passenger, light duty truck, heavy duty gasoline, and heavy duty diesel on each road which was modelled. (For NO_x and HC, which were done in somewhat less detail, the light duty truck category was omitted and all light duty vehicles were assumed to be light duty passenger vehicles.)

Since the validity of the emission factors is dependent on the successful implementation and operation of the Oregon Motor Vehicle Inspection Program, emissions both with and without such a program have been derived. Emissions used in the contours drawn do not have credit for an "inspection/maintenance" program included in them; however, in a later section of this appendix, comparisons of concentrations with and without an inspection program, are made for 1990 (minimum and maximum emission strategies) and for 1980 (maximum emission strategy). The inspection program was assumed to start in 1975.

Carbon Monoxide

In order to determine a CO temperature correction factor applicable to worst-case conditions, temperature data from the meteorological station at the Hughes Building (105 S.W. 4th Avenue) was examined. For winter days in 1973 and 1974 on which the 8-hour Federal CO Standard was exceeded at the CAM Station, eight-hour temperature averages were calculated for the hours concerned. The lowest of these averages (which produces the highest correction factor) was used in calculating the CO temperature correction factor. This temperature was 2.5° C (36.5° F), which produced a non-catalyst temperature correction factor of 1.49, and a catalyst temperature correction factor of 3.87. (The temperature correction factor for catalyst-equipped vehicles was used for model years later than 1977.)

The carbon monoxide emission factors which were calculated are shown below.

CO Emission Factors in grams per mile*

Vehicle Type	1980 maximum	1990 maximum	1990 minimum
Light Duty, Passenger	68	32	26
Light Duty Truck	95	110	36
Heavy Duty, Gasoline Powered	174	164	128
Heavy Duty, Diesel-Powered	25	25	25

*Speed for the factors in this table is assumed to be 20 m.p.h.; credit is not given for an inspection/maintenance program.

Nitrogen Oxides

In order to determine an appropriate temperature correction factor for NO_x, an annual average temperature was obtained from ten-year meteorological data at the Portland International Airport. (An annual average was used because the Federal and State NO_2 standards are in terms of an annual arithmetic mean; the data from the airport provides the most complete souce of archival temperature data.) The temperature used for calculation of NO_x emission factors was 52.3°F, which resulted in a catalyst temperature correction factor of 1.21, and a non-catalyst temperature correction factor of 1.12. (The temperature correction factor for catalyst-equipped vehicles was used for model years later than 1977).

The nitrogen oxides emission factors which were calculated are shown below.

NO_x Emission Factors in grams per mile*

Vehicle-Type	1980 maximum	1990 maximum	1990 minimum
Light Duty, Passenger	4.1	3.8	1.4
Heavy Duty, Gasoline-Powered	11.7	12.8	12.4
Heavy Duty, Diesel-Powered	21.9	21.9	21.2

*Speed for the factors in this table is assumed to be 20 m.p.h.; credit is not given for an inspection/maintenance program.

Hydrocarbons

In order to determine an appropriate temperature correction factor for HC, 1975 data from the EPA monitoring station on Kittridge Ave. was examined. The highest 6 a.m.- 9 a.m. concentration of HC in August was recorded on August 22, 1975. The average temperature at the Hughes Building meteorological station during the same time period was 14.3°C(57.7°F). This temperature was used to calculate a temperature correction factor for the HC emission factors. (A non-catalyst temperature correction factor of 1.16 and a catalyst factor of 1.50 were calculated .) For calculation of crankcase emissions for light duty vehicles, the average travel per vehicle was calculated from the 1974 annual travel data for Multomah County. This figure was 20.7 miles per vehicle per day for Multnomah County(as compared with a national average of 29.4 miles per vehicle per day).

The HC emission factors calculated are shown below.

HC Exhaust Emission Factors in grams per mile*

Vehicle Type	1980 Maximum	1990 Maximum	1990 Minimum
Light Duty, Passenger	5.6	3.2	1.6
Heavy Duty, Gasoline Powered	17.2	13.5	7.2
Heavy Duty, Diesel-Powered	4.3	4.3	4.2

*Speed for the factors in this table is assumed to be 20 m.p.h.; Credit is not given for an inspection maintenance program.

HC Crankcase and Evaporative Emissions in grams per mile

Vehicle Type	Crankcase Emissions		Evaporative Emissions	
	1980	1990	1980	1990
Light Duty	.42	.03	2.80	1.37
Heavy Duty	.87	0.00	5.80 (4.92)*	5.80 (3.34)*

*The numbers in parenthesis result if heavy duty evaporative emissions are controlled, starting in 1978.

Particulate.

For light duty vehicles, a minimum rate of .25 and a maximum rate of .54 grams per mile was employed (depending on whether or not unleaded gas is in use). For heavy duty vehicles a rate of 1.11 gm/mile for gasoline and 1.3 gm/mile for diesels was used. (This assumes an average of four tires per gasoline truck and eight tires per diesel truck.)

Lead.

Lead emissions are caused by the lead content of gasoline; if lead-free gas is required by the new controls (as now seems probable) this source of lead will be diminished and will eventually disappear. Otherwise, lead concentrations, as particulate, will increase with traffic increases. The following emission factors for lead were derived from discussions with Shell Oil.

Lead Emission Factors in grams per mile

	(13.6 mi/gal)	(6.0 mi/gal)
premium	.11	.24
regular (low-lead)	.05	.12
unleaded	< .002	<.005

These figures follow the latest EPA emissions procedures in assuming an average fuel consumption of 13.6 miles/gallon for cars and 6 miles per gallon for trucks. They were combined to form 1980 and 1990 maximum emissions by assuming that the average car in city driving achieved 13.6 miles per gallon, the average gasoline light and heavy duty truck achieved six miles per gallon, and both used regular fuel. The 1990 minimum emissions assumed the same mileage as above and unleaded fuel for the light duty vehicles and light duty trucks. The maximum lead emission factor on city streets is .05 grams per mile; the minimum factor is .01 grams per mile. Factors for the bridge and ramps were slightly higher due to a higher truck percentage.

Prediction Methodology

Carbon monoxide and lead levels for future years were forecast using mathematical models validated in Portland for those pollutants. (The validation was done as part of the work for the Interstate 505 EIS.) The air pollution dispersal models specifically address the roadway design (at grade, elevated, on fill, or in cut) and consider mechanical mixing by vehicle turbulence as well as meteorological advection and turbulence. The models allow arbitrary roadway network and traffic data input.

Basic Diffusion Mechanism

The basic diffusion mechanism is the Gaussian Plume Model. Suppose that a continuous point source is located at a distance h (meters) above a ground plane which reflects a fraction R of the pollutant, and is emitting a nonreactive gas or pollutant at a constant rate Q(grams/seconds). A coordinate system is chosen as illustrated in Figure B-3 with the positive x-axis in the direction of the mean wind, the positive z-axis in the vertical direction, and the origin directly below the point source. The pollutant is assumed to be diluted by the combined effects of the mean wind speed and atmospheric turbulence. According to the Gaussian plume model the mean pollutant concentration $\bar{\chi}(x, y, z)$ at a point (x, y, z), $x > 0$, $z > 0$, is given by

$$\bar{\chi}(x, y, z) = \frac{Q}{2\pi\bar{u}\sigma_y(x)\,\sigma_z(x)} \exp\left\{-\frac{y^2}{2\sigma_y(x)^2}\right\}$$

$$\times\left\{\exp -\frac{(z-h)^2}{2\sigma_z(x)^2} + R\exp -\frac{(z+h)^2}{2\sigma_z(x)^2}\right\}$$

$$\text{(grams)} \qquad (1)$$

where

$\bar{u}$ = mean wind speed (meters/second)

$\sigma_y(x), \sigma_z(x)$ = standard deviations of lateral and vertical relative concentration distributions, respectively (meters).

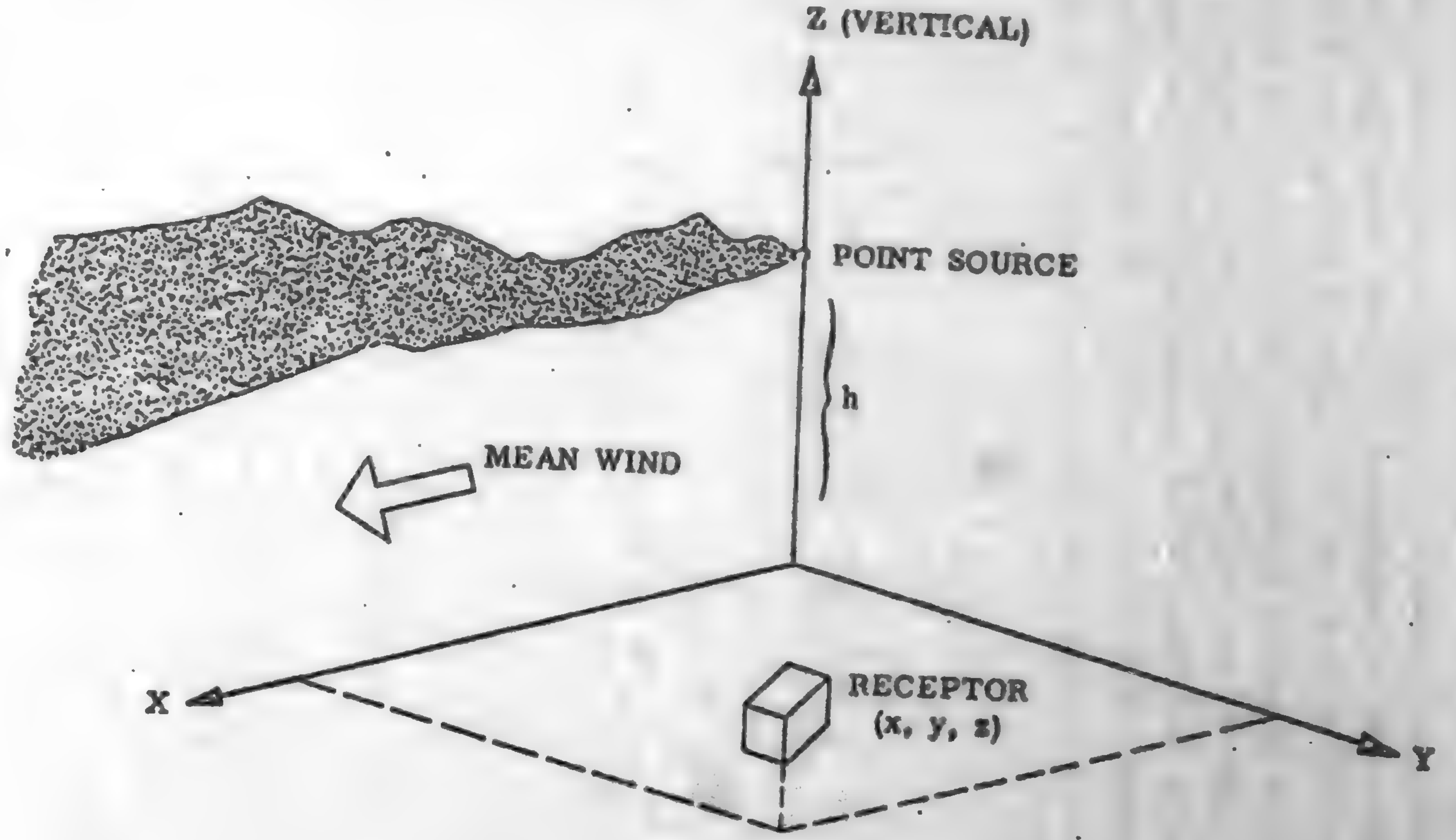

Z (VERTICAL)
POINT SOURCE
h
MEAN WIND
X
RECEPTOR
(x, y, z)
Y

Figure B-3. Point Source.

It should be noted that any consistent set of units for mass, length and time may be chosen arbitrarily without altering Equation 1 or any of the subsequent formulas.

Equation 1 states that the mean relative concentration $\bar{\chi}\bar{u}/Q$ in any plane perpendicular to the mean wind is obtained by the superposition of two 2-dimensional Gaussian distributions, one centered a distance h above the ground plane and the other a distance h below. The distributions are the same except for translation, and their lateral, vertical standard deviations are denoted $\sigma_y(x)$, $\sigma_z(x)$, respectively.

The magnitudes of $\sigma_y(x)$, $\sigma_z(x)$ determine the degree of pollutant dispersion due to atmospheric turbulence. The larger the magnitudes of $\sigma_y(x)$, $\sigma_z(x)$, the greater the dispersion of pollutants and the lower the pollutant concentration levels. The National Reactor Testing Station (NRTS) at Idaho Falls* conducted experiments relating $\sigma_y(x)$, $\sigma_z(x)$ to the standard deviations of lateral and vertical wind directions, σ_θ, σ_ϕ respectively. Using least squares regression techniques, the NRTS derived the approximate relations

$$\sigma_y(x) = \frac{\sigma_\theta}{1.23}x \qquad \sigma_z(x) = \frac{\sigma_\phi}{1.23}x \tag{2}$$

where θ, ϕ are measured in radians.

The relations of Equation 2 will be assumed for the remainder of this paper. As well as simplifying the subsequent analysis, the relations also have considerable practical value by allowing concentration predictions based on measurements of local wind fluctuations. These measurements may be made with a bivane and have been correlated with vertical temperature gradients.*

---

*United States Atomic Energy Commission, Meteorology and Atomic Energy, July 1968.

The form of the Gaussian point source formula which will be applied below is

$$\bar{\chi}(x, y, z) = \frac{Q}{2\pi\bar{u}C_1C_1x^2} \quad \exp - \frac{y^2}{2C_1^2x^2}$$

$$x \left\{ \exp - \frac{(z - h)^2}{2C_2^2\, x^2} + \exp - \frac{(z + h)^2}{2C_2^2\, x^2} \right\} \qquad (3)$$

where

$C_1 = \sigma_\theta/1.23$

$C_2 = \sigma_\phi/1.23$

In addition to the above method, the dependence of σ_y and σ_z on distance and stability class as described by D.B. Turner* can be used to model roadway dispersal. The classes depend on wind speed, time of day, cloud cover, and surface wind speed. Since Turner's technique does not require a direct measurement of wind deviation, it is much simpler to apply and correlate with common meteorological records where the more accurate measurements are not available.

The point source model is implemented exactly as shown to model dispersal from local sources such as tunnel stacks, etc. The following sections describe the application of the basic Gaussian model to roadways.

---

*D. Bruce Turner, Workbook of Atmospheric Dispersion Estimates, 1970.

Vertical Strip Source.

Roadways are best modeled by considering the flow of exhaust through the vertical plane running along the leeward edge of the roadway (Figure B-4). Suppose that the vehicle exhaust after initial mixing above the roadway passes through this plane between the elevations h_o and $h_o + \Delta h$. Then the virtual source may be taken to be the vertical strip of width Δh at a height h_o above the leeward edge of the roadway.

Assuming the vertical strip is a uniform source, the concentration formula for a normal wind is

$$\bar{X}_v = \frac{q_L}{\bar{u}\Delta L} \left\{ F\left(\frac{h_o + \Delta h - z_o}{C_2 D}\right) - F\left(\frac{h_o - z_o}{C_2 D}\right) + R\left[F\left(\frac{h_o + \Delta h + z_o}{C_2 D}\right) - F\left(\frac{h_o + z_o}{C_2 D}\right)\right]\right\} \quad (4)$$

where

q_L = the emission rate per unit length of source

z_o = the elevation of the receptor

$F(t)$ = the standard normal cumulative distribution

$$F(t) = \frac{1}{\sqrt{2\pi}} \int_{-\infty}^{t} e^{-(s^2/2)} ds .$$

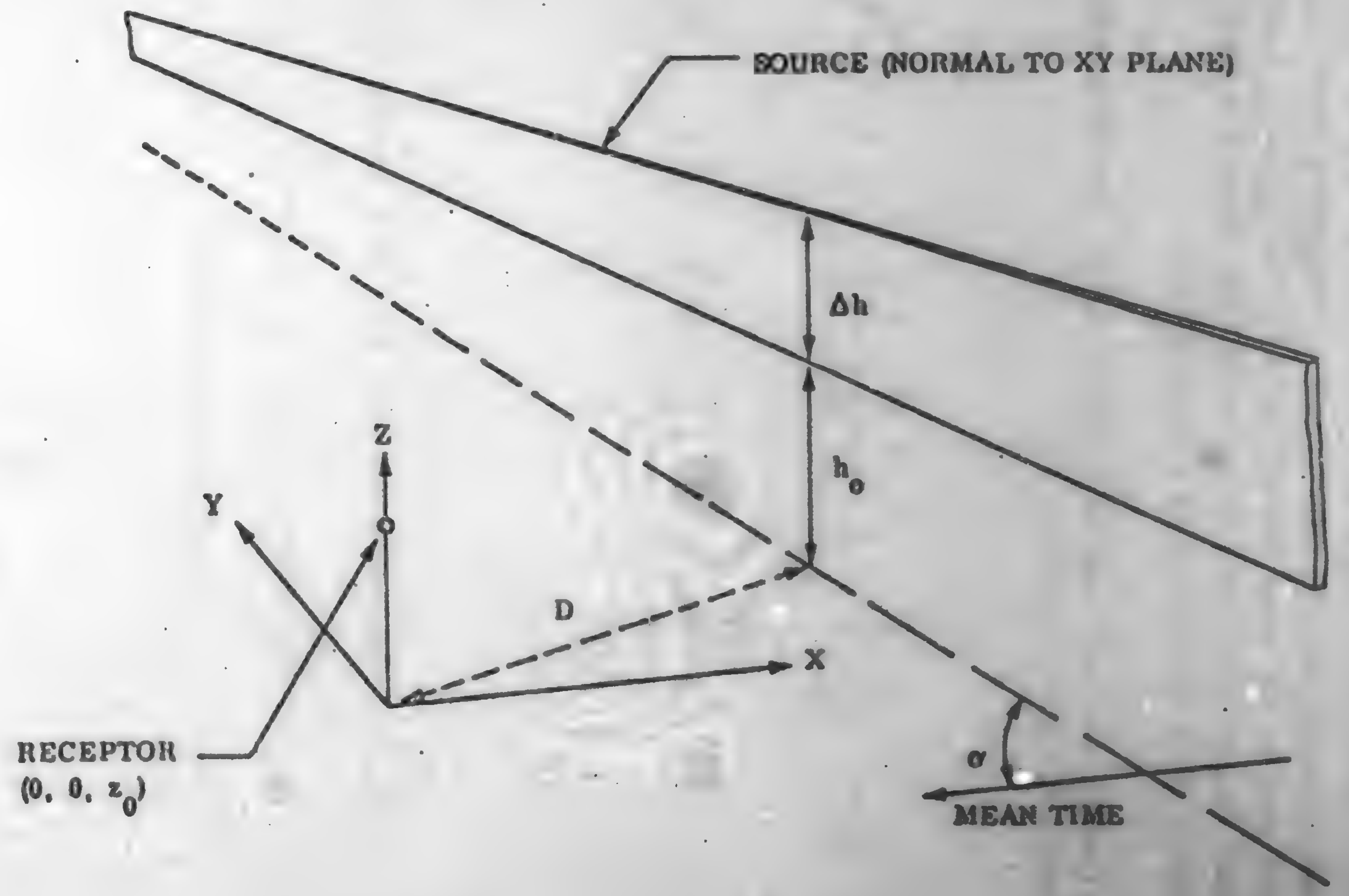

SOURCE (NORMAL TO XY PLANE)
Δh
h0
Z
Y
X
D
RECEPTOR
(0, 0, z0)
σ
MEAN TIME

Figure B-4. Infinite Vertical Strip Source Above XY - Ground Plane

If the strip is not a uniform source then it may be subdivided into smaller strips for which the emission rates may be assumed to be approximately constant. Equation 4 could then be applied to each of the substrips and the contributions of each of the summed to obtain the total concentration.

For non-normal winds $o \leq \alpha < \pi/2$, the concentration at the receptor satisfies

$$\bar{\chi} = \int_{h_o}^{h_o+\Delta h} \frac{q}{4\pi\bar{u}} \sum_{A=z_o-h,\ z_o+h} \sqrt{\frac{2\pi}{C_2^2 D^2 + A^2 C_1^2 \cos^2}}$$

$$\times \exp \frac{-A^2 \sin^2 \alpha}{2(C_2^2 D^2 + A^2 C_1^2 \cos^2 \alpha)}$$

$$\times \quad 1 + \operatorname{erf}\left(\frac{C_2 D \tan \alpha}{\sqrt{2}\, C_1 (C_2^2 D^2 + A^2 C_1^2 \cos^2 \alpha)^{1/2}}\right) \quad dh \tag{5}$$

Often the term $A^2 C_1^2 \cos^2 \alpha$ in Equation 5 can be neglected because either α is sufficiency close to $\pi/2$ or $A^2 C_1^2$ is small compared to $C_2^2 D^2$. In this case, Equation 5 becomes

$$\bar{\chi} = \frac{1}{2} \quad 1 + \mathrm{erf} \left(\frac{\tan \alpha}{\sqrt{2}\, C_1}\right) \qquad \frac{q}{\bar{u}\, \sqrt{2\pi} C_2 D} \int_{h_o}^{h_o + \Delta h}$$

$$\left\{ \exp \left[\frac{-(z_o - h)^2 \sin^2 \alpha}{2C_2^2\, D^2}\right] + \exp \frac{-(z_o + h)^2 \sin^2 \alpha}{2C_2^2\, D^2} \quad dh \right\}$$

$$= \frac{q}{2\bar{u} \sin \alpha} \quad 1 + \mathrm{erf} \left(\frac{\tan \alpha}{\sqrt{2}\, C_1}\right) \quad F \quad \frac{(h_o + \Delta h - z_o) \sin \alpha}{C_2 D}$$

$$- F \quad \frac{(h_o - z_o) \sin \alpha}{C_2 D} \quad + F \quad \frac{(h_o + \Delta h + z_o) \sin \alpha}{C_2 D}$$

$$- F \quad \frac{(h_o + z_o)}{C_2 D} \tag{6}$$

$$\bar{\chi} = \frac{q}{2\sqrt{2\pi}\, \bar{u}\, C_1} \quad \ln \quad \left(\frac{(h_o + \Delta h - z_o) C_1 + \sqrt{(h_o + \Delta h - z_o)^2\, C_1^2 + C_2^2 D^2}}{(h_o - z_o) C_1 + \sqrt{(h_o - z_o)^2 C_1^2 + C_2^2 D^2}}\right.$$

$$\left. \times \left(\frac{(h_o + \Delta h + z_o)\, C_1 + \sqrt{(h_o + \Delta h + z_o)^2\, C_1^2 + C_2^2 D^2}}{(h_o + z_o) C_1 + \sqrt{(h_o + z_o)^2 C_1^2 + C_2^2 D^2}}\right) \right. \tag{7}$$

for $\alpha = 0$.

Carbon Monoxide.

The following assumptions were made in the carbon monoxide predictions in order to obtain worst-case predictions:[1]

- 1 mph wind for eight hours
- Wind direction 45° to roadway
- Contours represent downwind concentrations
- Unstable (B) stability class

Lead.

The following assumptions were made in the lead predictions in order to obtain worst-case predictions:

- 5.1 mph wind (lowest monthly average from 10-year summary of Portland's meteorological conditions.)
- Wind direction 45° to roadway
- Contours represent downwind concentrations
- Slightly unstable (C) stability class
- 50% absorption of reflected particulates

Background Levels

Background levels for carbon monoxide and lead were added to the concentrations predicted by the dispersal model. These levels represent pollutants generated in the study area which were not included in the modelling process. The 1975 background levels were derived by subtracting the (modelled) freeway contribution from monitored data at the hospital. The 1980 and 1990 background levels were then computed by adjusting the 1975 levels to account for the differences in future year emission factors. The background levels used in the contour maps are as follows:

	1980	1990 Minimum	1990 Maximum
Carbon monoxide	3	1	2
Lead	.1	0	.1

---

[1] These assumptions are considered conservative and may cause the predictions to overstate CO levels.

RESULTS

Microscale

Carbon monoxide and lead concentrations in the Study Area were calculated for 1980 and 1990 as described previously. Comparative evaluations of the air quality impacts of the three alternates and the no build were then made. The criteria for evaluation were:

1) Occurrence of areas in violation of an air quality standard.
2) Differences of at least 2 mg/m^3 in carbon monoxide between the no build and any alternate, Differences of at least .4 ug/m^3 lead between the no build and any alternate.

The results of this comparison are given in Tables B-6 through B-9. Although there are areas in excess of the CO and lead standards in almost all cases, these areas are generally associated with traffic on Interstate 5. There are no air quality differences between the alternates which are also associated with high pollutant concentrations.

Regional

In order to assess the regional air quality implications of the various alternatives, the total pollutant emissions projected as a result of each option were calculated. The results of these calculations are given in Table B-10. The CO, HC, and NO_x totals represent variations of emissions with average vehicle speeds as well as total vehicle miles travelled; the lead results reflect the latter only. There are no significant differences in total emissions between alternates.

Table B-6 . Summary of CO Impacts of 1980

Alternate	Areas over 10 mg/m^3 in 1980	Differences of more than 2 mg/m^3 between alternate and no build
No Build	1. All of Union Ave. (80-100') 2. I5 north of Fremont Bridge (300-400') and Going St.(300') 3. I5 south of Russell (300') and Broadway west of 7th (300') and Broadway west of I5 (250') 4. Broadway between 7th and 21st (100') and Weidler, Broadway east of 21st, 33rd south of Fremont, Interstate Ave. south of Fremont Bridge (60') 5. Intersections: Williams and Vancouver at Fremont and Alberta (~ 60') Broadway at 33rd (~150') 33rd at Killingsworth (100')	
Cook Fremont	1, 2, 3, 4 ~same as NB (3) but Broadway west of I5 (200') 5. same as NB but also includes intersection of Fremont Ramp w/ Vancouver (~125') and Fremont Blvd., Vancouver, Williams, Fremont Bridge area (~50-125')	1. Intersection of Alberta w/ I5 (lower) 2. Along Fremont Bridge Ramp between I5 and Vancouver Ave. (higher)
Short Cook	1, 2, 3, 4 - same as NB (3) also Broadway west of I5 (200') 5. same as NB but also includes intersection of Fremont Ramp w/ Vancouver (~125')	1 Intersection of Alberta w/ I5 (lower) 2. Along Fremont Bridge Ramp between I5 and Vancouver Ave. (higher)
Fremont Boulevard	1, 2, 3, 4 - same as NB (3) also Broadway west of I5 (200') (2) also I5 (250-350') 5. Same as NB except for Fremont Blvd. intersections w/: Vancouver (200'), Williams (150') Union (150') 6. Fremont Bridge Ramp between I5 and Fremont Blvd. (100') Fremont Blvd between Williams and Union (60')	1. Intersection of Alberta w/ I5 (lower) 2. Along Fremont Bridge Ramp from I5 to Fremont Blvd, and along Fremont Blvd. from the Ramp to Union Avenue.

Note: All distances measured from the edge of the outside lane.

Table B-7 . Summary of CO Impacts 1990 Maximum

	Areas over 10 mg/m^3	Differences of more than 2 mg/m^3 between alternate and no build
No Build	1. I5 from north of Killingsworth to just north of Fremont Bridge (200-300'), Going St. (100') Interstate Ave. between Going and Alberta (50') 2. I5 between Russell and Hancock St. (200') 3. I5 at Broadway and Weidler (300-400') 4. Broadway and Weidler Between 1st and 6th Ave. (30-150') 5. Union Ave. between Tillamook abd Hancock (30-100') 6. Intersections : Broadway and 33rd (50-90') 33rd and Killingsworth (60') Killingsworth and Union (50') Union and Fremont (60-80')	
Cook Fremont	1, 2. Same as NB 3. Same as NB but 250-350' 4. Same as NB but 30-100' 5. Same as NB but 20-80' 6. Same as NB but Killingsworth and Union (60') 7. Corner of Williams and Fremont (50')	Fremont Bridge Ramp between I5 and Vancouver, Intersection of Williams with Fremont Blvd.
Short Cook	1. Same as NB but I5 200-280' 2. Same as NB 3. Same as NB but 250-390' 4. Same as NB but 30-100' 5. Same area as NB but 20-80' 6. Same as NB but Union and Fremont (60-70')	Fremont Bridge Ramp between I5 and Vancouver
Fremont	1. Same as NB but I5 200-260' 2. Same as NB 3. Same as NB but 250-350' 4. Same as NB but 30-100' 5. Same as NB but 20-80' 6. Broadway and 33rd, and 33rd and Killingsworth the same 7. Fremont Bridge Ramp between I5 and Fremont Blvd. (50') Fremont Blvd. between Ramp and Union Ave. (40-80') Union Ave. between Fremont Blvd. and Killingsworth (50')	Fremont Bridge Ramp between I5 and Fremont Blvd. Fremont Blvd. Between Ramp and Union

Note: All distances measured from the edge of the outside lane.

Table B-8 Summary of CO Impacts, 1990 Minimum

Alternate	Areas over 10 mg/m^3	Differences of more than 2 mg/m^3 between alternate and no build
No Build	1. Within 70 to 120' of freeway I5 between Going to near Fremont Bridge; Russell and Tillamook 2. Within 75 to 300' of freeway I5 near Broadway and Weidler	
Cook Fremont	1. Same as NB 2. Same as NB but within 50' to 200' of I5.	Along Fremont Bridge Ramp between I5 and Vancouver Ave.
Short Cook	1. Same as NB 2. Same as NB but within 50' to 200' of I5.	Along Fremont Bridge Ramp between I5 and Vancouver Ave.
Fremont	1. Same as NB but within 60 to 100' of I5. 2. Same as NB but within 50' to 200' of I5.	Along Fremont Blvd. and Fremont Bridge Ramp between I5 and Union Ave.

Note: All distances measured from the edge of the outside lane.

Table B-9 Summary of Lead Impacts, 1980 and 1990 Maximum
(No Impacts for 1990 Minimum)

	Areas over 3.0 ug/m^3	Differences of more than .4ug/m^3 between alternate and no build
No Build	1990: 1. I5 from Going St. to near Fremont Bridge (50-100') 2. I5 between Russell and Tillamook (80') 3. I5 between Mason St. and Beech St. (70') 1980: I-5 between Beech and Mason (50')	
Cook Fremont	1990: 1. Same area as NB but 50-90' 2. Same as NB 3. Same area as NB but 20-100' 1980: Same as NB but 60'	1990: Fremont Bridge Ramp between I5 and Vancouver, and corner of Fremont Blvd. w/ Williams 1980: Same as 1990
Short Cook	1990: 1. Same area as NB but 50-90' 2. Same as NB 3. Same area as NB but 20-100' 1980: Same as NB	1990: Fremont Bridge Ramp between I5 and Vancouver 1980 Same as 1990
Fremont	1990: 1. Same area as NB but 40-80' 2. Same as NB 3. Same area as NB but 20-90' 1980: Same as NB but 55'	1990: 1. Fremont Bridge Ramp between I5 and Fremont Blvd. 2. Fremont Blvd. between Fremont Bridge Ramp and Union Ave. 3. Union Ave. between Fremont Blvd. and Killingsworth 1980: Same as 1990 - 1 and 2

Note: All distances measured from the edge of the outside lane.

Table B-10 1990 Total Emissions of Carbon Monoxide, Hydrocarbons, Nitrogen Oxides, and Lead in Kilograms per day, assuming Minimum Emissions.

Alternative	CO	HC	NO_x	Pb
No Build	10,051	1,100	1,229	5.18
Short Cook	10,000	1,097	1,222	5.16
Cook-Fremont	9,976	1,092	1,215	5.14
Fremont Boulevard	10,053	1,109	1,224	5.18

APPENDIX C

NOISE

INTRODUCTION

This appendix presents details of existing and future noise levels in the study area. Also presented are details of monitoring and analysis methodologies used in obtaining the results. The appendix is presented in two parts, the first part dealing with existing noise levels in the study area; the second part discusses projected noise for 1980 and 1990 for each of the alternates under consideration.

EXISTING NOISE LEVELS

Introduction

While Portland is presently as noisy as any city of comparable size and density, DEQ existing and proposed noise regulations are expected to foster a much quieter climate. These regulations will control individual sources such as motor vehicle and new development of all kinds so as to bring the ambient sound levels down to specified limits. The limits are set in stages with the most stringent regulation occurring after 1985.

DEQ sets its noise regulations according to a statistical measure of noise on the dBA scale. The dBA is a unit of noise which approximates the response of the human ear to the various frequencies which occur in sound. These dBA sound levels are employed by DEQ in scales which take into account the time variation of the local noise levels as well as their absolute values. The L_{10} is the noise level exceeded 10 percent of the time; this value has been widely used to characterize highway noise and it correlates well with surveys of human annoyance due to noise. The L_{50} is the noise level exceeded 50 percent of the time.

Table C-1 Oregon Noise Standards for Noise Sensitive Property

	Allowable Statistical Noise Level	
Measure	7 a.m. - 10 p.m.	10 p.m. - 7 a.m.
L_{10}	60 dBA	55 dBA
L_{50}	55 dBA	50 dBA

Source: Oregon Administrative Rules, Chapter 340, Section 35-035.

Table C-1 shows the State of Oregon's noise standards for noise sensitive properties, i.e., homes, churches, schools, and public libraries. New commercial and industrial development is prohibited from causing noise levels to exceed these standards at noise sinsitive properties and existing commercial and industrial development must meet the standards after 1977.

Table C-2 shows L_{10}'s recommended by the Federal Highway Administration (FHWA) for different land uses. Note that a maximum L_{10} of 70 dBA is recommended as an exterior design noise level in critical areas such as residential neighborhoods, hospitals and schools. The East-End Fremont Bridge Ramps Ad Hoc Committee has recommended that the maximum allowable noise level measured at a residence, hospital or school shall be an L_{10} of 65 dBA in the daytime and 60 dBA at night. The standards presented here can be used as a reference in the discussion of existing noise levels in the study area which follows.

Table C-2 Design Noise Level/Land Use Relationships.

Land Use Category	Design Noise Level - L_{10}	Description of Land Use Category
A	60 dBA (Exterior)	Tracts of lands in which serenity and quiet are of extraordinary significance and serve an important need, and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose. Such areas could include amphitheaters, particular parks or portions of parks, or open spaces which are dedicated or recognized by appropriate local officials for activities requiring special qualities of serenity and quiet.
B	70 dBA (Exterior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, picnic areas, recreation areas, playgrounds, active sports areas, and parks.
C	75 dBA (Exterior)	Developed lands, properties or activities not included in categories A and B above.
D	--	For requirements on undeveloped lands see paragraphs 5a(5) and (6), this PPM.
E*	55 dBA (Interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals and auditoriums.

U.S. Department of Transportation, Federal Highway Administration, Policy and Procedure Memorandum 2/8/73, HEV-10.

Results of Noise Measurement Program

Noise was monitored throughout the study area in order to determine both spatial and diurnal variations in the ambient noise climate. Figure 1 shows the locations of the noise measurements with the maximum L_{10} measured at each location. Table C-3 shows the details of all 15-minute measurements including location, time, traffic, distance of sample from the roadway, L_{10} and L_{50}. Several 15-minute measurements taken in residential areas exceeded L_{10} 70 dBA. In addition, L_{10}'s of greater than 70 dBA were measured near the following schools: Vernon, Saint Andrews, Humboldt and Alameda. If DEQ's proposed daytime L_{10} standard for 1977, of 55 dBA for a quiet area is considered, all schools at which measurements were taken would have exceeded the standard. A list of these schools would include the above schools plus Eliot, Highland, Sabin and Boise.

In addition to the 15-minute measurements, two exterior 24-hour measurements and two interior measurements were made. During the daytime period at the site on Fremont Street at 17th Avenue the measured L_{10} was 68.9 dBA. The night L_{10} measured 65.3 dBA. These levels exceed proposed DEQ noise rules. The Ldn for the same time period was measured to be 63.4 dB. At Emanual Hospital exterior measurements over 24 hours continuously, yielded a daytime L_{10} of 74.3 dBA and a nighttime L_{10} of 61.2 dBA and an Ldn of 69.7 dB. These noise levels are quite high for a hospital; however, construction was taking place approximately 35 meters away in a parking area during the daytime working hours. It appears that different types of construction will be taking place at or near the hospital, intermittently over the next several years. The two indoor samples, which were also taken at Emanuel Hospital, were also high due to construction noise. Both were 15-minute measurements. The L_{10}'s were 57.4 dBA and 60.0 dBA (a nearby window was slightly open during the first measurement).

---

[1] The standard of 55 dBA for quiet areas is used here for illustration. In actuality, no quiet areas have been officially designated.

Table C-3 Results of Noise Measurements

Location	Time*	Traffic (vehicles per hour)	Distance** (feet)	L_{10}(dBA)	L_{50}(dBA)
Killingsworth between					
20th and 22nd	3:00pm	692	24	70.6	62.7
Alberta between	3:25pm	684	20	75.5	67.8
8th and 9th	3:45pm	768	20	75.7	69.1
Union between	3:30pm	1560	21	74.6	68.9
Alberta and Wygant	4:05pm	1628	21	74.9	69.1
Union between					
Mason and Shaver	4:35pm	1752	50	73.0	68.4
Union between					
Morris and Monroe	5:10pm	1360	50	77.5	71.1
Union between					
Knott and Russell	5:40pm	1056	18	78.8	70.7
Morris between	6:10pm	84	18	64.6	58.6
Williams and Vancouver					
Union between	6:35pm	816	20	72.0	66.2
Sacramento and Thompson					

Location	Time *	Traffic (vehicles per hour)	Distance** (feet)	L_{10} (dBA)	L_{50} (dBA)
7th between Thompson and Tillamook	7:00pm	396	25	54.8	53.5
7th between Stanton and Morris	7:05am	268	25	66.8	54.7
Fremont between 9th and 10th	7:25am	468	20	72.6	63.1
12th between Fremont and Klickitat	7:50am	36	17	61.5	53.3
17th between Shaver and Mason	9:00am	8	30	57.0	53.4
7th between Wygant and Alberta	9:25am	116	20	65.7	54.0
Fremont between 25th and 26th	8:25am	364	20	70.9	60.0
Vancouver between Page and Tillamook	2:40pm	464	50	69.9	62.8
Lillis Albina Park between Flint and Commercial	3:05pm	-	-	66.4	63.9

Location	Time*	Traffic (vehicles per hour)	Distance** (feet)	L_{10}(dBA)	L_{50}(dBA)
Vancouver between Failing and Beech	3:40pm	684	20	74.7	63.4
Haight between Failing and Shaver	4:10pm	36	20	61.3	54.1
Vancouver between Skidmore and Mason	4:35pm	552	15	74.2	64.0
Williams at Prescott	4:55pm	1004	25	76.0	68.4
7th between Skidmore and Mason	5:20pm	451	18	74.6	64.7
9th between Shaver and Failing	5:45pm	40	15	60.7	53.7
	8:35pm	12	17	57.4	49.9
Borthwick between Page and Russell	6:15pm	0	65	66.4	63.7
Williams between Knott and Russell	6:35pm	360	50	64.8	59.3
	8:40am	372	50	68.5	59.2
Fargo between Union and 7th	7:00pm	32	20	56.8	53.3

Location	Time*	Traffic (vehicles per hour)	Distance** (feet)	L_{10}(dBA)	L_{50}(dBA)
Knott between 9th and 10th	7:20pm	260	25	66.0	55.9
21st between Siskiyou and Stanton	6:40pm	268	24	66.3	55.2
	8:05pm	228	25	65.7	53.3
Fargo between Kirby and Borthwick	2:10pm	-	15	61.6	57.0
Fremont between Kirby and Borthwick	1:45pm	212	12	69.0	55.0
Weidler at 7th	7:15am	-	-	73.7	67.9
	7:25am	1230	10	78.6	70.4
	7:40am	1364	15	77.8	70.3
Union at Broadway	7:55am	2022	15	79.6	73.7
	8:10am	1664	10	78.8	71.6
Union at Fremont	8:30am	1208	15	78.2	70.7
	5:55pm	1412	15	76.0	69.5
Fremont at Williams	8:55am	2475	18	75.4	68.8

Location	Time*	Traffic (vehicles per hour)	Distance** (feet)	L_{10} (dBA)	L_{50} (dBA)
Commercial and Cook	9:25am	8	12	63.2	57.9
Alberta and Minnesota	4:10pm	968	18	75.9	68.0
	2:25pm	888	25	77.4	71.0
Union and Killingsworth	4:40pm	2572	15	81.5	75.5
	3:00pm	2144	20	79.5	72.9
15th and Fremont	12:05pm	712	26	75.6	67.9
	7:30pm	692	25-30	71.0	63.9
33rd and Fremont	12:40pm	1288	14	78.8	72.0
Vancouver and Alberta	1:10pm	684	25	75.3	68.1

*The time noted is the beginning time of the sample; each sample was of 15-minute duration.

**The distance note is the distance from the center of the near lane.

The results of the noise measurement program in the study area showed varying noise levels in residential areas, with several areas exceeding levels recommended by the Federal Highway Administration. The number of schools with "high" noise levels varies with the standard under consideration; fewer schools are affected by high noise levels if the FHWA standard is used. Noise levels at Emanual Hospital were very high, mainly due to construction.

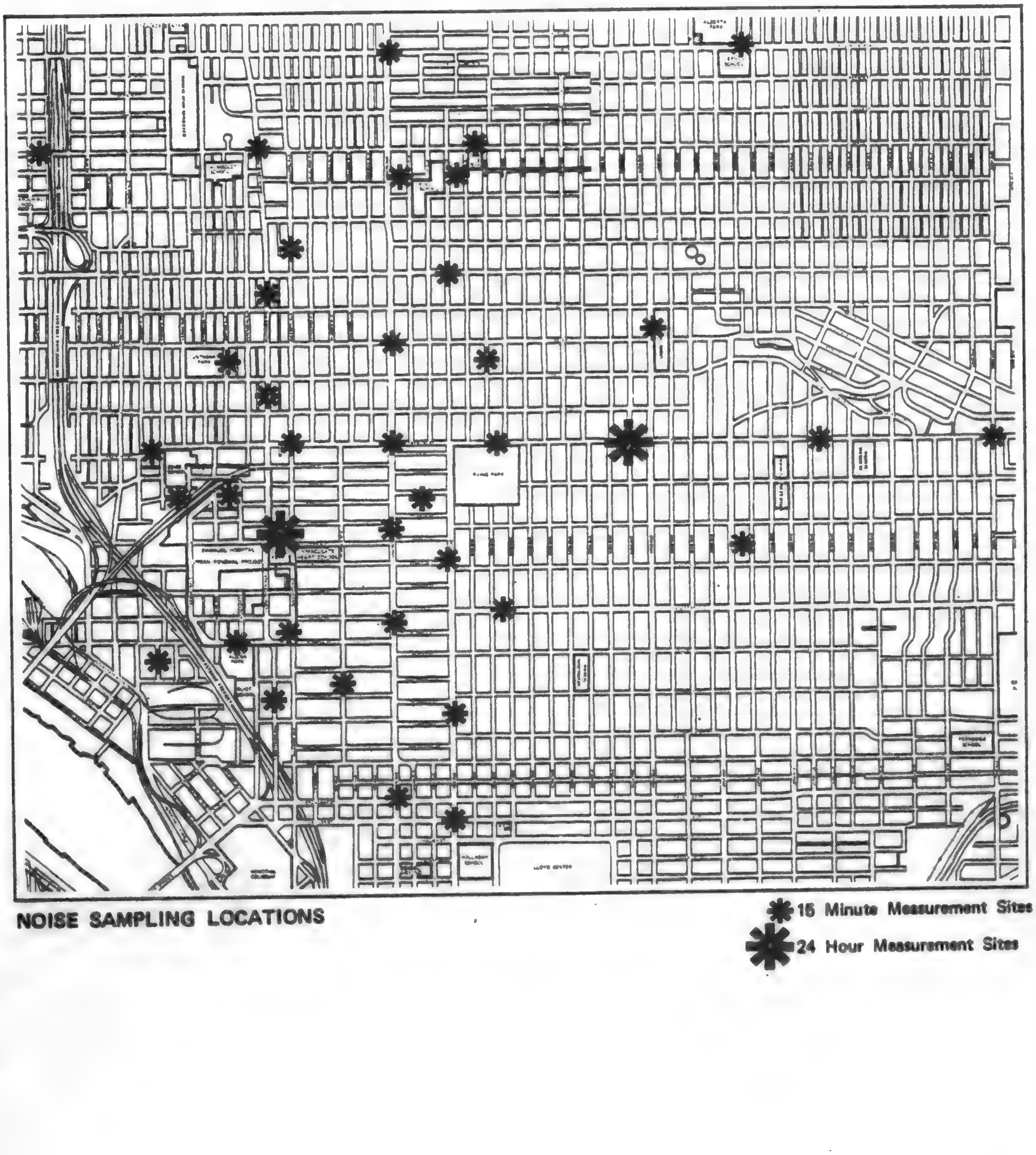
Field Measurement Program

To characterize spatial variation, 40 monitoring sites were chosen at various locations in the study area representing residential, commercial and industrial land uses. Many of the sites were near critical receptors such as schools. Fifty 15-minute measurements were taken at these 40 sites. In addition, two fifteen minute measurements were taken inside Emanuel Hospital.

To characterize diurnal variations, two 24 hour noise samples were taken, one in a residential area and one at Emanuel Hospital. The 24-hour sample in the residential area was taken from outside a second story bedroom window of a house on Fremont Street at 17th Avenue. The microphone was approximately 5 meters above street level and was extended approximately .5 meters from the side of the building. The second 24-hour sample was taken from outside a window of Emanuel Hospital on Graham Street near Vancouver Avenue. The microphone was approximately 2 meters above street level, 10 meters from Graham Street and 30 meters from Vancouver Avenue. The locations of all noise samples are shown in Figure C-1.

Monitoring Equipment and Procedures

The instrument used was a Bruel and Kjaer Model 166B/S.45 Environmental Noise Classifier. This is a self contained instrument used to obtain the statistical distribution of noise. It divides a range of 30 dB into eleven amplitude classes and one exceedence class. The base class can be set from 45 dBA to 100 dBA in nine 5 dB steps. The results as well as the total time of the sample are recorded manually from the instrument face.



NOISE SAMPLING LOCATIONS

✱ 15 Minute Measurement Sites

✱ 24 Hour Measurement Sites

The instrument was calibrated before each sample with a Bruel and Kjaer Type 4230 Sound Level Calibrator which produces a 1000 Hertz tone of 93.6 dB re 20 $\mu N/m^2$. A spherical windscreen was used at all times to reduce wind noise.

During the sampling period with the exception of the two 24-hour measurements, the total volume of traffic and truck mix were counted and recorded. Vehicle speed was estimated and noted. In addition, approximate wind speed and direction were noted. The A-weighting scale was used at all times.

FUTURE NOISE LEVELS

RESULTS OF PREDICTION AND ANALYSIS

Criteria for Determining Noise Impact

In determining whether a noise impact will occur for any alternate, the 1980 and 1990 noise contours for that alternate were compared with the 1980 and 1990 no-build contours, respectively. Where noise levels in a given year after construction of an alternate were no higher than the no-build levels for that year, no impact was found. Only where project construction would cause higher levels than no project was an impact said to exist. After determination of impact, mitigation measures to reach FHWA guidelines were designed where feasible. Additional impacts as determined by use of the Ad Hoc Committee guidelines are also described and some indication given of the extent of the mitigation measures required. A discussion of the costs and effectiveness of various mitigation measures is given at the end of this appendix.

Summary of Results

Short Cook has the fewest noise impacts, Fremont has the most before project mitigating measures. Noise abatement through use of walls and berms is not feasible for the most extensive area of noise impacts, that along Fremont between Union and Vancouver. Walls or berms are recommended along the ramps, however, for the Fremont option. Acquisition, soundproofing, or application for exceptions was recommended in all other cases.

Use of the Ad Hoc Committee guidelines increases the extent of the areas subject to noise impacts. To conform to these guidelines, walls or berms will be required along the ramps in all alternates. Many homes, primarily those along Fremont, cannot both adequately be protected by a noise barrier and still retain access to the street.

Cook-Fremont

FHWA Guidelines

Noise impacts affect two homes on Cook between Vancouver and Williams, and one home on the corner of Vancouver and Ivy. These as well as all homes on Fremont from Vancouver to Union would be impacted, were it not that soundproofing is planned for all.

The homes on Fremont would be impossible to protect, with a wall or berm, because of the need for residents to gain access to Fremont; openings on walls tend to severely reduce the noise abatement benefits of these structures. As a minimum, a masonry structure 8 feet high with either no openings or with corner wraparounds at all openings (such as street corners) would be required. It is possible that if wall height were increased some openings would be allowed. A wall would be economically infeasible for the houses on Cook and Ivy.

Ad Hoc Committee

Additional noise impacts affect the area parallel to the ramps on the north side, to about 200 feet from the ramps. On Fremont the impact zone is 100 feet from the middle of the near lane of the widened road.

Walls or berms on the north side of the ramps would be required to meet these guidelines; details of these requirements are the same as that recommended for the Fremont alternative, FHWA guidelines.

The FHWA guidelines allow funds for acoustic protection of undeveloped lands, if such action is desirable on consideration of anticipated future land use, future need, expected long term benefits, and the difficulty and increased cost of later incorporation of abatement measures. It is recommended that if the Ad Hoc Committee guidelines are to be followed, consideration be given at this time to noise abatement measures to protect the hospital's undeveloped lands. The 65 dBA contour extends 150 feet into the hospital lands on either side of Cook Street.

Short Cook

FHWA Guidelines

A 70 dBA contour abuts the pavement along Fremont. No noise mitigation is required.

Ad Hoc Committee Guidelines

Additional areas (other than commercial and industrial) receiving a maximum noise level greater than L_{10} 65 dBA in this alternate and not in the no-build are: North and south of the ramps to approximately 100 feet and the single house on Williams between Fremont and Beech.

Fremont Boulevard

FHWA Guidelines

Noise impacts without mitigation would affect one row of residences on the north side of Fremont from Vancouver to Haight, the south side of Fremont from Union to Williams to 75 feet from the middle of the near lane; three homes and the Open Door House of Prayer between Fremont and Ivy south of Haight and north of the ramps, one home on the northwest corner of Ivy and

Gantenbein, three homes on Gantenbein between Fremont and Ivy.

As with other options, protection for homes along Fremont by constructing a wall is not feasible. This is doubly true for the Alfa King Terrace Apartments, which are two story. Soundproofing is presently planned as it is for the four homes on Gantenbein within the L_{10} 70 dBA contour.
In order to protect the homes and church northwest of the ramps, a wall or berm on the north side of the ramp will be constructed. This structure will be 8 - 10 feet high, within 10 feet of the edge of the near lane, be constructed of earth mound or masonry, and have no openings throughout its length. The wall on the north side will begin at N.E. Fargo Street, at 8 feet high, extend along the ramps halfway to N.E. Cook Street, and continue as a 10 foot wall to Fremont, wrapping around west on Fremont as far as possible to maintain access for the resident there. (That is, to start at the intersection of the ramp and Commercial.)

Ad Hoc Committee

The L_{10} 65 dBA contour extends to 200 feet on either side of the ramps as well as along Fremont. Mitigation to meet this noise criteria would be extensive and would require primarily acquisition and soundproofing along the south side of Fremont. On the north side, 6 foot high walls would provide sufficient reduction for the homes further back. Walls should be either 10 feet from the middle of the near lane or at the property line to be protected, but must have no openings except for streets.

Consideration should also be given to a wall or berm on the south side of Ivy extending southward along the ramp to protect the Hospital's presently undeveloped lands.

Methodology and Analysis

Noise contour maps were produced for the years 1980 and 1990, for each alternate including the no-build. The contours were predicted by use of a mathematical model which was developed by the Highway Research Board and which is approved by the Federal Highway Administration. A computer program of the model has been prepared by the Michigan Department of State Highways, for use on a Univac 1108 computer. This original program was modified for this study by the consultant's staff to take into account the reduction in noise levels expected in 1990 due to existing and proposed legislation mandating both quieter cars and trucks. Other modifications were made to permit ease of use in producing contours.

The contours are a result of traffic noise sources at peak traffic hour. Traffic data employed in the analysis consisted of design hourly traffic volume, design speed, peak traffic volume and speed, percent truck mix and percent hourly truck volume for peak hours. Roadway design data employed consisted of highway configurations (depressed, on-grade or elevated) and roadway surface.

The 1990 levels were computed assuming that existing Federal legislation intending to quiet trucks and proposed State legislation which would result in quieter cars will be in effect. (The State legislation is similar to that already in effect in California and Washington: see Table C-4). The assumed reduction due to this legislation is shown in Table C-5. In addition, the Federal legislation will tend to lower the height at which truck noise is emitted, by approximately 5 feet. The effectiveness of these measures on the L_{10} in this study is approximately 5 dBA.

The presence of buildings between the source and the receiver of the emitted noise may reduce noise levels at the receiver. This shielding effect has been accounted for in the calculation of the contours in order to more accurately describe noise levels in the study area. The magnitude of the reduction applied was 5 dB for the first row of buildings and an additional 1dB for each of the next two rows of buildings.

Noise abatement structures such as earth berms and walls may be used to reduce noise levels at the receiver. Several abatement structures were designed in the primary impact area where they were necessary and practical. (In some cases, for example on Fremont Avenue, it was not possible to design a wall. To be effective a wall or berm must be continuous or unbroken; hence an effective wall would make access to private properties impossible.)

Climatic conditions are not considered by the model. Weather, wind velocity, humidity, and temperature gradients can have a pronounced effect on noise propagation over distances greater than about 500 feet. Shadow zones (lower levels than predicted) or zones of intensification (higher levels than predicted) are created during fluctuating and variable weather conditions and are therefore not reflected in the model.

Table C-4 Maximum Noise Levels for Automobiles in Oregon*

Year	Maximum Noise Level (dBA)
1975	83
1976-1978	80
after 1978	75

*The test for these levels is a moving test at 50 feet.
Source: Oregon Administrative Rules, Chapter 340, April 1, 1975.

Table C-5. Assumed Reduction Due to Vehicle Noise Legislation.

Speed (mph)	Reduction (dBA)
35	3.0 + .20T*
45	3.3 + .20T*
55-65	3.8 + .15T*

* T = percent trucks (as a whole number).

NOISE ABATEMENT

Introduction

Abatement of traffic noise is accomplished by blocking the path of the noise between the source and the receiver. Two common methods of achieving this are through use of a wall or similar structure, and by soundproofing homes or other enclosures. The use of a wall is preferable, since it allows protection of interior as well as exterior receptors. However, in order to be effective, a noise wall must have no cracks or openings along its length; this is impracticable along a city street where access for each residence must be maintained. Safety and economics are other factors that make noise walls impractical in many urban situations.

Noise Walls or Berms

In this study noise walls or berms have been recommended only where they can extend for a significant distance relative to the property to be protected. Locations for projected and non-project walls are along the ramps and where property is being taken on Fremont Boulevard for the right-of-way. The height of the structure needed depends on the traffic volume and speed as well as the year. The year is especially important because Federal legislation designed to quiet trucks is expected to primarily reduce stack noise and therefore source height. This means noise guidelines can be achieved in 1990 with 2 - 4 feet lower structures than are needed in 1980. In this study, all wall heights have been specified to meet guidelines in 1980.

Wall or berm materials must be chosen to reduce sound transmitted through the barrier by at least 10 dBA more than the desired noise reduction. If this is so, transmitted noise can be ignored and only sound paths over the barrier must be considered. Since the noise reduction required in the alternates chosen is less than 10 dBA for FHWA guidelines and less than 15 dBA for Ad Hoc guidelines, a transmission loss of 25 would cover both cases. Table C- 6 shows the transmission losses for common materials.

Any type of masonry would be suitable for the project needs. Plywood or timber could be used although these materials often present a problem in maintaining effective noise reduction capability. The nailholes and seams in wooden barriers tend to enlarge with time and weathering, reducing the effectiveness considerably.

Figure C-2 shows comparative costs for several types of acoustical barriers. Earth berms and precast concrete berriers are least expensive. Where room for a berm is not available, precast concrete walls are recommended for this project.

Soundproofing

Soundproofing a home consists in insulating and sealing cracks through which noise may leak into a home; it is therefore also an energy conservation measure. It is generally not necessary in a new home, and becomes more expensive the older the home. The single most costly item is usually the air conditioning which must be provided in order to allow the occupants to keep doors and windows nearest the traffic closed at most times. In homes with air conditioning, the cost of soundproofing is much less. A 1969 estimate of the cost of sealing windows, installing forced air ventilation, replacing deficient exterior doors, sealing door edges, installing sound traps in door edges and sealing miscellaneous cracks in an average urban home was $2,695; this would of course be higher today. From other sources, it appears that of this estimate approximately two thirds represents the air conditioning installation.

Other soundproofing measures are available but may not be necessary in this study area to achieve the interior noise levels of 45 dBA in homes subject to noise impacts. These measures would include double glazing windows and modifying the surface of the interior walls, perhaps with foam. A determination as to whether either of these measures were required would depend on both the alternate chosen and the particulars as to the existing home condition. A detailed assessment of this type is not appropriate at this time. The cost of double glazing windows is approximately $2,000-$3,000; foam-in-place installation is given in one 1975 source as 65 cents a square foot.

TABLE C-6

APPROXIMATE TRANSMISSION LOSS (dBA) FOR COMMON MATERIALS

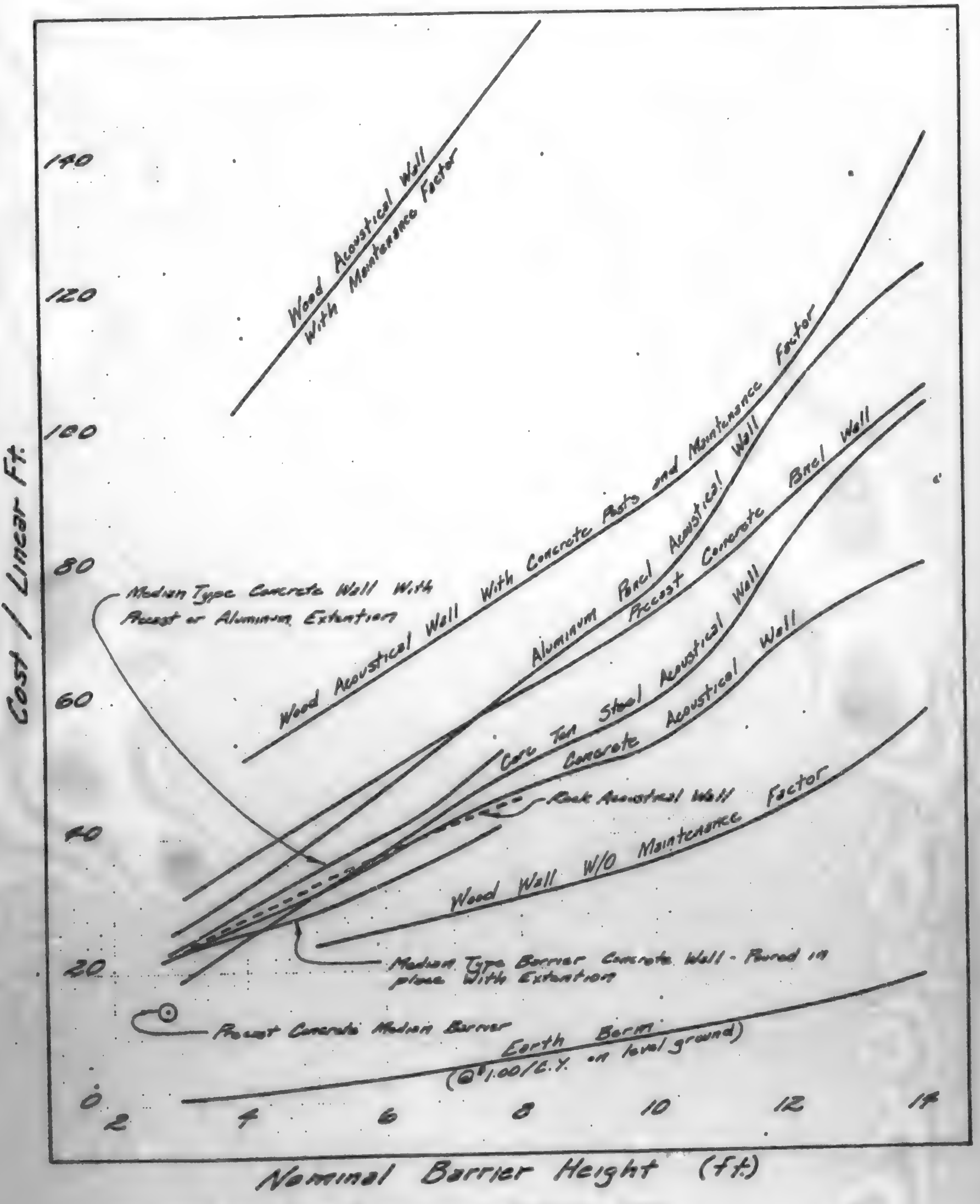
MATERIAL	Transmission Loss (dBA) **
Timber, Fir (1/2 inch thick, 1.7 lb/sf)	18
Timber, Fir (1 inch thick, 3.3 lb/sf)	21
Timber, Fir (1-1/2 inch thick, 5.0 lb/sf)	22
Timber, Fir (2 inch thick, 6.7 lb/sf)	24
Plywood (3/4 inch thick, 2.5 lb/sf)	19
Plywood (1 inch thick, 3.3 lb/sf)	23
Plywood (1-1/4 inch thick, 4.2 lb/sf)	26
Gypsum Board (1/2 inch thick, 0.9 lb/sf)	17
Cinder Block Hollow Core (6 inch thick, 25 lb/sf)	28
Concrete Block Hollow Core (4 inch thick, 23.3 lb/sf)	30
Concrete Block Hollow Core (6 inch thick, 35 lb/sf)	36
Brick (4 inch thick, 43.3 lb/sf)	33
Concrete, Dense (4 inch thick, 50 lb/sf)	35
Plaster on Metal Lath (1/2 inch thick, 4.5 lb/sf)	31
Glass (1/8 inch thick, 1.6 lb/sf)	22
Plexiglass (1/4 inch thick, 1.5 lb/sf)	22
Steel, Flat Sheet* (24 gage, 0.025 inch thick, 1.0 lb/sf)	18
Steel, Flat Sheet* (22 gage, 0.0312 inch thick, 1.3 lb/sf)	20
Steel, Flat Sheet* (20 gage, 0.0375 inch thick, 1.5 lb/sf)	22
Steel, Flat Sheet* (18 gage, 0.050 inch thick, 2.0 lb/sf)	25
Aluminum, Flat Sheet* (1/8 inch thick, 1.8 lb/sf)	23
Lead (1/16 inch thick, 3.7 lb/sf)	28

*Similar transmission losses are achieved with corrugated or deformed metal sheets.

**A-weighted transmission loss based on generalized truck spectrum at 50 feet for all speeds.

Source: Federal Highway Administration, 1974.

Comparative Acoustical Barrier Costs



Source: Washington State Department of Highways, 1974.

Figure C-2

Appendix D
WATER QUALITY

The receiving stream for storm water runoff is the Willamette River. During critical low flow periods, the Willamette River is within the standards set by the State of Oregon for water quality.

EXISTING CONDITIONS

The study area is now served by a combined wastewater and storm water sewer system. Combined sewage is piped to a treatment plant located on Columbia Boulevard. Treated effluent from the plant is discharged into the Columbia River. Any measurable rainfall causes flows in the combined sewer to exceed capacity of the sewage treatment plant. An overflow or discharge of combined sewage into the Willamette River occurs through various diversion manholes. A 208 study is currently underway which will look at the problem caused by discharge of the untreated sewage to determine if it is a problem and what solutions are available.

All discharges into the Willamette River are required to meet the same quality standards. Whether these standards should be achieved by treating a combined flow or treating separate storm and sanitary flows will be discussed as part of the 208 study.

PROPOSED IMPROVEMENTS

A separate storm sewer system will be constructed as part of this project as is required by the Environmental Protection Agency. The system will drain into a separated storm sewer constructed for Kerby Boulevard. The Kerby Boulevard storm sewer system discharges to the Willamette River. When the capacity of the combined sewer within the study area is exceeded, diversion manholes pipe the excess combined sewage into the Kerby Boulevard storm sewer system. The combined sewage is discharged into the Willamette River. Separation of the storm and sanitary sewage would eliminate the overflow of the sanitary sewage and the direct discharge of combined sewage. This project would play a small part in implementing separation of the storm and sanitary sewage.

Effect of Alternatives on Storm Water Runoff

The additional areas served by a separated sewage system for the alternatives of this project are 16.5 acres for the Short Cook alternative, 25.4 acres for the Cook-Fremont alternative, and 34.7 acres for the Fremont Boulevard alternative.

Rational Equation. Storm water runoff is traditionally calculated by the rational formula, $Q = CIA$ in which

Q = quantity of runoff measured in cubic feet per second (cfs)
C = runoff coefficient in percent, i.e., ratio of runoff to rainfall
I = rainfall intensity in inches per hour
A = drainage area in acres

The rainfall intensity I is obtained from intensity duration curves. Intensity duration curves show storms of various recurrence intervals, that is a 2 year or 5 year or longer recurrence interval. As the recurrence return interval increases, the intensity, or the inches per hour of rainfall, also increases. As the duration of the storm increases, the intensity decreases.

Quantity of Runoff. For purposes of comparison, we have calculated the runoff for a 5-year storm with a 20-minute duration. This storm gives a rainfall intensity, I = 1.25 inches for the Portland area. This example storm will give the following runoffs for the proposed alternatives: 11.3 cfs for Short Cook, 17.9 cfs for Cook-Fremont, and 25.7 cfs for Fremont Boulevard. Construction of additional pavement will cause an estimated increase in the runoff for the same storm of 0.15 cfs for Short Cook, 0.25 cfs for Cook-Fremont, and 1.65 cfs for Fremont Boulevard.

The increases in runoff are relatively small varying from about 1 percent to 6-1/2 percent.

Changes in storm runoff caused by ramp removal will depend on how the land made available is used. A separate storm drainage system was constructed by the Oregon State Highway Department when the ramps were built. This system discharges into the storm sewer system constructed to handle storm water from Interstate 5, which discharges into the Willamette River.

Assuming the land made available by removal of the ramps were made into a park, an example of the type of development which has a relatively low runoff coefficient, the runoff from the example storm is estimated to be 1.9 cfs. If the area were to be developed into light industry, runoff is estimated to be 5.8 cfs. Existing runoff for the example storm from this same area is estimated to be 4.0 cfs.

Pollution Effect of Storm Water Runoff

Storm water discharge has a relatively high loading of pollutants during the first runoff after a dry spell. This first flush flow can cause a shock loading to the receiving body when flows are low, as they typically are in late summer or early fall.

The possible methods of treating the storm water for the combined sewage overflow include:

1. Diversion of the initial runoff from the storm sewer system to the sewage treatment plant for treatment.
2. Primary treatment of the storm or combined sewage by removal of solids and sending the solids portion to the sewage plant and discharging the screened portion.
3. Storage of combined runoff or initial shock storm runoff until sewage treatment plant flows are low enough to allow treatment of the stored sewage.
4. A street cleaning program which will reduce the initial shock loading by removing solids and either flushing them through the system often enough that quantities are low or sweeping them up from the street.

One source of pollution in storm water runoff is motor vehicle emitted contaminants on the roadway. The predicted 1990 ADT on both the Fremont and Broadway bridges varies from 102,500 for the no build alternative to 106,100 for the Fremont Boulevard alternative. This increase of 3.5 percent would be accompanied by reduced travel time to those vehicles going to the study area using the Fremont Boulevard alternative. This decrease in travel time would reduce the increase in motor vehicle emitted contaminants on the roadway to something less than the 3.5 percent increase in ADT.

WATER QUALITY IMPACT OF THE PROPOSED ALTERNATIVES

The scope of this project is such that the changes in water quality of the Willamette River due to construction of any of the alternatives will be so minor as to be unmeasurable.

Appendix E
ECONOMICS

A cost-benefit study attempts to quantitatively measure the net benefits (or costs) resulting from a given or proposed project. Usually the result is expressed in terms of the value of benefits per dollar of investment. A present value analysis is utilized to compare cost and benefit streams over time. The cost-benefit study analyzing the alternatives for the Fremont Bridge ramps follows the standard methodology, although in this case several important costs and benefits are not quantifiable. Therefore, the results are only partially indicative of the net effects of each alternative. The following discussion outlines the major assumptions of the analysis and some of the justifications for those assumptions.

The cost-benefit analysis was limited to a 15-year time horizon. Impact estimates were made for each cost and benefit flow for the years 1976, 1980, and 1990. Values for intermediate years were obtained by interpolation. All dollar values were expressed in 1976 dollars to enable intertemporal comparisons.

In any study involving present value calculations the choice of the proper discount rate is a problem. Several rates were examined in this study, ranging from 6-8 percent. The overall results, including the ranking of the alternatives, were insensitive to the choice of the discount rate within this range. A discount rate of 7 percent was employed in the results shown in the report.

Employment impacts (by place of work) are due to business relocation and traffic volume changes. All employment in businesses relocating outside the study area was assumed to be jobs lost from the perspective of the study area. In some instances, possible relocation plans of businesses are uncertain or unknown. All such businesses are assumed to either end operation or relocate outside the study area. Firms desiring to relocate within the area are assumed to have no loss of employment.

Employment impacts due to traffic volume changes assumed that the 1975 ratio of retail employment to average daily traffic volume per quarter mile of commercially-oriented street would remain constant in each traffic zone. This assumption was relaxed in a few cases where special traffic or business circumstances clearly resulted in an impact different from the otherwise predicted effect.

The assumed retail employment-traffic relationship was based on the strong impact traffic volumes have had on sales and employment in other communities (Refs. 1-4), and on the actual history of Union Avenue. "The commercial strip on Union Avenue developed in response to the automobile, and, in large measure, died when the I-5 Freeway [reduced its use] as a regional route" (Ref. 5).

Employment impacts were translated into payroll values at the average rate of $3.53 per hour in retail trade over a working year of 2,088 hours. Traffic volume changes were assumed to have no effect on nonretail business firms.

Business sales impacts were determined from the estimated employment impacts by means of average annual sales per employee in retail establishments. This average was obtained by dividing a 1974 study's estimate of retail sales in the Union Avenue corridor of $17.36 million (Ref. 5) by the approximately 380 retail employees, as estimated from Oregon State Employment Division unpublished data. The quotient was escalated by 15.3 percent, which was the approximate increase in the "commodities less food" component of the consumer price index from 1974 to 1976. The result was about $52,575 per employee per year in retail trade in the area.

All construction cost estimates were in 1976 dollars. Acquisition costs were estimated from 1976 records of assessed values. The following estimated relocation costs per housing unit were obtained from Oregon State Highway Division staff and applied to the housing survey results to determine total relocation costs:

	Owners	Renters
Families	$7,500	$3,500
Individuals	$6,900	$2,600

Commercial relocation estimates, which varied by firm, were made with the help of local moving companies. Administrative and legal costs associated with acquisition and relocation were assumed to be 15 percent of direct costs.

Time savings were valued at the rate of $4.75 per hour, which was the February 1976, seasonally adjusted, average private nonagricultural wage rate. Noncommercial time savings which might be valued at a lower rate were assumed offset by the probable higher rate of commercial road users.

Based on previous studies of similar traffic improvements (Refs. 6-8) a 10 percent property value increase was assumed for residential properties not abutting a proposed traffic route. It was assumed that this effect would take place soon after implementation. In a few special instances of lesser accessibility improvement, increases of 5 percent were assumed. The area of impact was estimated to be in a four to six block radius from the end of the ramps. Residential properties along a traffic route were assumed to have no significant change in values because of the offsetting access and pollution effects.

Commercial property value impacts were assumed to depend on both access and traffic volumes, with the relative weights of each being 2/3 and 1/3, respectively. It was assumed that access improvements for business will be felt up to 1 mile from the bridge ramps and that the magnitude of this impact will diminish with distance. The maximum impact is estimated to be a 20 percent increase in property values for firms close to the ramps experiencing the maximum traffic impacts (Refs. 7 and 9). Air and noise pollution increases are assumed to have no effect on commercial property values.

The costs of accidents were assumed to average $900 per accident. This value was obtained by escalating the 1973 average cost, which was determined in a study of urban accidents for the American Association of State Highway Officials (Ref. 10).

Vehicle operating costs were assumed to be 19.57 cents per mile at an average speed of 30 miles per hour, which was obtained by escalating the average of 16.17 cents per mile found in a 1973 study (Ref. 11). The 1973 study used a vehicle mix of 83.04 percent passenger cars, 6.8 percent 2-ton trucks, 3.26 percent 6-ton trucks, 3.29 percent 20-ton trucks, and 3.60 percent 25-ton trucks.

REFERENCES

1. University of Illinois, The Impact of Traffic on Residential Property Values and Retail Sales in Champaign-Urbana, 1966.

2. College of Great Falls, Economic Impact of the Growth of Tenth Avenue Upon the Economy of Great Falls, Montana, 1965.

3. Alabama Highway Department, Studies of Optimal Models of Interchange Development Through Land Use Regulation and Control, 1972.

4. Georgia Highway Department, Analysis of Economic Impact of Highway Change on Two Small Georgia Communities, 1969.

5. Marlett and Associates, The Economic Component of the Union Avenue Redevelopment Program, 1974.

6. Hays B. Gamble, et. al., Community Effects of Highways Reflected By Property Values, 1973.

7. Michigan Highway Department, The Economic and Environmental Effects of One-Way Streets in Residential Areas, 1971.

8. Resource Management Corporation, Anticipation of the Effects of an Urban Highway Improvement on the Highway Corridor, 1972.

9. University of Virginia, Bureau of Population and Economic Research, The Socio-Economic Impact of the Capital Beltway on Northern Virginia, 1968.

10. Research Report 144-1F, Highway Accident Costs and Rates in Texas, sponsored by the Texas Highway Department, as cited in American Association of State Highway Officials, A Policy on Design of Urban Highways and Arterial Streets, 1973.

11. Kent Bloom, TRANS-Urban Computer Model (OPGAS), Federal Highway Administration, 1973, as cited in Urban Mass Transit Administration, Characteristics of Urban Transportation Systems, 1974.

1979 E. Fremont Br. Conn. on 8909
FAU 9910 in Portland
(gr, pave, sign & illum.) #3

C&A 5202 - 2-27-75, 2-11-75
C&A 5203 - 2-25-75, 2-11-75

8909

FORM 81-734-3030

OREGON STATE HIGHWAY DIVISION

FILE:

INTER-OFFICE CORRESPONDENCE
October 12, 1976
Salem, OR, 97310

A. Langone for

FROM: Gary A. Potter, Manager
Environmental Section

SUBJECT: Fremont Bridge (I-405) to Union Ave.
City of Portland
Multnomah County, Oregon

TO: E. S. Hunter
Deputy State Highway Engineer

The subject draft environmental statement has been reviewed by the Environmental Study Committee.

The committee has appraised the natural and social impacts included and has found that the statement adequately covers these phases of the project. If you agree, please sign the draft title sheet and return to this office for processing through the Federal Highway Administration.

In the interest of time, only a rough, xerox copy of the impact statement (without maps) has been attached. Preparations for printing and final graphics preparation are on-going during the OSHD and FHWA approval process.

GAP:ss

Attachments

cc: F. B. Klaboe w/attach
J. H. Versteeg
F. E. Terpin
L. W. Rulien
Glen Pierce-City of Portland

NOTED
E. S. HUNTER

RECEIVED
STATE HWY ENGR
OCT 12 '76
REFER TO

FOR

Info	Inves	R/D	D/R	Sign	Act	File

FREMONT BRIDGE ACCESS STUDY

Text for Final Review

1 October 1976

FHWA-OR-EIS-76-0~~1~~4-D

Fremont Bridge (I-405) to Union Avenue
City of Portland, Multnomah County, Oregon

ADMINISTRATIVE ACTION

DRAFT
ENVIRONMENTAL IMPACT STATEMENT

U.S. Department of Transportation
Federal Highway Administration

Oregon Department of Transportation
State Highway Division

City of Portland, Oregon
Department of Public Works

Submitted pursuant to 42 U.S.C. 4332(2)(C), 23 U.S.C. 128(a)~~. and 16 U.S.C. 470(f).~~

Date	Division Administrator, Federal Highway Administration
Date	Assistant ~~Deputy~~ State Highway Engineer, Oregon State Highway Division
Date	City Engineer, City of Portland

For additional information concerning the alternatives and this statement, contact:

City of Portland Department of Public Works

Glen R. Pierce
400 S.W. 6th Avenue
Portland, Oregon 97204

Phone: 248-4643

Federal Highway Administration

Glen L. Green
Division Administrator
Federal Highway Administration
Post Office Box 300
Salem, Oregon 97308

Phone: 378-3835

Oregon State Highway Division

Robert N. Bothman
Assistant State Highway Engineer
Oregon State Highway Division
5821 N.E. Glisan Street
Portland, Oregon 97213

Phone: 238-8226

Gary A. Potter
Manager
Environmental Section
Oregon State Highway Division
412 State Highway Bldg.
Salem, Oregon 97310

Phone: 378-8486

Larry Rulien
Project Management Engineer
Oregon State Highway Division
207 State Highway Bldg.
Salem, Oregon 97310

Phone: 378-6563

SUMMARY

Federal Highway Administration
Administrative Action
Draft Environmental Statement

The proposed Federal Highway Administration action is to participate with the Oregon Department of Transportation and City of Portland in opening a traffic connection to the east-end ramps of the Fremont Bridge (Interstate 405) in the City of Portland, Multnomah County, Oregon. The traffic connection would provide a new access route to the bridge for general use. The ramps have been built, but are now closed to general use.

A Section 4(f) statement has not been prepared for this project. None of the alternatives under consideration will require use of lands from a publicly owned park, recreation area, wildlife refuge, or waterfowl refuge. None of the properties which would be used are known to have historic significance. An investigation of historic significance of these properties has not been conducted. If an alternative which requres acquisition of improved properties is adopted, such an investigation will be conducted.

If any properties are found to be historically significant, a Section 4(f) statement will be prepared and included with the Final Environmental Impact Statement.

Alternatives considered in this report include: (1) restricting general use by either removing, permanently closing, or limiting access to the ramps; (2) connecting the ramps to local collector streets to serve primarily as a neighborhood bridge access route; (3) connecting the ramps to an arterial street to serve as a community bridge access route and limiting total traffic use; and (4) connecting the ramps to the same arterial to serve as a community bridge access route but not limiting total traffic use.

The major findings contained in this report are summarized in Chapter 3 of Part I. Beneficial impacts identified include improved access, time savings, relief of traffic congestion on some streets, and possible support for urban redevelopment. Adverse impacts identified include increased traffic congestion on some streets, violations of the federal 8-hour carbon monoxide standard, and noise levels in excess of the Federal Highway Administration design standard for residences.

AGENCIES, GROUPS, AND ORGANIZATIONS BEING PROVIDED COPIES OF THIS REPORT ARE:

FEDERAL

U.S. Department of Transportation
U.S. Environmental Protection Agency
U.S. Department of Housing and Urban Development
U.S. Department of Interior, Environmental Project Review
U.S. Department of Agriculture, Soil Conservation Service
U.S. Veterans Administration

STATE

Oregon Federal Aid Coordination Unit
Department of Transportation
Public Utilities Commission
Economic Development Division
Department of Environmental Quality
Health Division
Housing Division
Local Government Relations Division
State Soil and Water Conservation Commission
Traffic Safety Commission
Governors Committee for a Livable Oregon
Oregon Roadside Council
Oregon State Library
Office of Energy Resources and Planning
Portland Community College (Cascade)
Portland State University

CITY OF PORTLAND

Planning Commission
Commissioner of Public Works
Commissioner of Public Safety
Commissioner of Finance and Administration
Commissioner of Public Utilities
Commissioner of Public Affairs

City Auditor
City Traffic Engineer
Police Bureau
Fire Bureau
Portland Development Commission
Bureau of Planning

MULTNOMAH COUNTY

Public Works Department
Planning Commission
County Libraries

OTHER AGENCIES

School District No. 1
Tri-Met
Columbia Region Association of Governments
Pacific Northwest River Basins Commission
Port of Portland

INTERESTED PRIVATE GROUPS

Oregon Environmental Council
Oregon Trucking Association
Oregon Council of Architects
Sensible Transportation Options for People
Portland League of Women Voters
End Needless Urban Freeways
Western Environmental Trade Association
Portland Chamber of Commerce
Portland Metropolitan Steering Committee
Associated General Contractors
Associated Oregon Industries
Northwest Environmental Defense Center
National Association for Advancement of
    Colored People
Urban League of Portland
Alameda Neighborhood Association
Boise Neighborhood Association
Concordia Neighborhood Association
Eliot Neighborhood Association
Grant Park Neighborhood Association

Humboldt Neighborhood Association
Irvington Neighborhood Association
King Neighborhood Association
Sabin Neighborhood Association
Union Avenue Boosters
Emanuel Hospital

NEWSPAPERS

The Oregonian
Oregon Journal
Daily Journal of Commerce
The Community Press
Oregon Labor Press
Oregon Times
Portland Observer
The Scanner
Willamette Week

TELEVISION

KATU
KGW
KPTV
KOIN
KOAP

This Draft Environmental Impact Statement was made available to the Council on Environmental Quality and the public on ________________. Receipt of comments is requested no later than forty-five (45) days from the above date to insure inclusion in the Final Environmental Impact Statement.

Table of Contents

Page

PART I. INTRODUCTION, DESCRIPTION OF ALTERNATIVES, AND SUMMARY OF ANALYSIS

Chapter 1. Introduction
- Setting
- Study Objectives
- Project Definition
- Project Need and Justification
- Purpose of the Report
- History of the Project
- Study Design
  - Organization
  - Steps to Date
  - Further Action
- Footnotes
- References

Chapter 2. Description of Alternatives
- No Build Variations
  - Ramp Removal
  - Permanent Closure
  - Limited Bridge Access
  - Hospital and Stanton Yard Only
- Short Cook Alternative
- Cook-Fremont Alternative
- Fremont Boulevard Alternative
- Other Alternatives
  - Short Ivy Alternative
  - Cook-Ivy Couplet Alternative
  - Cook Boulevard Alternative
  - Ivy Boulevard Alternative
- References

Chapter 3. Summary of Analysis

PART II. ANALYSIS

- Chapter 1. Transportation
  - Travel Patterns
    - Projected Future Traffic Volumes
      - Significant Features
        - Total Traffic in 1980 and 1990
        - Streets West of 7th Avenue
        - Fremont Street West of Union
        - Fremont Street East of Union
        - Other Streets East of Union
        - I-5
        - Summary
        - Traffic Under the Hospital and Stanton Yard Only Variation of the No Build Alternative
    - Distribution of Through and Local Trips
    - Origin and Destination of Ramp Traffic
    - Willamette River Crossings
  - Access
    - Total Travel Distance and Travel Time
    - Access to Primary Impact Area
      - Emanuel Hospital
        - Background Perspective
        - Time and Distance Savings
        - Ease and Convenience
      - Bureau of Maintenance Facilities
        - Background Perspective
        - Time and Distance Savings
        - Ease and Convenience
      - Continental Bakery
        - Background Perspective
        - Time and Distance Savings
        - Ease and Convenience
      - Primary Impact Area East of Williams
        - Time and Distance Savings
        - Ease and Convenience

- Access to Rest of Study Area and Outside the Study Area
- Operational Characteristics
  - Traffic Metering under Cook-Fremont and Fremont Boulevard
  - Effectiveness of Traffic Controls
- Impacts
  - Parking
  - Traffic Congestion
    - No Build Variations
    - Short Cook
    - Cook-Fremont
    - Fremont Boulevard
    - 1980 Congestion and Mitigating Measures
    - 1990 Congestion and Mitigating Measures
  - Emergency Services
    - Ambulance
    - Police and Fire Protection
  - Public Transportation
    - Existing Public Transit
    - Transit Use of Ramps
    - Effect of Alternatives on Transit Service
- Transportation Planning
  - Regional Transportation Plan
  - Portland Arterial Streets Program
  - Union Avenue Redevelopment Plan
  - Bicycle Planning
- Footnotes
- References

Chapter 2. Air Quality and Noise
- Air Quality
  - Nitrogen Dioxide and Photochemical Oxidants
  - Carbon Monoxide

    - Significance
    - Existing Levels
    - Future Levels
    - Impact Analysis
      - Outside the Fremont Bridge to Union Avenue Corridor
      - Fremont Bridge to Union Avenue Corridor
      - Secondary Effects
  - Lead
    - Significance
    - Existing Levels
    - Future Levels
    - Impact Analysis
  - Suspended Particulate
  - Hydrocarbons
  - Effect of the Metering
  - Mitigating Measures
  - Coordination of the Air Quality Analysis with the Department of Environmental Quality
  - Consistency with State Implementation Plan
- Noise
  - Existing Levels
  - Future Levels
  - Impact Analysis
    - Predicted Noise Levels and Exposures
    - Effects of Predicted Noise Levels
      - Fremont Bridge to Union Avenue Corridor
      - Boise School
      - Eliot School
  - Mitigating Measures
    - Noise Barriers
    - Other Mitigating Measures
- Footnotes
- References

Chapter 3. Land Use, Redevelopment, and Urban Design
- Land Use
  - Union Avenue
  - Eliot Neighborhood
- Redevelopment
  - Redevelopment on Fremont near Williams and Vancouver (Fremont Boulevard)
  - Redevelopment of the McDonald's Restaurant (Cook-Fremont and Fremont Boulevard)
  - Redevelopment if the Ramps are Removed
  - The Emanuel Hospital Urban Renewal Project
  - The Bureau of Maintenance and the Greeley Avenue Ramps
- Urban Design
  - Visual Impact and Design Considerations
  - Urban Form
- Footnotes
- References

Chapter 4. Relocation
- Properties Affected by Project
- Impacts
- Who Will be Relocated
- Relocation Benefits
  - Individual and Family
  - Moving Benefits
  - Storage of Personal Property
  - Replacement Housing
  - Business and Nonprofit Organizations
- Availability of Replacement Housing
- Footnotes
- References

Chapter 5. Social Conditions and Impacts

- Existing Conditions
- Social Impacts
  - No Build Variations
    - Ramp Removal
    - Permanent Closure
    - Limited Bridge Access
    - Hospital and Stanton
    - Access Yard Only
  - Short Cook
  - Cook-Fremont
  - Fremont Boulevard

Chapter 6. Engineering and Construction
- Design Characteristics
  - Compliance with Design Standards
  - Design Problems
- Utility Relocation
- Construction
  - Duration
  - Construction Impacts
    - Circulation and Access
      - No Build Variations
      - Short Cook and Cook-Fremont
      - Fremont Boulevard
    - Air Quality and Noise
      - No Build Variations
      - Build Alternatives
    - Water Quality
    - Utility Disruption
  - Project Costs

Chapter 7. Economics
- Impacts
  - General
  - Commercial Activity
    - Eliot Neighborhood
    - Boise and Humboldt Neighborhoods
  - Industry

    - General
        - Eliot and Boise Neighborhood
- Public Services
- Property Values
    - Residential
    - Commercial
- Cost-Benefit Analysis
    - Assumptions
    - Findings

Chapter 8. Other Impacts
- Short-Term Use Versus Long-Term Productivity
    - Ramp Removal
    - Limited Bridge Access and Stanton Yard Only
    - Build Alternatives
- Irreversible Commitment of Resources
- Historical and Cultural Resources
- References

Chapter 9. Adverse Impacts That Cannot be Avoided

LIST OF FIGURES

Page

Project Setting
Study Area
Primary Impact Area
Regional Setting
Project Alternatives
Ramp Use
No Build Variations
Short Cook Street Improvements
Short Cook Project Features
Cook-Fremont Street Improvements
Cook-Fremont Project Features
Fremont Boulevard Street Improvements
Fremont Boulevard Project Features
Major Traffic Streets and Traffic Controls
Existing Traffic
Projected Traffic in 1980
Projected Traffic in 1990
Existing Congestion (Capacity Deficiencies)
Projected Congestion (Capacity Deficiencies) in 1980
Projected Congestion (Capacity Deficiencies) in 1990
Existing Public Transit Lines
Interim Regional Tranpsportation Plan
Proposed Arterial Street Classifications
No Build Alternative Carbon Monoxide
Carbon Monoxide in 1980
Carbon Monoxide in 1990
Existing Noise
No Build Alternative Noise
Noise in 1980
Noise in 1990
Study Area Land Use
Primary Impact Area Land Use
Possible Redevelopment at Fremont and Williams/Vancouver

Possible Redevelopment of McDonald's
Possible Redevelopment with Ramps
  Removed
Location of Households and Businesses
  Eligible for Relocation Benefits,
  Fremont Boulevard Alternative
Portland Historical Landmarks

LIST OF TABLES

Page

Estimated Proportions of Through and Local Trips in 1990

Origin and Destination of Projected 1990 Ramp Traffic

Sound Levels and Effects of Illustrative Noises

Federal Highway Administration Exterior Noise Standards

Dwelling Units Exposed to L_{10} Noise Above 70 dBA by Alternatives

Structures Exposed to L_{10} Noise From 60 to 70 dBA and Above 70 dBA, Study Area West of 7th Avenue

Social Characteristics of Project Area Residents

Duration Construction of Alternatives

Estimated 1976 Project Costs

Cost-Benefit Analysis Summary

PART I

Chapter 1

INTRODUCTION

The Fremont Bridge Access Study provides a comparative analysis of alternatives for connecting the east-end ramps of the Fremont Bridge to the city street system. The two ramps under study were designed and built to connect the Fremont Bridge to a future east-west freeway that city planners had projected through northeast Portland in the 1960's. The freeway is no longer part of the regional transportation plan.

The east-end ramps have remained closed except for a limited connection to the on-ramp. This study is intended to provide a basis for deciding their ultimate disposition. It is part of the preliminary engineering studies for a project under the Federal Aid Urban System program. The project would be jointly sponsored by the Federal Highway Administration, the Oregon State Highway Division, and the City of Portland.

SETTING

The figure on the following page shows the circumstances creating the need for this study. The Fremont Bridge crosses the Willamette River and intersects with I-5. When the interchange connecting the Fremont Bridge and I-5 was designed, the Rose City Freeway was planned from I-5 through northeast Portland. When the interchange was constructed, the east-end ramps to connect the Fremont Bridge to the Rose City Freeway were built. Ramps to connect I-5 with the Rose City Freeway had been planned, but were not built. In the meantime, it was decided that neither the Rose City Freeway nor the ramps planned to connect it with I-5 would be built.

The east-end ramps were built to connect to the city street system until construction of the Rose City Freeway. A connection to Union Avenue, which is a 4-lane major arterial, was envisioned. When plans for the Rose City Freeway were abandoned, it became apparent that if the ramps were connected with city streets, it would be on a permanent basis. Possible advantages of this connection to Union Avenue, which is physically and economically depressed, coupled with concerns about the effects of traffic on neighborhoods in the area, created the need for this study.

PROJECT SETTING

(NOT IN REVIEW DRAFT)

The off-ramp has remained closed since construction of the east-end ramps. The on-ramp is open on an interim basis to provide access from the Emanuel Hospital campus via Gantenbein Avenue and Kerby Boulevard. Access from Cook Street is prohibited to discourage use by traffic from outside the hospital campus. Few vehicles use the ramp.

The figure on page ~~2~~ 6 shows the Study Area for this report. As the figure on page ~~4~~ 7 shows, the Study Area is in the central Portland metropolitan area. The Fremont Bridge completes a freeway loop which surrounds Portland's Central Business District and links the major transportation corridors radiating from the city's core. For north and northeast portions of Portland, the bridge serves as an access route to northwest Portland, to the Sunset Highway corridor and, to a lesser extent, to the Central Business District.

The Study Area dates to the late nineteenth century. It contains both the most depressed and some of the most affluent and healthy inner-city neighborhoods in Portland. Much of the city's black population lives in neighborhoods in the western half of the Study Area; a few of these neighborhoods are predominantly black. Although primarily residential, land use is mixed west of Union Avenue. Relative to the eastern portion of the Study Area and the city as a whole, incomes here are low, unemployment high, and housing conditions poor. Nevertheless, most of this part of the Study Area remains a viable residential community.

The population of the eastern portion of the Study Area is middle- and upper-income. The neighborhoods are well-preserved and the quality of housing is high. Significant nonresidential uses are located only along the southern perimeter.

The figure on page ~~4~~ 6 identifies the "Primary Impact Area." Significant features of the Primary Impact Area are shown on the figure on page ~~6~~ 8. The only significant physiographic feature is a sharp drop in elevation located beneath the Fremont Bridge/I-5 interchange.

Current public policy is to maintain the Study Area as a residential community. The Draft Model Cities Comprehensive Plan, which covers all or portions of Eliot, Boise, Humboldt, King, Vernon, Sabin, and Irvington neighborhoods, calls for efforts to improve housing, transportation, neighborhood conditions, and social services and to promote local economic development. The proposed Union Avenue Redevelopment Program seeks to revitalize Union Avenue as

STUDY AREA
(R.D. p. 2)

REGIONAL SETTING
(R.D. p. 4)

PRIMARY IMPACT AREA
(R.D. p. 3)

an important step in improving conditions in adjacent neighborhoods.

STUDY OBJECTIVES

In charging the Department of Public Works to undertake this study, the Portland City Council accepted the recommendation of the Office of Planning and Development committing the Council to "a long-range solution linking the bridge ramps to Union Avenue." The Council set the following as "objectives to be met by the (alternative) long-range solutions" (Ref. 1):

> Ensure compatibility between the long-range solution and the design of the Union Avenue Redevelopment Program;
>
> Ensure that traffic to and from the ramps will be encouraged to use Union Avenue rather than Fremont or other east-west streets;
>
> Ensure that significant additional traffic will not be generated by the solution; and
>
> Ensure adequate access is provided to Emanuel Hospital, Stanton Yard, and the immediate neighborhood.

The Fremont Bridge Access Study also considers all reasonable alternatives in accordance with the policy of the Oregon State Highway Division and Federal Highway Administration. These alternatives include limited access and a "No Build" solution.

PROJECT DEFINITION

The "project" is defined as the connection of the east-end ramps of the Fremont Bridge to the city street system for use by general vehicular traffic. Two of the alternative solutions connect the ramps to Union Avenue. One connects the ramps to the local streets but not to Union Avenue. A fourth alternative is to not implement the project as defined. Each alternative is described in detail in the following chapter.

PROJECT NEED AND JUSTIFICATION

The east-end ramps were designed and constructed to connect the Fremont Bridge with a freeway through the northeast section of the city. Since that freeway is no longer included in the regional transportation plan, the original need for the ramps no longer exists. Consequently, the need for the project is for an alternative use of the ramps that will provide a return in public benefits on the investment made in their construction. Benefits from using the ramps to connect the Fremont Bridge to the local street system would include improved cross-river access, reduced travel time, vehicle operation cost savings, relief of congestion on certain streets and support for redevelopment in areas near the ramps. This report assesses the magnitude of these benefits and of adverse project impacts.

The need to avoid or minimize disruption caused by traffic using the ramps is equally as important as the need to realize benefits from use of the ramps. Substantial public and private resources have been expended to maintain and improve the affected neighborhoods. Either because they are economically and socially depressed or because they are healthy and stable, the neighborhoods are critical policy concerns of the city. There is a need to end the long-standing uncertainty over use of the ramps. This uncertainty discourages investment in the neighborhoods and is a cause of community concern and dispute.

PURPOSE OF THE REPORT

The report serves a multiple purpose. First, it describes alternatives for the use of the ramps and describes the advantages and disadvantages of each course of action to inform interested members of the public and enable the City Council to make a final decision on the disposition of the ramps.

Second, the report serves the Oregon Department of Transportation as a Preliminary Location Study Report and Environmental Statement as required by the Department's Action Plan for Transportation Planning (Ref. 2). The plan states that in the project development process the Department will:

Utilize a systematic interdisciplinary approach;

Consider appropriate alternatives--both type and scale;

Ensure cooperation among citizens, as individuals and as groups, technical personnel and public officials;

Ensure that planning information is available to other governmental organizations in a clear and comprehensive manner to facilitate participation in an open exchange of views and that transportation planning will be conducted with the participation of other agencies, recognizing their policies and goals, and based upon areawide and comprehensive plans.

Third, the report serves as the location study and draft environmental impact statement required by the Federal Highway Administration. The National Environmental Policy Act of 1969 requires the preparation of an environmental impact statement for all "major federal actions significantly affecting the quality of the human environment" (Ref. 3). Federal actions include actions by state and local agencies that are paid for from federal funds.[1]

HISTORY OF THE PROJECT

A new bridge on an alignment with Fremont Street is found in city plans that date back to the early 1900's. In 1927 the City Planning Commission issued a "Major Traffic Street Report" which proposed, among other

other projects, that a bridge be built in the general location of the present Fremont Bridge and that Fremont Street be designated as a "street for major traffic," with a right-of-way at least 120 feet wide (Ref. 4). An "improved" Fremont Street would relieve Sandy Boulevard, provide an alternate route for northeast residents going downtown, and serve as a primary route between northeast neighborhoods and the industrial areas that were building up along the river.

The Moses Report of 1943 proposed a river crossing in the vicinity of the present Fremont Bridge, connecting with a "throughway" north to Vancouver along Vancouver Avenue (Ref. 5). Moses did not recommend an east-west "throughway" through Northeast Portland.

In 1955 the Oregon State Highway Department issued its report, Freeway and Expressway System, Portland Metropolitan Area (Ref. 6). The report recommended a "Fremont Freeway" paralleling Fremont Street and connecting to the Stadium Freeway on the downtown side of the river and to the Banfield Freeway on the east.

Three years later the City Planning Commission adopted a map titled "Comprehensive Development Plan," which showed, instead of the Fremont route, a "Rose City Freeway" from a "Fremont Bridge" to

Prescott Street, along Prescott to about 42nd Avenue, then jogging north and paralleling Killingsworth to the proposed I-205 Freeway.

The Oregon State Highway Department completed the design of the Fremont Bridge in about 1964. It was assumed that ramps planned for the east-end interchange would be connected with the Minnesota Freeway (I-5) and, eventually, with the proposed Rose City Freeway.

In 1966 the City Planning Commission revised the Comprehensive Development Plan map, but kept the Rose City Freeway. In the same year the Portland City Council agreed with the Oregon Highway Department on arrangements for a temporary connection between the Fremont Bridge east-end ramps and the local street system (Ref. 7). The on-ramp would connect to Fremont Street by way of Commercial Avenue. The off-ramp would connect to Vancouver Avenue by way of Ivy Street.

Three years later, in 1969, the Columbia Region Association of Governments (CRAG) adopted the Portland-Vancouver Metropolitan Area Transportation System plan (PVMATS). The plan included the Rose City Freeway, which was shown in a 1971 report (Ref. 8) as a six-lane facility between the Fremont Bridge and 33rd Avenue, with a capacity of 90,000 vehicles per day. Beyond 33rd Avenue the freeway was designed as a four-lane facility with a capacity of 60,000 vehicles per day.

Public concern over the proposed Rose City Freeway was first expressed in planning for the Model Cities neighborhoods. A Traffic Circulation Plan prepared for Model Cities by a consultant in 1971 noted that CRAG and the Oregon Highway Division "have indicated that construction of the Rose City Freeway...in all probability will not occur within the next 20 years, if ever" (Ref. 9). The study projected traffic volumes on a Fremont-Ivy couplet connecting the bridge with Union Avenue, and recommended instead that the ramps be connected to a widened Fremont Street, on the grounds that the intersection at Union would be simpler and the impact on the neighborhood would be lessened.

On Labor Day, 1971, a rally on the bridge ramps attracted a number of people from the neighborhood and others in the city who were questioning the need for another freeway. A draft Model Cities Comprehensive Plan was adopted by the Citizens Advisory Board in 1973. Transportation Policy No. 1 started that "The Rose City Freeway will not be built until after 1990, if ever. Therefore, present transportation and land use planning must be predicted on the assumption that it does not and will not exist" (Ref. 10).

Meanwhile persons active in neighborhood planning in the Model Cities area were expressing concern about the traffic impact caused by connecting the bridge with the city street system. Both the Irvington and Eliot Neighborhood Plans had emphasized the need to protect residential areas from unnecessary traffic. The Fremont Bridge was opened to traffic November 15, 1973. Faced with a lack of agreement on how to open the east-end ramps, the City Council voted to delay their use as originally agreed with the Highway Division. The ramps connecting to Interstate 5 were opened, but the ramps connecting to the surface streets remained closed.

In January 1974, following a public hearing, the City Council adopted an "interim solution" to the use of the east-end ramps (Ref. 1). The off-ramp would be left closed, and a one-lane connector would allow access to the bridge from Kerby Boulevard northbound for Stanton Yard (City Bureau of Maintenance) traffic, and from Gantenbein Avenue for Emanuel Hospital traffic. At the same time the City Council authorized the present study to assist the city in arriving at a long-range solution to the disposition of the two bridge ramps.

In June 1975 CRAG adopted the Interim Transportation Plan for the Portland-Vancouver Metropolitan Area (Ref. 12). This officially deleted the Rose City Freeway from the regional transportation plan, confirming that any use of the east-end ramps would be for local rather than regional access.

STUDY DESIGN

This section of the report describes how the study is organized, how it has been carried out, and what steps will be taken in the future.

ORGANIZATION

There are a number of participants in the study. The consultant team is made up of professional engineers, city planners, economists, and environmental scientists. The staff of the Portland Department of Public Works has administered and monitored the work of the consultant team. A "Citizens Contact Committee" has acted as liaison between the consultant team and the Study Area community. A Technical Review Committee, made up of staff representatives from Federal, State, and local government agencies, has also had the responsibility to review and comment on the work of the consultant team.[2] The general public has been invited to talk with consultants at community meetings.

STEPS TO DATE

The study to date has consisted of four steps. The first step assessed background conditions. The consultants identified existing traffic and transportation patterns, social and economic conditions, air pollution and noise levels, land use, and the prospects for future economic conditions in the Study Area. Their findings were summarized in working papers (Refs. 12, 13, 14, and 15), which were submitted to the Citizens Contact and Technical Review Committees and made available for public review.

The second step consisted of evaluating preliminary alternatives based on the City Council's objectives (discussed earlier in this chapter) and on the working papers. With input from the Citizens Contact Committee, these alternatives were gradually refined and reduced to nine, which were then described and evaluated in another working paper (Ref. 16).

This working paper was submitted to the Citizens Contact and Technical Review Committees for review to initiate the third step, selection of final alternatives. A series of meetings were held and written comments were solicited. On the basis of comment by the committees and the study team's evaluation, a new alternative was developed and a set of final alternatives was selected. A record was made of the consultation on selection of the final alternatives (Ref. 17), and the alternatives were presented at a public meeting.

Finally, the consultants made a detailed analysis of the final alternatives and prepared this report. This process was guided by a set of analysis criteria prepared earlier in the study process and reviewed by the Citizens Contact and Technical Review Committees (Ref. 18). Written and verbal comments received during the selection process and at preceding community meetings were reviewed to insure that the report would address public and agency concerns. The Citizens Contact and Technical Review Committee then reviewed the preliminary drafts of the report.

In addition to coordination with the governmental agencies represented on the Technical Review Committee, there has been ongoing contact with the Oregon Department of Environmental Quality throughout the study.

FURTHER ACTION

Copies of this report will be sent to concerned public agencies and other interested organizations (listed on p. ii-iv) and made available for public review, and a summary will be distributed to the public. The findings of the report will be presented at a community meeting for the general public.

A transcript of this hearing will be combined with written comments submitted to the city in an official record. The report will also be considered by the Board of the Northeast Coalition of Neighborhoods and the Portland Planning Commission for their recommendation.

Following these steps, the City Council will hold hearings and make a decision on a final course of action. The Council will then request assistance from the Oregon Department of Transportation (ODOT) and the Federal Highway Administration (FHWA) for funding to construct whatever improvements are required to implement its decision.

A Final Environmental Impact Statement (FEIS) will be prepared once the City Council decides on a course of action. The FEIS will focus on the solution adopted and respond to comments made during public review. It will be considered by ODOT and FHWA when they take action on the city's request for assistance.

FOOTNOTES

1. This report has been prepared in conformance with Sections 2, 3, and 9 of Chapter 7, Volume 7 of the Federal-Aid Highway Program Manual. These interpret Federal Highway Administration regulations for highway design and environmental impact analysis (Federal Highway Administration, U.S. Department of Transportation, "Design Approval and Environmental Impact," 23 CFR Part 771.62, 39 Federal Register 41809, 2 December 1974) which implement the requirements of the President's Council on Environmental Quality (40 CFR Part 1500, 38 Federal Register, 1 August 1973) for compliance with the National Environmental Policy Act of 1969, (P.L. 91-190, 42 USC 4321-4347), and the procedures established by the Advisory Council on Historic Preservation (36 CFR Part 800, 39 Federal Register, 25 January 1974) for protection of historic and cultural properties pursuant to the National Historic Preservation Act of 1966 (P.L. 89-663, 16 USC 470) and Executive Order 11593, "Protection and Enhancement of the Cultural Environment" (16 USC 470, 36 Federal Register 8921).

2. Members of these committees are listed in the front of this report.

REFERENCES

1. City of Portland Ordinance No. 137707, 16 January 1974.
2. Highway Division, Oregon Department of Transportation, Oregon Action Plan for Transportation Planning, May 1974, pp. 3-9.
3. The National Environmental Policy Act of 1969, P.L. 90-190, 42 USC §4321, et. seq.
4. Portland City Planning Commission, Major Traffic Street Report, 1927, p. 24.
5. Robert Moses, et. al., Portland Improvement, November 1943.
6. Oregon State Highway Department, Freeway and Expressway System, Portland Metropolitan Area, June 1955, pp. 76-79.
7. City of Portland Ordinance No. 122925, 21 July 1966.
8. Portland-Vancouver Metropolitan Area Transportation Study, 1990 Transportation Plan, Interim Report, March 1971, p. 11.
9. DeLeuw Cather & Co., Model Cities Traffic Circulation Plan, December 1971, pp. 17-18, 29, and 43-45.
10. Draft Model Cities Comprehensive Plan, June 1973, p. 34.
11. Columbia Region Association of Governments, Interim Transportation Plan for the Portland-Vancouver Metropolitan Area, June 1971.

12. CH2M HILL, Working Paper No. 2, Study Area Conditions, Fremont Bridge Access Study, June 1975.

13. ________, Working Paper No. 4, Future Economic Conditions, Fremont Bridge Access Study, September 1975.

14. ________, Working Paper No. 5, Traffic and Transportation, Fremont Bridge Access Study, October 1975.

15. ________, Working Paper No. 6, Existing Air Quality and Noise Conditions, Fremont Bridge Access Study.

16. ________, Working Paper No. 7, Evaluation of Preliminary Alternatives, Fremont Bridge Access Study, December 1975.

17. ________, Record of Consultation on Selection of Final Alternatives, unpublished.

18. ________, Working Paper No. 3, Analysis Criteria, Fremont Bridge Access Study, October 1975.

+9 23

Chapter 2

DESCRIPTION OF ALTERNATIVES

This chapter describes the four alternatives analyzed in this report. They are shown schematically on the following page. Three alternatives connect the east-end ramps of the Fremont Bridge and the city street system for use by general vehicular traffic. These are the "build" alternatives. The fourth alternative is to not make a connection with the city street system for general vehicular use. This is the "No Build" alternative. There are four variations of the No Build alternative, ranging from limited use of the ramps to their removal.

In addition to responding to the study objectives in Chapter 1, the alternatives were developed to: (1) provide a range of choice in the use of the ramps (defined in terms of the level of access afforded and amount of traffic projected to use them) and in the type and magnitude of impacts associated with the different uses; and (2) minimize adverse impacts.

Each alternative consists of the street improvements necessary to accommodate the intended use of the ramps on the basis of expected traffic flow in the design year 1990. Each also involves additional measures to minimize expected adverse effects directly or indirectly associated with anticipated traffic volumes. These relate primarily to traffic circulation impacts.

The four alternatives are No Build, Short Cook, Cook-Fremont, and Fremont Boulevard. The alternatives reflect three basic concepts for use of the ramps, shown graphically on page ~~13~~ 21. Under the No Build alternative, one or both of the ramps will either not be used at all or used only for certain special-purpose trips. Under the Short Cook alternative, the ramps will be used primarily by traffic going to or from the neighborhoods in the immediate vicinity. Under the Cook-Fremont and Fremont Boulevard alternatives, the ramps will be used by traffic going to or from a larger area that comprises a significant portion of Northeast Portland. The area for the Cook-Fremont alternative is smaller than the area for Fremont Boulevard because Cook-Fremont limits total traffic using the ramps.

NO BUILD VARIATIONS

The four variations of the No Build alternative are shown in the figure on page ~~15~~ 28.

PROJECT ALTERNATIVES
(NOT IN REVIEW DRAFT)

RAMP USE
(R.D. 13)

No Build Variations
(RD. p. 15)

RAMP REMOVAL

The portion of the east-end ramps built on ground fill will be removed and the land regraded to a relief enabling reuse of the land occupied by the ramps. Redevelopment opportunities are discussed in Chapter 3 of Part II.

Unlike other variations of the No Build alternative and the build alternatives, removal of the ramps would not be federally funded.

PERMANENT CLOSURE

The ramps will be permanently closed to general traffic. The ends of the ramps will be barricaded and the area landscaped to minimize the visual intrusion of the ramps. The existing connection between the on-ramp and Cook Street at Gantenbein Avenue could be modified to allow use of the ramps by emergency vehicles (primarily ambulances to Emanuel Hospital), or by public transit vehicles, or access for these vehicles could be provided where the ramps meet Ivy Street. Access to the on-ramp at either location would have to be controlled by signing or vehicle-operated barriers. Access to the off-ramp from the bridge would have to be similarly controlled.

LIMITED BRIDGE ACCESS

This variation makes permanent the "interim solution" now in effect. The on-ramp is open to traffic coming from either Kerby Boulevard northbound or Gantenbein Avenue, thus allowing access from the City Bureau of Maintenance's Stanton Yard and Emanuel Hospital. The right turn from Cook Street is prohibited. Some reconstruction and landscaping would be undertaken to improve the appearance of the ramp ends at Ivy Street. The existing connector between the on-ramp and Kerby Boulevard could be modified to allow emergency vehicle and/or future public transit use of the off-ramp.

HOSPITAL AND STANTON YARD ONLY

This variation connects both bridge ramps to Gantenbein Avenue where it enters the Emanuel Hospital Urban Renewal Project and to Kerby Boulevard south of Gantenbein. As with the other variations allowing use of the on-ramp, the right turn from Cook Street is prohibited. Thus, use of the ramps would be convenient for Stanton Yard and Emanuel Hospital, but not for areas outside the immediate vicinity.

SHORT COOK ALTERNATIVE

This alternative connects the bridge ramps to

E3 30

Williams and Vancouver Avenues for general traffic use. (See figures on pages ~~17~~ 33 and ~~18~~ 34.) It also allows direct access between the ramps and Kerby Boulevard and Gantenbein Avenue (Emanuel Hospital). Direct access between the ramps and Williams and Vancouver Avenues is allowed, but direct access between the ramps and Fremont Street to the east is not. Traffic using the off-ramp to Williams Avenue is prohibited from turning from Williams onto Fremont. Traffic turning from Fremont onto Vancouver is prohibited from turning onto Cook Street to reach the on-ramp.

Turning movement restrictions between Fremont, Williams, Vancouver and Cook Street to prevent direct access between Fremont and the bridge ramps are accomplished by prohibiting lane changes on Williams and Vancouver between Cook and Fremont Streets. This will be done by dividing the lanes with a raised median strip.

To discourage traffic from circumventing these controls by using side streets to get to the ramps from Fremont, Fargo Street will be closed at its intersection with Williams Avenue and the left turn from Beech to Vancouver will be prohibited. Likewise, to discourage ramp traffic from getting onto Fremont eastbound, Fargo will be made one-way westbound between Williams and Vancouver, and a traffic diverter will be placed at the intersection of Beech and Cleveland Avenue. These measures will make traffic between the ramps and Fremont to the east of Williams detour at least 4 blocks.

In addition to the measures proposed, this alternative assumes the street improvements shown in the Project Features figure on page ~~18~~ 34, as proposed by the Union Avenue Redevelopment Plan. The median on Union Avenue will have to be unbroken at Ivy Street and at intersections north of Fremont at least to Shaver Street.

The Short Cook alternative includes street improvements on Fremont between Williams and Union to accommodate expected traffic volumes. The improvements are entirely within the existing right-of-way and consist primarily of left turn lanes at Union.

COOK-FREMONT ALTERNATIVE

This alternative will provide a connection between the bridge ramps and Union Avenue via the Williams-Vancouver couplet and Fremont Street. As shown in the Street Improvements figure on page ~~20~~ 35, direct connections are also provided to Kerby Boulevard

SHORT COOK STREET IMPROVEMENTS
(R.O. p. 17)

SHORT COOK PROJECT FEATURES
(R.D. p. 18)

COOK - FREMONT STREET IMPROVEMENTS
(R.O. p. 20)

and the Emanuel Hospital Urban Renewal Project by way of Gantenbein Avenue.

Key aspects of this alternative are the changes to Fremont Street between Vancouver and Union Avenue and traffic metering. Parking is restricted along Fremont to allow two traffic lanes in each direction, increasing the street's carrying capacity without expanding the right-of-way. This is made possible by restricting traffic going to and from the bridge ramps. The traffic signals at the intersections of the ramp connection with Kerby Boulevard and Gantenbein will be timed to limit or "meter" the amount of traffic passing through the intersections to and from the ramps. Traffic signals would be timed to avoid congestion on Fremont and to moderate other adverse effects of traffic flow through the area.

The design of the intersection of Fremont and Union Avenue under this alternative discourages traffic flow between the bridge ramps and Fremont east of Union. All turning movements at the intersection will be unrestricted, but flow across Union on Fremont is limited to one lane in each direction. This flow will also be metered by timing the signals to limit the amount of traffic crossing Union on Fremont. The intersection design provides storage for the traffic that is delayed by the metering.

The purpose of the intersection design and traffic metering at the intersection of Union and Fremont is to "ensure that traffic to and from the ramps will be encouraged to use Union Avenue rather than Fremont or other east-west streets" as directed by the Portland City Council. Metering as a traffic control measure--how it operates, what it means to a driver, and its likely performance as applied under this alternative--is discussed in Chapter 1 of Part II.

As in the case of the Short Cook alternative, satisfactory operation of the Cook-Fremont alternative relies on implementing street improvements proposed under the Union Avenue Redevelopment Plan, as shown in the Project Features figure on page ~~22~~ 35. These improvements are intended to discourage use of side streets to circumvent the metering at Union Avenue. The median on Union must be unbroken at Ivy Street and the intersections from Fremont to Shaver. In addition, a traffic diverter will be placed at the intersection of Grand Avenue and Beech Street.

The McDonald's restaurant at the corner of Union

COOK-FREMONT PROJECT FEATURES
(R.D. p. 22)

and Fremont will be acquired for right-of-way. No other improved properties will be acquired, and property acquisition as a whole will be limited.

FREMONT BOULEVARD ALTERNATIVE

This alternative provides a connection between the bridge ramps and Union Avenue by way of Fremont Street (see the figure on page ~~23~~ 41). A direct link between the ramps and Fremont is constructed and Fremont is widened between Gantenbein and 6th Avenue to provide adequate capacity for the projected traffic demand in 1990. A direct connection is also made between the ramps and Kerby Boulevard at Gantenbein.

A group of houses and the Immanuel Free Methodist Church located between the ramps and Fremont will be acquired for right-of-way, as will all dwellings adjoining Fremont on the north side between Williams and 6th Avenue, the Ray Fleming auto parts store at Williams and Fremont, the building on the northwest corner of Fremont and Union, and the McDonald's restaurant across Union.

As under the Cook-Fremont alternative, the design of the intersection of Fremont and Union Avenue will discourage traffic flow between the bridge ramps and Fremont east of Union. Under projected

1990 traffic conditions, turning movements should remain easy. Flow across Union on Fremont, however, will be limited to one lane in each direction and will be metered by traffic signals. Storage for vehicles delayed by the metering is included in the design. As noted, the purpose of traffic metering at Union and Fremont is to control the amount of traffic on Fremont east of Union and to encourage the use of Union.

Measures to discourage traffic from circumventing the controls by using side streets are the same as under the Cook-Fremont alternative.

OTHER ALTERNATIVES

This section briefly describes the preliminary alternatives that were not selected for more detailed analysis in this report, and cites some of the reasons why they were not considered further. Several of these alternatives were evaluated in considerable detail and provided the basis for the Fremont Boulevard and Short Cook alternatives and the No Build variations that evolved. Each of the preliminary alternatives is graphically described and evaluated in Working Paper No. 7 of the study (Ref. 1).

FREMONT BOULEVARD STREET IMPROVEMENTS
(R.O. p.23)

FREMONT BOULEVARD PROJECT FEATURES
(R.D. p. 24)

SHORT IVY ALTERNATIVE

Direct access between the bridge ramps and Fremont is restricted similarly to the Short Cook alternative. This alternative connects the ramps to the Williams-Vancouver couplet by way of Ivy instead of Cook Street. The Short Cook alternative was preferred because use of Ivy would put ramp traffic immediately next to the houses on Ivy west of Vancouver Avenue, and because it would preclude the consolidation of the two blocks bounded by Fremont, Cook, Williams, and Vancouver. Both of these blocks are entirely owned by the Continental Baking Company, which has plans for expansion on the south block. Vacating Ivy Street between the two blocks would facilitate this expansion, and is shown in the Eliot Neighborhood Development Program (Ref. 2).

COOK-IVY COUPLET ALTERNATIVE

The ramps connect to Union Avenue by way of Cook and Ivy Streets, each one-way. Traffic flow between the ramps and Fremont east of Union is discouraged by lane control measures similar to those in the Short Cook alternative, but on Union as well as on Williams and Vancouver.

Because a Cook-Ivy couplet provides a direct route between the ramps and Union Avenue, with capacity for projected traffic demand in 1990 but without any direct relocation, it presents an attractive choice from the standpoint of traffic movement. This solution was not considered further because of the impact it would have on the Eliot Neighborhood, and because the Cook-Fremont alternative also provides a connection to Union with minimal relocation. Cook-Fremont was considered preferable even though it affords a less direct means of access between the ramps and Union Avenue. A detailed assessment of the advantages and disadvantages of the Cook-Ivy couplet alternative is contained in the "Record of Consultation on Selection of Final Alternatives" (Ref. 3).

COOK BOULEVARD ALTERNATIVE

This alternative connects the ramps to Union by way of a boulevard using the southern half of the block between Ivy and Cook. Lane dividers on Williams, Vancouver, and Union prevent direct access between the ramps and Fremont east of Union.

Important reasons for not further considering this alternative were its disruptive effect on the neighborhood, the amount of relocation required, and operational problems with the intersection at Union compared with the Fremont Boulevard alternative.

IVY BOULEVARD ALTERNATIVE

This would connect the ramps to Union by way of a boulevard along Ivy Street, using the southern half of the blocks between Fremont and Ivy from Williams to Union. The movement from the boulevard to Union northbound would be on a below-grade ramp. In addition to having the same disadvantages as the Short Ivy and Cook Boulevard alternatives, Ivy Boulevard would cause the greatest amount of commercial and residential relocation of all the alternatives considered.

REFERENCES

1. CH2M HILL, Working Paper No. 7, Fremont Bridge Access Study, December 1975.

2. Eliot Neighborhood Development Program, August 1973.

3. CH2M HILL, Record of Consultation on Selection of Final Alternatives, February 1976.

Chapter 3

SUMMARY OF ANALYSIS

The major findings of the analysis described in Part II of this report are briefly summarized below.

TRANSPORTATION

1. Under all of the alternatives, total traffic in the Study Area is projected to increase slightly by 1980 and to decline by 1990, owing to a projected decline in population and employment in the Study Area and a projected increase in the proportion of trips using public transit.

2. All of the build alternatives redistribute traffic in the Study Area west of 7th Avenue. They increase traffic on Fremont between Vancouver and Union, and on Vancouver, Williams, and Union Avenue north of Fremont. They decrease traffic on I-5, on Alberta and Killingsworth between I-5 and Union, and on Williams, Vancouver, and Union Avenue south of Fremont. The amount of increase or decrease is proportional to the degree of

access to the bridge ramps afforded by each alternative.

3. Because they are designed to encourage traffic to use Union Avenue rather than Fremont and other east-west streets, the build alternatives will not significantly affect the amount of traffic using streets east of Union, including Fremont.

4. Opening the ramps will not significantly affect the number of trips across the Willamette River.

5. All build alternatives and the Hospital and Stanton Yard Only variation of the No Build will significantly improve access to Emanuel Hospital and its immediate vicinity. The build alternatives will afford a similar improvement in access to the Primary Impact Area.

6. The Cook-Fremont and Fremont Boulevard alternatives will afford a small savings in time and a marginal improvement in the ease and convenience of access to areas outside the Primary Impact Area, including areas north and west of the Study Area. Most of

the trips that will use the ramps under Cook-Fremont and Fremont Boulevard will be to or from areas outside the Primary Impact Area.

7. Because the Fremont Bridge is a visible, direct, easy-to-understand route to and from west side parts of Portland, many people will perceive opening the ramps as more of an improvement in access than is really the case when measured in actual travel time.

AIR QUALITY

1. Carbon Monoxide (CO) levels frequently exceed the federal standard (for 8-hour maximum average levels) near major traffic streets in the Study Area during the winter months.

2. The Cook-Fremont and Fremont Boulevard alternatives cause CO levels to exceed the federal standard at locations between the ramps and Union Avenue in 1980 where they would not under the No Build.

3. By 1990, CO levels along Fremont Street under all alternatives are expected to meet federal standards, assuming programmed emission controls are implemented.

4. Projected future airborne lead levels are well below the Oregon standard except within the I-5 right-of-way. None of the build alternatives will significantly change this condition.

NOISE

1. Noise levels near major traffic streets in the Study Area are already high.

2. All of the build alternatives increase traffic noise between the ramps and Union Avenue. Short Cook affects the fewest number of homes, Fremont Boulevard the largest number.

3. The number of homes in the Study Area exposed to noise levels above the Federal Highway Administration design standard will be highest under Fremont Boulevard and lowest under the Short Cook alternative.

LAND USE AND REDEVELOPMENT

1. Opening the ramps under any one of the alternatives will not, alone cause conversions in land use.

2. Union Avenue remains physically and economically depressed. The city's Union Avenue Re-

development Plan seeks to promote private investment in new commercial, industrial, and residential development there. Opening the ramps will afford only a marginal improvement in access to Union Avenue. Of the alternatives, Fremont Boulevard provides the most improvement in access and is therefore the most supportive of the city's redevelopment program.

3. If the city's planning policy were revised to encourage commercial and light industrial rather than residential redevelopment in Eliot neighborhood south of Russell Street, opening the ramps would support this change.

4. Removing the ramps would leave from 6 to 8 acres of land for re-use.

5. About 20 acres of undeveloped land remains in the Emanuel Hospital Urban Renewal Project. The availability of the ramps could affect decisions to locate new medical or other facilities there.

6. From an urban design standpoint, the street improvements on Fremont under the Short Cook and Fremont Boulevard alternatives will be preferable to Cook-Fremont.

RELOCATION

1. All of the build alternatives require some property acquisition for right-of-way. Only the Fremont Boulevard alternative requires the displacement of families. Short Cook does not require the acquisition of any structures. Cook-Fremont will acquire the McDonald's restaurant at Fremont and Union Avenue. Fremont Boulevard will displace 20 dwelling units, one church, one public service agency, and five small businesses.

2. Recent experience with relocation in this part of the city suggests that adequate replacement housing can be found for the 17 households that will be displaced.

SOCIAL

1. More than one-half of the black population of Portland lives within a mile or so of the east end of the Fremont Bridge.

2. The homes that are taken by the Fremont Boulevard alternative are of generally poor quality and are already subjected to fairly heavy traffic.

3. The people living in the immediate vicinity

of the build alternatives are mostly poor and black, and are comparatively vulnerable to public intervention that is disruptive of their day-to-day lives.

ENGINEERING AND CONSTRUCTION

1. None of the alternatives involve engineering or construction problems which are unusual for this type of project.

2. Total estimated construction costs (including property acquisition and relocation) in current dollars for the alternatives are as follows:

No Build Variations	
Ramp Removal	$ 284,000
Permanent Closure Limited Bridge Access	$ 15,000
Hospital and Stanton Yard Access Only	$ 195,000
Short Cook	$1,548,000
Cook-Fremont	$1,992,000
Fremont Boulevard	$2,646,000

ECONOMICS

1. The overall economic impact of opening the ramps will be neither clearly positive or negative.

2. Connecting the ramps to Union Avenue may benefit retail businesses by increasing traffic on Union north of Fremont Street. Decreases in traffic on Union south of Fremont may adversely affect retail business there.

3. Opening the ramps under either the Short Cook, Cook-Fremont, or Fremont Boulevard alternatives will benefit most retail, service, and industrial businesses in Boise neighborhood and industry in Eliot neighborhood but will adversely affect retail sales and service businesses in Eliot.

4. Residential property values in the area between the ramps and Union Avenue are low. Opening the ramps will probably not have much effect on them.

5. Cost-benefit analysis indicates that none of the alternatives will result in net economic gains. Accepting the assumptions in the analysis, the most favorable alternative is Fremont Boulevard, followed closely by the Permanent Closure and Limited Bridge Access variations of the No Build alternative.

Part II

Chapter 1

TRANSPORTATION

This chapter evaluates how each alternative affects travel patterns, including traffic volumes, access, and congestion. The analysis also indicates how each alternative relates to city and regional transportation planning.

The basic tool used for the analysis in this chapter is a mathematical model which simulates traffic flow in 1990. The basic input is data on travel patterns in the Portland metropolitan area developed by the Oregon Department of Transportation (ODOT). These data consist of the number of daily trips between small subdivisions of the area, or zones. They were computed on the basis of population and employment projections in each zone made by the Columbia Region Association of Governments (CRAG) in cooperation with the City of Portland and other municipalities, and on the basis of assumptions about the number of trips that people and jobs generate and how many of these trips will be made by public transit and how many by private vehicles.

Data on travel patterns were adapted for use in the Fremont Bridge Access Study and used in a computer model which assigns trips from one zone to another to the route which takes the least travel time. The computer then counts the total number of trips on individual street segments, resulting in a set of projections for average daily traffic for each segment.

Although the traffic assignment model assumes that all trips between two zones will take the route which minimizes travel time, in reality other factors influence the route an individual motorist chooses. For example, some will take a route taking more time to avoid congestion on the route that takes the least time. Also, when alternative routes are nearly equal in travel time, it is unlikely that all trips will take the shortest route.

Because of these assumptions, and because the differences in travel times between routes using or not using the east-end ramps are small (in some cases smaller than may actually be perceived by motorists), the limitations of the projections should be recognized. Nevertheless, they are the best estimate based on accepted traffic projection techniques and are adequate for the use made of them in the following analysis. A detailed discussion of the modeling procedure and other background information are contained in the Technical Appendix.

For this study, the system of major traffic streets to which trips were assigned is assumed to be the same as the present system, as shown in the figure on page ~~35~~ 59. This is identical to the Interim Regional Transportation Plan for 1990 (Ref. 1), except that Flint and 7th Avenues are not included as major traffic streets in the plan. It is assumed that Union Avenue will be improved as shown by the Union Avenue Redevelopment Plan (Ref. 2). Beyond the Study Area, it is assumed that the street system will be as shown in the regional plan. Consequently, I-205 is included.

TRAVEL PATTERNS

PROJECTED FUTURE TRAFFIC VOLUMES

Existing traffic volumes and volumes projected for major traffic streets in both 1980 and 1990 for all alternatives are compared in the figures on pages ~~36~~ 60, ~~37~~ 61 and ~~38~~ 62. The 1990 projections are the results of the computer modeling discussed above. Because the data on travel patterns necessary for modeling traffic in 1980 is not available, the 1980 projections shown are derived from existing traffic volumes. It is assumed that the factors affecting traffic levels (population, employment and public transit use) will not change significantly between now and 1980, and that traffic volumes will continue to change in accordance with recent trends.

Significant Features

Total Traffic in 1980 and 1990. Total traffic in the Study Area is expected to increase slightly by 1980 under all alternatives. By 1990, total traffic is projected to decline from both current and 1980 levels. Therefore, traffic volumes will be at their highest levels within a few years. This is because of two important assumptions incorporated into the data on future travel patterns developed by ODOT. One is that population and employment will decline somewhat in the Study Area by 1990, especially north of Fremont Street and west of Union. The second is that public transit ridership will significantly increase in response to improvements in the transit system planned for the Study Area and the region. Changes in population and employment and the ratio of transit passenger trip-ends to total vehicle trip-ends assumed in making the traffic projections are contained in the Technical Appendix.

MAJOR TRAFFIC STREETS AND TRAFFIC CONTROLS

(R.D. p.35)

EXISTING TRAFFIC
(R.O. p. 36)

60

PROJECTED TRAFFIC IN 1980
(R.D. p.37)

PROJECTED TRAFFIC IN 1990
(R.D. p. 38)

Streets West of 7th Avenue. In 1980 north of Fremont, the projections for the build alternatives show moderate to major increases in volumes on north-south streets over both existing conditions and the No Build alternative. Primarily, these increases represent traffic which is diverted from I-5, but some is due to traffic increases that will occur anyway. The effect on the Williams and Vancouver couplet is greatest under the Fremont Boulevard alternative because traffic will reach the capacity of Union Avenue, causing some to divert to the couplet. This effect occurs to a lesser extent under the Cook-Fremont alternative.

By 1990, traffic on these streets in general is projected to have declined significantly because of the decline in population and employment projected in the vicinity and to increases in transit ridership. Because projected traffic on Union Avenue will be below its capacity, major diversion to Williams and Vancouver will not occur.

The build alternatives will divert traffic from I-5 to the Fremont Bridge causing traffic on Killingsworth and Alberta between I-5 and Union Avenue to be less than under the No Build alternative.

The more traffic on the ramps, the less on these streets. The effect is proportionately greater in 1990 than in 1980 because diversion to Williams and Vancouver will have been discontinued. Ainsworth, Portland Boulevard, and Lombard Street north of the Study Area will be similarly affected.

South of Fremont, the build alternatives will cause traffic on north-south streets west of 7th to decline in comparison to the No Build alternative, both in 1980 and 1990. This is caused by diversion of traffic to the Fremont Bridge from the Broadway Bridge and other bridges and Williams, Vancouver, and Union Avenue.

Fremont Street West of Union. West of Vancouver, the build alternatives will not affect traffic volumes by much. Between Vancouver and Union, they will significantly increase traffic in comparison to the No Build. In 1980 the increase is projected to be by about 30 percent under the Short Cook alternative, but may be smaller if the measures to discourage circumvention of the traffic controls are effective. Under Cook-Fremont and Fremont Boulevard the increase will be by about 100 percent. By 1990, traffic will have increased under the No Build alternative, and traffic volumes will be about 10 percent higher under Short Cook, 56 percent under Cook-Fremont, and over 110 percent under Fremont Boulevard.

Fremont Street East of Union. Traffic on Fremont Street is projected to increase between 1980 and 1990 under the No Build alternative, unlike traffic on most streets in the Study Area. This is because it is one of few designated collector streets providing direct service between Mississippi and 82nd Avenue. The traffic projections for Fremont east of Union under the build alternatives are based on the assumption that proposed measures to discourage bridge ramp traffic from using Fremont will work as intended. Because of this projected traffic volumes do not vary significantly between the No Build and build alternatives.

The projected traffic volumes under the Short Cook alternative reflect the expected effect of making Fargo one-way between Williams and Vancouver in discouraging bridge traffic from using side streets to circumvent the controls. The other measures proposed to do this will have the effect of reducing the volumes on Fremont Street east of Union shown in the projections.

Other Streets East of Union. A comparison of the existing traffic volumes with those projected in

1980 on streets east of 7th shows, in general, a small increase. The projections for 1990 indicate a moderate decline in traffic levels. In both 1980 and 1990, there are only minor differences in the projections for these streets between the No Build and build alternatives.

I-5. Because it is assumed that I-205 will be opened by 1980, projected traffic volumes on I-5 are only slightly higher than existing volumes. Traffic volumes on I-5 are projected to increase between 1980 and 1990. This is due to projected increases in population and employment in suburban parts of the metropolitan area such as Clark County, Washington.

In both 1980 and 1990, projected traffic on I-5 in the Study Area is less under the build alternatives than under the No Build. This is because much of the traffic that will use the ramps is diverted from it. As the figures show, the effect is least under the Short Cook alternative and greatest under the Fremont Boulevard alternative.

Summary. Between now and 1980, traffic in the Study Area will generally continue to increase slowly, but will decline by 1990. The build alternatives affect traffic patterns by diverting to the ramps traffic that would otherwise use either: (1) I-5 north of the Fremont Bridge and Alberta and Killingsworth, or (2) the Broadway and other bridges and Williams, Vancouver, and Union between Broadway and Fremont. This decreases traffic on I-5, Alberta and Killingsworth between I-5 and Union, and on Williams, Vancouver, and Union south of Fremont. It increases traffic on Fremont between Vancouver and Union, and on Vancouver, Williams, and Union north of Fremont. These effects are proportional to the degree of access to the ramps afforded. Traffic on streets east of 7th Avenue are not significantly affected by the build alternatives.

Traffic Under the Hospital and Stanton Yard Only Variation of the No Build Alternative. Traffic going to or from the east-end ramps under the Hospital and Stanton Yard Only variation of the No Build alternative will use either Kerby Boulevard or Gantenbein Avenue to get to or from the Stanton Yard, the Emanuel Hospital campus, and the immediate vicinity of the hospital, i.e., within several blocks of the campus. Control measures will discourage traffic going to or from outside this area from using the ramps.

In 1980, the average daily number of trips projected to use the ramps in going to or from the Stanton Yard is 300. Projected total traffic to or from the Emanuel Hospital campus is 1,900 and traffic to or from the immediate hospital vicinity is 800. By 1990, the average daily traffic between the ramps and the Emanuel Hospital campus is projected to increase to 2,100 and the others to remain the same as in 1980. Projected average daily traffic on the ramps themselves is 3,000 in 1980 and 3,200 in 1990. Traffic volumes to and from the Stanton Yard and Emanuel Hospital campus under the build alternatives are projected to be the same as under the Hospital and Stanton Yard Only variation of the No Build.

DISTRIBUTION OF THROUGH AND LOCAL TRAFFIC

The table on page ~~41~~ 4 compares how the alternatives affect the proportions of through and local traffic at several locations in the Study Area. Local traffic is defined as those trips which have one or both trip ends within the Study Area. Local traffic on the Vancouver-Williams couplet north of Fremont is at least 30 percent greater under the Short Cook and Fremont Boulevard alternatives than under the No Build. It is also 30 percent greater than it is under the No Build on Union Avenue north of Fremont under the Fremont Boulevard alternative.

ESTIMATED PROPORTIONS OF THROUGH
AND LOCAL TRIPS IN 1990
(R.D. p. 41)

Through traffic under the build alternatives will be at least 30 percent greater than under the No Build as follows: on the Williams-Vancouver couplet north of Fremont with all build alternatives, on Fremont east of 7th Avenue with the Cook-Fremont and Fremont Boulevard alternatives, and on Union north of Fremont with the Fremont Boulevard alternative.

ORIGIN AND DESTINATION OF RAMP TRAFFIC

The table on page ~~43~~ 42 shows how ramp traffic projected in 1990 is estimated to be distributed under the build alternatives. There is little difference between the alternatives in the amount of traffic to and from the Primary Impact Area. The smaller number of trips under the Cook-Fremont alternative results from the traffic signal metering at the bridge ramps, which will delay Primary Impact Area traffic as well as traffic to or from outside the Primary Impact Area. Significantly more traffic is oriented to the rest of the Study Area under the Fremont Boulevard alternative than under Short Cook and Cook-Fremont. The latter two are very similar.

The figures indicate that the greater the physical improvement and degree of access afforded by an alternative, the greater the amount of through traffic (i.e., neither beginning nor ending in the Study Area) using the ramps. For the Short Cook alternative, only 1,700 trips or 13 percent are oriented outside the Study Area. Under Fremont Boulevard, 9,300 trips or 40 percent are oriented to outside the Study Area. Most of this traffic is oriented to the area north of the Study Area. Under all of the alternatives, this area accounts for over half of the through trips using the ramps.

The table for the west side of the Willamette River shows that most of the ramp traffic is oriented to the Northwest and Sunset Highway-Beaverton corridors. Only a small amount of traffic is oriented to the Southwest corridor, which includes I-5 to the south. Both in absolute terms and proportionately, trips to or from the Central Business District are greater under Fremont Boulevard then under Short Cook and Cook-Fremont.

WILLAMETTE RIVER CROSSINGS

Opening the bridge ramps is not expected to significantly affect the total number of river crossings in the region. About 535,000 daily crossings are projected in 1990. Although a few more trips may be made because it becomes easier to reach some destinations from the opposite side of the

ORIGIN AND DESTINATION OF PROJECTED
1990 RAMP TRAFFIC
(R.D. p. 43)

river, opening the ramps will not offer enough time savings over existing routes to significantly increase cross-river traffic.

ACCESS

This section of the chapter discusses the build alternatives in terms of both time and distance savings and in terms of ease and convenience of access.

TOTAL TRAVEL DISTANCE AND TRAVEL TIME

The total number of miles traveled and the hours of travel time for all trips projected in 1990 in the Study Area were calculated for each alternative. There are no significant differences between the alternatives, including the No Build, in either total vehicle-miles or vehicle-hours. However, there are some differences projected in the use of various types of streets. Details are contained in the Technical Appendix.

ACCESS TO PRIMARY IMPACT AREA

Emanuel Hospital

Background Perspective. The information that follows is largely from Working Paper No. 2 of the Fremont Bridge Access Study (Ref. 2).

Emanuel Hospital has a capacity of about 500 beds and is the third largest of the 22 general acute care hospitals in the metropolitan area. It has over 1,000 full-time and about 500 part-time employees and an active medical staff of about 300 doctors. An estimated 9 percent of Emanuel's employees live in either the Northwest corridor, Sunset Highway-Beaverton corridor, or the Central Business District as defined in the discussion of origin and destination. An estimated 64 percent of its active medical staff live in and about 34 percent maintain offices in these areas.[1]

Most of the patients discharged from Emanuel in 1974 lived on the east side of the Willamette River. About 16 percent lived in the Northwest, Sunset-Beaverton, and Southwest corridors as defined in the discussion of origin and destination.

Emanuel Hospital is the sponsor of the Emanuel Hospital Urban Renewal Project. The purpose of the project is to develop a medical center campus containing hospital facilities, physician offices, housing for hospital staff and the elderly, and some hospital-related commercial development. Twenty-two blocks have been purchased and cleared since the project's inception in 1966. A medical office building, the Portland Orthopedic Clinic, an extended care facility, and a new hospital lobby (connecting two existing buildings) have been built. Construction is underway on a 200-bed nursing tower, which will replace 200 beds in the existing hospital. A large amount of developable land remains within the project area.

Because of the activity of visitors in the afternoon and a 3:00-3:30 p.m. shift change, the peak period for hospital-oriented traffic is between 2:45 and 3:45 p.m. According to a survey taken during this period, most traffic enters and leaves the hospital campus via Vancouver Avenue. The connection to the Fremont Bridge on-ramp was open at the time; only 10 vehicles left the hospital area via Gantenbein Avenue, which connects to the ramp.

Time and Distance Savings. In proportion to total travel time and distance, the savings for each trip afforded by opening the ramps is measurable only for the Primary Impact Area, including Emanuel Hospital. Nevertheless, in absolute terms, the savings are small. Trips to the hospital from the west end of the Fremont Bridge will be shortened by about 2.5 minutes and 0.6 miles, if made by the bridge and the ramps.

Ease and Convenience. Access to Emanuel Hospital and other land uses in the Primary Impact Area have been rated according to the ease and convenience of access afforded by the build alternatives. Factors taken into account in making these ratings include the number of turning movements, traffic signals, and congestion along the alternative routes, as well as travel time and distance. The change in access to the Emanuel Hospital campus afforded by all three build alternatives, compared with all but the Hospital and Stanton Yard Only variations of the No Build alternative, is considered a significant improvement.

Bureau of Maintenance Facilities

Background Perspective. Stanton Yard, located immediately west of Emanuel Hospital, and the Albina Yards, located on the north side of the bridge ramps, comprise the operations center for the city's Bureau of Maintenance. Maintenance functions for the entire city are served from these locations. These functions include the construction, installation, inspection, and repair of city sidewalks, streets, and traffic structures, traffic control devices, and other facilities. The yards are used for staging, equipment and material storage, shops, and supervisory offices.

About 480 Bureau of Maintenance employees work at or out of the Stanton and Albina Yards. Most work from 8:00 a.m. to 4:30 p.m. A one-day survey was made in 1975 to determine maintenance vehicle traffic generation and routing. On that day, 197 vehicles made 615 one-way trips either beginning or ending at one of the yards. Nineteen of these trips were made on the Fremont Bridge via the on-ramp.

Time and Distance Savings. These are similar to the savings for Emanuel Hospital.

Ease and Convenience. The change in access afforded by opening the bridge ramps is considered a significant improvement for Stanton Yard, somewhat less so for Albina Yards, although it is still an improvement.[2]

Continental Bakery

Background Perspective. The Continental Bakery is located on the block bounded by Williams, Vancouver, Fremont, and Ivy. It employs approximately 160 persons working on staggered shifts around the clock, 5 days a week. Forty-five delivery vans operate from the plant, leaving between 6:00 and 7:30 a.m. and returning between 2:30 and 4:00 p.m. Twelve tractor-trailer transports also operate from the plant. These load during the day and begin leaving in the late afternoon. Both vans and transports presently enter the plant from Fremont. Bakery management is considering a reorganization of loading procedures so that the transports would enter from Williams Avenue and leave on Fremont.

The bakery recently completed the acquisition and clearance of all nonbakery properties on both the bakery block and the block immediately to the south. The company has tentative plans for expansion on the south block and is interested in the possibility of vacating Ivy Street.

Time and Distance Savings. Time and distance savings for the Continental Bakery associated with opening the ramps would be similar to those for Emanuel Hospital.

Ease and Convenience. Opening the ramps would be a major improvement in the ease and convenience of access to the plant vicinity.

Major traffic flows are projected for Fremont Street in front of the bakery under all three build alternatives. This will increase the potential for conflicts between bakery vehicles and general traffic on these streets. Use of Fremont to get to and from the plant will be most difficult under the Fremont Boulevard alternative because of the number of lanes and large traffic volumes. Expansion onto the south block may allow moving the main plant access point away from Fremont, particularly if Ivy is vacated.

Continental Baking Company is considering moving the base for its local distribution trucks away from the plant. This would leave only the transports. It may be necessary to make parts of the median on Williams Avenue under Short Cook and the one on Fremont between Williams and Vancouver under Cook-Fremont and Fremont Boulevard painted rather than raised to allow large trucks to enter and leave the plant.

Primary Impact Area East of Williams

Time and Distance Savings. Time and distance savings will be in the same range as those for Emanuel Hospital—significant in proportion to total cross-river travel time, but minor in absolute terms.

Ease and Convenience. Access to this area from the west side of the Willamette River will improve. However, the traffic control measures and traffic volumes under the build alternatives will decrease the ease and convenience of access to individual land uses. The improvements at the intersection of Fremont and Union will make access to the commercial establishments located there somewhat more difficult under the Cook-Fremont and Fremont Boulevard alternatives than with the No Build. Measures to prevent circumvention of the lane control on Williams and Vancouver Avenues under the Short Cook alternative will limit the freedom of circulation in the residential areas immediately north and south of Fremont, reducing the level of access to these areas from several directions. This effect must be weighed against the advantages of lower traffic volumes on residential streets.

Because the metering at the ramps under the Cook-Fremont alternative will add to the travel time for trips using the ramps in comparison to the Short Cook and Fremont Boulevard alternatives, the improvement in access will be less. This is reflected in the number of trips projected to use the ramps going to or from the Primary Impact Area, as shown in the table on page 25.

ACCESS TO REST OF STUDY AREA AND OUTSIDE THE STUDY AREA

According to the traffic projections under Cook-Fremont and Fremont Boulevard, the majority of trips using the ramps in 1990 will be going to or from areas outside the Primary Impact Area. In actuality, the savings in travel time and improvements in the ease and convenience of access for these trips will be small. Many motorists will take the route with least congestion, whether using the ramps or not. Nevertheless, because the bridge provides a visible, direct, easy-to-understand route to and from westside parts of Portland, many people will perceive opening the ramps as more of an improvement in access than is really the case when measured in actual travel time.

OPERATIONAL CHARACTERISTICS

TRAFFIC METERING UNDER COOK-FREMONT AND FREMONT BOULEVARD

In effect, all traffic signals meter traffic. The difference between a normal signal and one used intentionally to meter or limit traffic lies in the timing of the phases (green, yellow, red). The timing of most signals is designed to facilitate all possible moves at an intersection according to the traffic demand for them. The timing of a signal used for metering is designed to facilitate some moves and limit others.

Metering is used successfully at present in other cities to control the amount of traffic entering freeways to avoid or minimize congestion. The type of metering proposed under the Cook-Fremont and Fremont Boulevard alternatives has had little, if any, use. In theory, no reason has been identified why it should not work.

The Cook-Fremont and Fremont Boulevard alternatives meter traffic flow across Union on Fremont by traffic signal timing. Metering is used to discourage traffic from using Fremont Street east of Union Avenue. Cook-Fremont also meters traffic going on and off the ramps to limit the amount of traffic on Fremont between Vancouver and Union. The intended effect of metering is to keep traffic volumes at or below some maximum level. The traffic signal is timed to allow only so much traffic to pass through. If there is more traffic wishing to go through the intersection than the metering allows, motorists will have to wait longer. Some will seek an alternative route the next time.

A motorist will experience metering as he does congestion. As he approaches the metering point, he will encounter a line of vehicles waiting at the traffic signal. When the light turns green, some of the vehicles in front of the motorist will move through the metering point. However, the light will turn red and stop the motorist for a second time. If the line of waiting vehicles is long enough, the motorist may be stopped for a third or fourth red light.

Once the motorist decides that he is using more time stopping at the metering point than he is saving by using the ramps, he will decide to use another route.

It is believed that the metering will have to delay motorists for only a small amount of time to have a significant effect on the use of the ramps. Preliminary investigations using the traffic assignment model indicate that a delay as small as 1 or 2 minutes may be adequate to hold traffic volumes to the levels shown in this report. The amount of time that will actually be needed to restrain traffic volumes to a set level can only be determined by field testing after the ramps are opened to traffic.

A question associated with metering is the amount of vehicular backup which will occur at the point of metering. This depends on the amount of time that motorists are willing to be delayed in order to use the metered facility. This, too, can best be determined by field testing.

Another consideration in the use of traffic signal metering is the enforcement of the regulation. Motorists often become impatient when faced with a long red traffic light and little cross street traffic. They may think the traffic signal is malfunctioning. If these motorists proceed on a red light, they not only defeat the purpose of metering, but cause a safety hazard. The ramp metering could be placed at a nonintersection location on the ramp. The signals would be placed to minimize or eliminate the vehicle storage problem. However, it is likely that enforcement of the regulation would be more difficult due to the absence of cross traffic. This option would also require hospital traffic to be metered.

Metering is proposed at two locations under the Cook-Fremont alternative. First, it will be used at either the Commercial or Gantenbein intersections (or a combination of the two). At either location, some undesirable metering will occur. With metering at Commercial, traffic to and from Emanuel Hospital on Gantenbein will be metered. With metering at Gantenbein, traffic on Kerby desiring to go to or from the east on the ramp will be metered. In both cases, all ramp traffic to or from Vancouver will be metered, including traffic going to or coming from the Primary Impact Area. Thus, local traffic is penalized to the same degree as through traffic.

Approximately 325 feet of storage is available for westbound traffic between Gantenbein and Vancouver. With two traffic lanes, about 26 vehicles can be stored while waiting for the green signal.

The second metering location under the Cook-Fremont alternative is at the intersection of Fremont Street and Union Avenue. At this point, only traffic passing straight through the intersection on Fremont will be metered. The motorist who wishes to turn onto Union from Fremont, either eastbound or westbound, will not be affected by metering.

Because the signal timing can be adjusted, metering offers the advantage of allowing changes in the amount of traffic flow in response to changing traffic conditions. This flexibility could become a valuable asset in controlling future traffic flows.

The purpose of metering as proposed is to achieve a means of positive control over the amount of traffic using Fremo. and other streets to protect environmental conditions along them. Because metering can be adjusted to change traffic volumes, it may be a cause of concern to community residents. People may fear future adjustments allowing more traffic on their streets. The number of lanes at the metered intersections would limit the range of such adjustments. However, if uncertainty over possible adjustments emerges, one way to mitigate this effect would be for the city to establish a procedure for public review before any adjustments are made. This could be coordinated with a program of monitoring the performance and effects of a ramp connection, if one is necessary.

EFFECTIVENESS OF TRAFFIC CONTROLS

Each of the build alternatives involves control measures to discourage ramp traffic from using Fremont Street east of Union Avenue. Short Cook prevents lane changes on Williams and Vancouver Avenues between Fremont and Cook Streets. Cook-Fremont and Fremont Boulevard meter traffic flow across Union on Fremont. Cook-Fremont also meters traffic at the end of the ramps. Special traffic controls are also part of the variations of the No Build alternatives which allow some use of the ramps. These are designed to discourage use of the ramps by traffic going to or from areas outside the immediate vicinity of Emanuel Hospital.

The alternatives, including the No Build variations, rely on the layout of the existing streets and some proposed changes to discourage motorists from circumventing the controls. All rely on the circulation system within the Emanuel Hospital campus shown in the figure on page 23 ~~15~~. Using Gantenbein Avenue through the campus or Kerby Boulevard around its west side should take more time than the metering delay under the Cook-Fremont alternative, and cause a longer and more complicated trip than alternative routes under the No Build variations, Short Cook, and Cook-Fremont. The volume of traffic which does use one of these routes should be small. If it becomes a problem, additional measures can be taken. For example, stop signs can be placed and speed limits set within the hospital campus, and a traffic signal designed to delay traffic can be installed at the intersection of Kerby Boulevard and Russell Street.

As indicated in Chapter 2 of Part I, each build alternative relies on the median on Union and the closures of Cook, Fargo, and Monroe Streets at Union as proposed under the Union Avenue Redevelopment Plan to discourage circumvention of the controls. To be effective, the Union Avenue median will have to be unbroken at intersections between Fremont and Shaver. Under Cook-Fremont and Fremont Boulevard, which do not completely preclude traffic from moving between the ramps and Fremont east of Union, these measures should be adequate to avoid noticeably increasing traffic on local streets.

Under Short Cook, because direct access between Fremont and the ramps is completely precluded and because the control measures are on Williams and Vancouver rather than at Union, additional measures are necessary. These include closing Fargo at Williams and making Fargo one-way westbound between Williams and Vancouver, prohibiting the left turn from Beech to Vancouver, and installing a traffic diverter at the intersection of Beech and Cleveland.

If only Fargo were made one-way, it is estimated that about 3,000 vehicles per day will circumvent the traffic controls to get between the ramps and Fremont. The additional measures are expected to reduce this flow substantially. Although through traffic on local streets will probably not be a severe burden, circumvention of the controls is expected to be greater under Short Cook than under either Cook-Fremont or Fremont Boulevard.

IMPACTS

PARKING

Existing "no parking" zones and those which would take effect under the proposed Union Avenue Redevelopment Plan, and those required under the alternatives are shown in the Project Features figures in Part I, Chapter 2. New parking restrictions under the alternatives compare as follows:

Alternative	New Curb Parking Prohibited
No Build	850 feet
Short Cook	5,930 feet
Cook-Fremont	6,720 feet
Fremont Boulevard	4,150 feet

The improvements to the intersection of Fremont and Union assumed under the No Build alternative will require prohibiting parking along a total of 850 feet of curb on Fremont on either side of Union.[3] Depending on actual traffic volumes, it may be possible to allow parking along Fremont between Williams and Union Avenue during off-peak hours (6 p.m. to 7 a.m.) under the Cook-Fremont alternative. It may also be possible to allow parking on the south side of Fremont in the morning and on the north side in the afternoon. The traffic projections are not adequate to enable a positive determination of either of these possibilities. A decision on each will have to be made based on counts of actual traffic flow after the alternative is implemented.

Loss of parking under Cook-Fremont should not be a severe problem for residents on the north side of Fremont because the blocks are short. Blocks on the south side are much longer. Seventeen houses face Fremont on the south side between Williams and Union Avenue. Six do not have off-street parking now. Of the eleven that do, seven have garages, most of which are very small and located close to the sidewalk. Vehicles entering and leaving these must use the south moving lane and parking lane. Because the garages are narrow, vehicles enter and leave them slowly. This is a safety hazard now which will be worsened by the higher traffic volumes under the Cook-Fremont alternative.

To reduce this hazard, small garages close to the sidewalk on the south side of Fremont could be either remodeled or replaced with open parking spaces to allow vehicles to enter and leave the street using only the outside lane. Insofar as some of these garages may be unusable now because of their small size, this would also mitigate the effect of restricting on-street parking. Constructing off-street parking spaces for the houses that do not have off-street parking would similarly mitigate the loss of on-street parking for their occupants. These measures are not part of the Cook-Fremont alternative as proposed, but could be made part of it.

TRAFFIC CONGESTION

The figures on th~~is and~~ the following pages show the results of a comparison between existing and projected traffic volumes and street capacity. The relationships between volume and capacity have been translated into terms of the congestion a motorist is likely to encounter on these streets. Under all alternatives it is assumed that the street improvements proposed under the Union Avenue Redevelopment Plan will be made by 1980. Under the No Build alternative, it is assumed that by 1980 improvements similar to those proposed under Short Cook will be made to the intersection of Fremont and Union Avenue.[1]

7291

Roadway capacities are an approximation of the maximum number of vehicles that a street can handle at reasonably steady flow conditions. Factors used in calculating roadway capacities include width of street, parking conditions, one-way or two-way operation, peak period volume characteristics, turning movements, type of vehicle in the traffic stream, signal timing, and population and land use characteristics.

Operation of a roadway with "minor" congestion, as defined in the figures, is generally considered satisfactory in urban areas. The importance of the street segments shown as having "minor" congestion is that they are borderline--more traffic on them could cause "major" traffic congestion.

Under existing conditions, there is major congestion on Killingsworth, 33rd Avenue, Vancouver south of Russell, and Broadway between Vancouver and 7th. As shown in the figures, Killingsworth east of 15th and 33rd Avenue will likely have major congestion through 1990, although the general decline in traffic will relieve conditions somewhat by then. None of the build alternatives will significantly affect congestion on streets east of 15th Avenue.

EXISTING CONGESTION (CAPACITY DEFICIENCIES)
(R.D. p. 53)

93

PROJECTED CONGESTION IN 1980
(R.D. p. 54)

PROJECTED CONGESTION IN 1990

(R.D. p. 55)

No Build Variations

As stated in the discussion of travel patterns, none of the variations of the No Build alternative will affect traffic volumes significantly except on the ramps themselves and on the local streets in the vicinity of Emanual Hospital. Consequently, they will not affect future congestion.

Short Cook

As the figures show, the diversion of traffic to the ramps increase the level of congestion on Williams Avenue north of Fremont in comparison to the No Build alternative in 1980. In 1990, declining traffic volumes will have eliminated congestion on Williams and Vancouver except for Vancouver north of Broadway. The Short Cook alternative will reduce this congestion from major to minor.

Cook-Fremont

Under 1980 conditions, Cook-Fremont will cause major congestion on Union north of Fremont by diverting traffic from I-5, Alberta, and Killingsworth. By 1990 this problem will have been eliminated and Cook-Fremont, like Short Cook, will relieve congestion on Vancouver north of Broadway.

Fremont Boulevard

Under 1980 conditions, diversion of traffic to the ramps will virtually eliminate the congestion projected to occur under the No Build on Killingsworth between I-5 and Union and on Vancouver north of Broadway. However, because the capacity of Union north of Fremont will be exceeded, some ramp traffic will be diverted to Williams and Vancouver, causing major congestion on these streets as well as on Union.

By 1990, the amount of traffic on Union north of Fremont will be within the capacity of the street (there will be only minor congestion) and traffic will no longer be diverted from Union to Williams and Vancouver. Fremont Boulevard in 1990 will have the effect of eliminating the congestion on Vancouver north of Broadway.

1980 Congestion and Mitigating Measures

All of the build alternatives will relieve congestion on Vancouver at its intersection with Broadway under 1990 conditions, as well as relieve congestion on Alberta and Killingsworth between I-5 and Union. However, this effect is at the expense of congestion before 1990 on Williams north of Fremont under Short Cook; Union under Cook-Fremont; and Williams, Vancouver, and Union under Fremont Boulevard, as indicated by the 1980 congestion figures.

There are two possibilities for reducing the increase in traffic on Williams, Vancouver, and Union, and thereby mitigating the congestion and other adverse effects associated with the high traffic volumes on these streets. One is to employ metering at the end of the ramps under the Short Cook and Fremont Boulevard alternatives, as well as Cook-Fremont.

Under Short Cook, the metering would be at the same intersections as under Cook-Fremont. Ramp traffic could be limited by coordinated signals with short "green times" to reduce volumes on Williams. Under Cook-Fremont, the metering could be adjusted to allow less traffic to use the ramps than was assumed in the projections, with the objective of relieving congestion on Union. With Fremont Boulevard, the metering would take place at the intersection between the ramps and the connection to Gantenbein. It would be adjusted to reduce the demand for use of Union to decrease the diversion from Union to Williams and Vancouver.

The incorporation of metering into all the alternatives would reduce the uncertainties inherent in relying on any traffic projection and add a measure of positive control over the amount of traffic allowed to enter the study area from the ramps. However, it must be kept in mind that the effect of metering itself as proposed is uncertain. Moreover, to the extent that additional metering would decrease use of the ramps, it would reduce the level of relief afforded to alternate routes, especially Vancouver north of Broadway and Alberta and Killingsworth between I-5 and Union Avenue.

A second method of relieving the projected congestion under the Cook-Fremont and Fremont Boulevard alternatives would be to increase the capacity of the intersection of Fremont and Union. This could be done by adding a separate right turn lane for southbound traffic on Union. Right-turn traffic would use both the separate lane and the regular right lane. This would allow a longer "green time" for the turn from Fremont onto Union northbound, thereby increasing the capacity of the intersection in both directions. Under Cook-Fremont, it would relieve the congested conditions projected for Union Avenue. Under the Fremont Boulevard alternative, it would cause fewer diversions to Williams and Vancouver Avenues from Union and thereby relieve congestion on these streets.

Adding to the capacity of the intersection of Fremont and Union would have the advantage of not reducing the amount of relief to other streets, which metering would cause. However, additional property acquisition and relocation would be required to accommodate a 12-foot lane extending 150 feet north of the intersection.

1990 Congestion and Mitigating Measures

Under projected traffic conditions in 1990, traffic congestion in the study area will be limited to the locations mentioned earlier—the Broadway-Weidler-I-5 interchange area, 33rd Avenue, and Killingsworth east of 15th. At the same time, regional growth will have increased traffic on I-5 and I-80N. This will be the case regardless of which ramp alternative is adopted. In addition, most streets in northeast Portland outside the Study Area will have greater capacity deficiencies than streets within the study area. This suggests the possibility of traffic diversion from those streets to Study Area streets to avoid congestion. The traffic projections in this study do not take that possibility into account.

If such diversions occur, they will be expected primarily from I-5 north of the Fremont Bridge. By 1990, volumes on this section are expected to increase to a point where major congestion may occur. Because normal (non-diverted) traffic volumes on some Study Area streets (including Union, Williams, and Vancouver) will be below their capacity, significant diversions of traffic to the Fremont Bridge ramps and streets in the Study Area could result. Most likely, these diversions would be significant only during peak traffic periods.

The amount of traffic which will divert depends on the amount of congestion on alternative routes. Once congestion levels are approximately the same, the diversion will stop. One way to avoid the diversion is to improve public transit on the overburdened corridor. If the congestion and diversion does occur, then the metering suggested to relieve congestion on Williams, Vancouver, and Union under 1980 conditions could be used to discourage it. This would be an added advantage of incorporating ramp metering into the Short Cook and Fremont Boulevard alternatives. A disadvantage would be that normal traffic as well as diverted traffic would be penalized by the metering. This would be the cost of realizing an additional measure of control over traffic levels on Study Area streets.

EMERGENCY SERVICES

Ambulance

According to a review of hospital records, an average of about four emergency ambulance trips per day arrived at Emanuel Hospital in June of 1974.[4] Most of these originated in north and northeast Portland. Only four of the total trips during the month originated in areas the shortest route from which would have been via the Fremont Bridge and east-end off-ramp, had it been open at the time.

If the off-ramp is opened, few if any emergency ambulance trips that would otherwise go to other hospitals will go to Emanuel. This is because the factors which account for where emergency patients are taken now, both to Emanuel and to other hospitals, will remain unchanged. The advantage of opening the off-ramp for emergency ambulance trips will be in shortening the travel time for trips which will go to Emanuel from west side areas served by the Fremont Bridge for the same reasons such trips are made today (i.e., primarily patient requests). If I-505 is built as proposed through Northwest Portland, there may also be time savings for trips from far north Portland. It may be faster to use the St. Johns Bridge, I-505, and the Fremont Bridge to Emanuel from this part of the city than, for example, Lombard and Interstate Avenue. As noted earlier, the time savings for a trip from near the west end of the Fremont Bridge to Emanuel afforded by opening the off-ramp will be about 2.5 minutes at normal traffic speeds. The savings will be smaller for trips made at higher speeds.

The time and distance savings of the build alternatives for trips to Emanuel Hospital could be realized by ambulance trips under the variations of the No Build allowing use of the off-ramp by emergency vehicles.

Police and Fire Protection

Fire Protection. If the east-end ramps are opened, Portland Fire Bureau Engine Company 3 and Truck Company 3, stationed near the west-end approach to the Fremont Bridge, will be assigned to respond to alarms in the area of the east-end ramps. This will be in addition to east side companies that respond to alarms in the area now, and will improve the level of fire protection. Cook-Fremont and Boulevard will also provide an additional route alternative and a shorter arrival time for Engine Company 3 and Truck Company 3 in responding to multialarm fires along Union Avenue north of Fremont Street and in areas accessible via Union Avenue.

At present, Engine Company 21 and Truck Company 21, stationed near the west side of the Steel Bridge, respond to alarms in the vicinity of the east side of the bridge. If the Steel Bridge is ever taken out of service or access to it constrained, the importance of the Fremont Bridge for cross-river Fire Bureau trips will increase.

As shown in the figure on page ~~15~~ 28, the curve in the connection between the ramps and Cook Street under the variations of the No Build alternative which allow only emergency and/or public transit use of the ramps will be too sharp to allow large fire apparatus to turn onto Kerby Boulevard from the off-ramp. The connection and its intersection with Cook Street can be designed to accommodate all other turns without taking significantly more land than is shown in the figure.

Police Protection. Because the Willamette River is the boundary between the Portland Police Bureau Central Precinct on the west side and the North and East Precincts on the east side, the number of cross-river emergency police trips is not large. If the ramps are opened, it is expected that 1 to

2 emergency police trips per day would use them. These trips would normally be by cars assigned to respond to traffic accidents throughout the city. No other effects on Police Bureau operations have been identified.

PUBLIC TRANSPORTATION

Existing Public Transit

Bus lines operated by the Tri-County Metropolitan Transportation District (TRI-MET) are shown in the figure on page 106. Virtually all residences in the Study Area are within 1/4 mile of a bus route. Service is provided to the entire metropolitan area. Most lines are oriented to the Central Business District. Headways (time spacing between buses) are reasonable, especially during peak periods when 10- to 15-minute intervals are common. As in the entire Portland area, transit ridership in the Study Area has been growing in recent years.

Transit Use of the Ramps

Public transit could use the Fremont Bridge east ramps for access to the Fremont Bridge under all of the alternatives that allow any degree of access. However, the opportunities for using the ramps appear limited. Most existing bus lines

EXISTING PUBLIC TRANSIT LINES
(R.D. p. 60)

are oriented to downtown. Because the west end of the Fremont Bridge meets the local street system on the west side of downtown, other bridges provide more direct access. Planning for bus access to the downtown transit mall is currently underway and may identify advantages to routing lines on the Fremont Bridge, but this does not mean that the east end ramps would necessarily be used. The addition of a route along Fremont Street is tentatively programmed by TRI-MET for after 1980, but it is too early to speculate whether use of the ramps would be advantageous.

If any public transit use is made of the ramps, it will most likely be for special-purpose express trips. The Model Cities Transportation Study completed in 1971 proposed that special express service to industrial centers in Northwest Portland and Beaverton be offered as part of a program to increase employment in the Model Cities neighborhoods. The study described the timing of the program as depending on economic conditions, since it would rely on the availability of job openings. It has never been tried. Use of the Fremont Bridge could afford some time savings for such service, and the east-end ramps could prove the most convenient access point.

Another possibility for use of the ramps is for express service between Emanual Hospital and Marquam Hill, the location of the University of Oregon Medical School and Veterans Administration Hospital. According to recommendations for the location of new Veterans Administration Hospital facilities to replace the existing ones, convenient access between the medical school and VA facilities is the one advantage that makes Marquam Hill preferable to the Emanuel Hospital Urban Renewal Project. The Emanuel site is considered preferable in most other respects because of parking, access, and environmental problems associated with the Marquam Hill site. It is not known whether there would be adequate demand to support special transit service between the Emanuel project and Marquam Hill, but it would facilitate the maintenance of a close relationship between the University and VA facilities if the latter are relocated at Emanuel. It could also supplement the existing transit service between the Study Area and Marquam Hill provided by the Irvington busline (No. 8 in the figure) through downtown.

Effect of Alternatives on Transit Service

None of the alternatives would interfere with the routing of existing bus lines. If the bus route planned for Fremont Street crosses Union Avenue without turning, the metering under the Cook-Fremont and Fremont Boulevard alternatives will add from one to several minutes to its travel time, depending on the time of day.

TRANSPORTATION PLANNING

REGIONAL TRANSPORTATION PLAN

The only adopted current plan applying to the Study Area is the Interim Regional Transportation Plan. This plan, adopted by the Columbia Region Association of Governments in June 1975, is a set of goals, objectives, and policies to guide long-range transit and highway development decisions until a complete transportation plan can be prepared and adopted. It includes maps depicting a generalized regional transportation system for 1990. The introduction to the Interim Plan states that it "describes a transportation system for 1990 in which public transit plays a key role in providing high-quality mobility for people in the urban area," and, "at the same time, the existing highway system will be augmented with certain committed new roads, and will be maintained, redesigned and made more efficient to carry autos, freight, and transit vehicles" (Ref. 3).

The figure on page ~~64~~ 111 shows the Interim Plan as it applies to the Study Area. In the plan, Flint and 7th Avenues are shown as local streets, whereas they now function as local collectors. The traffic projections used in this report indicate that these changes should not cause problems under any alternative in the long run. In the short run, designating 7th Avenue as a local street and discouraging its use except for local access will add to capacity deficiencies on other streets before the general decline in traffic volumes projected to occur by 1990.

Adoption of one of the build alternatives will require an amendment to the Interim Plan to designate the bridge ramps and associated connections to the major traffic street system as either minor or principal arterials.

PORTLAND ARTERIAL STREETS PROGRAM

The Arterial Streets Program is a reassessment of the city's street system to establish a set of policies against which proposed street improvements can be measured. The program seeks to determine the status of individual streets in a transportation system characterized by greater transit use and a land use pattern oriented to transit and pedestrian access to places of em-

INTERIM REGIONAL TRANSPORTATION PLAN

(R.O. p. 64)

14

ployment, residence, and commerce. In addition, the program aims at a new functional differentiation among streets. Controls will limit the use of a street to its intended function, e.g., local access, interneighborhood trips, interregional trips, public transit, etc. (Ref. 4).

At present, the program is in the public review stage. Once adopted, the Interim Regional Transportation Plan will be amended accordingly. The local street system as shown in the most recent discussion draft of the program for Northeast Portland is shown in the figure on page ~~66~~ 114.

To the extent that they will divert through traffic from Alberta and Killingsworth between I-5 and Union Avenue to the ramps and Union and from Williams and Vancouver south of Fremont to the ramps and Union, the Cook-Fremont and Fremont Boulevard alternatives will support the policy of the draft Arterial Streets Program to concentrate through traffic on "major city traffic streets." With respect to Fremont Street from the ramps to Union, the labeling of the Fremont Bridge east-end interchange as a "Study Area" on the street classifications figure means that street classifications in the vicinity will depend in part on the outcome of the issue this report addresses. The

Cook-Fremont and Fremont Boulevard alternatives will clearly make this segment of Fremont a "major city traffic street."

The increase in demand for through trips projected in 1990 will not be large enough to complicate implementing the proposed Arterial Streets Program classifications under any of the build alternatives. Implementing some of the classifications before the decline in traffic projected by 1990 may be difficult, regardless of which alternative is selected. An example is Williams Avenue north of Fremont. Redesignating it as a local street has been under consideration for some time. The transportation element of the Model Cities Comprehensive Plan, which was adopted by the Model Cities neighborhoods in 1973, but has never been formally adopted by the city, includes making Williams a local street north of Beech.

The projections in this report indicate that it will not be possible to make Williams a local street before the general traffic decline projected by 1990 without causing increased congestion on Vancouver and other streets. This is true under both No Build and build conditions. By 1990, volumes on Williams and Vancouver streets will not differ by much between the alternatives.

PROPOSED ARTERIAL STREET CLASSIFICATIONS
(R.D. p. 66)

This suggests that Williams can be a local street under all alternatives, once traffic declines.

If, as discussed earlier, traffic diverts from I-5 to the Fremont Bridge ramps under 1990 conditions to avoid congestion, it is likely that Williams and Vancouver will be the most affected of Study Area streets. Making Williams a local street north of Fremont would help discourage this, but Vancouver would still probably become congested during peak traffic periods. Diversion from I-5 could also neutralize the affect of increasing the capacity of the intersection at Fremont and Union to relieve projected congestion in 1980. Metering at the end of the ramps under all alternatives would help control use of both Williams and Union.

UNION AVENUE REDEVELOPMENT PLAN

Transit and street improvements to Union through the Study Area are major parts of the proposed Union Avenue Redevelopment Plan (Ref. 5). In the alternative plan recommended by the city staff, the avenue will be developed with two lanes of traffic in each direction divided by a landscaped median. Bus turnouts and signalized left-turn lanes will be provided at major intersections. The city has not yet adopted the plan, and funds for the street improvements have not been secured.

A feature of the city staff proposal for Union Avenue is that most improvements will be made within the existing right-of-way. The objective is to minimize disruption and avoid relocation. In this respect, the Cook-Fremont and Fremont Boulevard alternatives, which require some additional right-of-way acquisition and relocation at the intersection of Fremont and Union, are incompatible.

The traffic projections used in this report assume that the street improvements proposed for Union Avenue would be implemented by 1980. Nevertheless, under the Cook-Fremont and Fremont Boulevard alternatives, the capacity of Union between Fremont Street and Skidmore will be exceeded under 1980 conditions. One of the other alternatives considered in the Union Avenue Redevelopment Plan would afford a greater increase in capacity for this segment to relieve the congestion, but would mean greater disruption and relocation, as well as higher costs.

As stated earlier, all build alternatives assume that the median proposed on Union under the Redevelopment Plan will not have openings at intersections with local streets between Fremont and Shaver. The uninterrupted median will help to discourage circumvention of the controls that limit traffic volumes on Fremont east of Union. Similarly, they depend on the street closures proposed under the plan for Ivy, Cook, Fargo, and Monroe Streets at Union Avenue.

The project development process for the improvements proposed by the Union Avenue Redevelopment Plan is not as far along as the process for opening the east-end bridge ramps. If one of the build alternatives is adopted, either (a) implementation will have to be delayed until the median on Union and street closures discussed above are constructed as part of the Union Avenue street improvements, (b) these will have to be incorporated into the project for opening the ramps, or, (c) other measures to discourage use of local streets to circumvent the proposed traffic controls will have to be developed and incorporated into the project.

BICYCLE PLANNING

Portland's bikeway plan calls for a bikeway going north through the Study Area roughly along Gantenbein Street, intersecting with another bikeway along Shaver from Commercial to 16th Avenue (Ref.

92117

6). The increased traffic caused by the build alternatives on Williams, Vancouver, and Union Avenue will increase the potential for conflicts where the bikeways cross these streets. The Fremont Boulevard alternative includes a pedestrian and bicycle overpass above the ramp connection which can be incorporated into the proposed bikeway along Gantenbein. This will reduce conflicts.

At one of the community meetings on the Fremont Bridge Access Study, it was recommended that the east-end ramps not be opened in a way that would preclude a future bikeway over the bridge. The main constraint to constructing such a bikeway is the width of the bridge's main span.

There are four 12-foot lanes on each deck of the bridge with 10-foot shoulders on either side. A two-way bikeway would occupy the entire shoulder width. Using a shoulder and maintaining four traffic lanes needed for future traffic capacity (see figure on page 62) would require relaxation of federal design standards for interstate highways and would cause a potentially serious decline in the margin of safety these standards are intended to insure.

The projected future increase in traffic on the Fremont Bridge is due primarily to expected growth in suburban parts of the metropolitan area and only to a lesser extent due to opening the east-end ramps. A bikeway over the bridge, provided there is sufficient demand for it, may be feasible if the future traffic is reduced to levels requiring only three lanes on one of the decks. This reduction could result from improvements in regional public transit combined with adopting one of the No Build variations.

The east-end ramps are wide enough to accommodate a bikeway under any of the alternatives, and either the on-ramp or the off-ramp could be used. Use of the upper deck of the bridge (and on-ramp) would put the bikeway in the median on the west side bridge approach, requiring a special ramp to connect it to the Glisan Street overpass. This would not be necessary if the lower deck (and off-ramp) were used.

FOOTNOTES

1. These estimates were made from address lists supplied by tallying from Emanuel Hospital.

2. A related question is access between the Stanton and Albina Yards. This is addressed in Chapter 3 of Part II.

3. Throughout the anaysis in Part II, it is assumed that improvements will be made to the intersection of Fremont and Union under the No Build alternative to relieve the congestion on Fremont west of Union which currently exists and which will worsen. The cost of these improvements are not included in the cost estimates for the No Build because it is believed they will not be eligible for Federal Highway Administration funding.

4. According to hospital personnel, month-to-month variations are minor.

REFERENCES

1. Columbia Region Association of Governments, Interim Transportation Plan for the Portland-Vancouver Metropolitan Area, June 1975.

2. CH2M HILL, Working Paper No. 2, Study Area Conditions, Fremont Bridge Access Study, June 1975.

3. Columbia Region Association of Governments, op. cit., p. i.

4. Portland Bureau of Planning, Draft Arterial Streets Policy and Program for the City of Portland, April 1976.

5. __________________, Union Avenue Redevelopment Plan Summary, October 1975.

6. Columbia Region Association of Governments, A Bikeway Plan for the Columbia-Willamette Region.

TG 121

Chapter 2

AIR QUALITY AND NOISE ANALYSIS

This chapter examines how the traffic patterns under each of the alternatives will affect air pollution and noise levels. The effects of the alternatives on storm water runoff and the related pollution effect on the Willamette River, into which storm water drains, have been evaluated and found insignificant. This evaluation is contained in the Technical Appendix. Interrelationships between the alternatives and such elements of the environment as geology and plantlife are not significant because of the urbanized setting of the project and the nature of the alternatives. They are not discussed.

AIR QUALITY

This section describes motor vehicle-related air pollutants and their significance, discusses their existing and predicted future levels, and draws conclusions about the effects of the alternatives. A description of the methodologies used in making the analysis and supporting information are contained in the Technical Appendix.

Air quality is determined in part by the amount of pollutants emitted into the atmosphere. These pollutants are of two kinds--primary, which are emitted directly from motor vehicles, industrial stacks, and other sources, and secondary, which are formed in the atmosphere from primary pollutants. Carbon monoxide, particulate lead, hydrocarbons and nitrogen oxides are primary pollutants which are important in planning arterial streets because they are direct emissions from motor vehicles. Similarly, nitrogen dioxide and photochemical oxidants are important secondary pollutants because major portions of the primary pollutants from which they derive are emitted by motor vehicles.

Primary pollutants are local in their pattern of generation and dispersal. Large concentrations of carbon monoxide and airborne lead tend to exist near major sources (roadways) and to thin out quickly with distance from the source. Secondary pollutants, on the other hand, are regional in their generation and dispersal pattern. They are formed after emissions such as nitrogen oxides and hydrocarbons react with sunlight, and are often found far from the emission source.

Both physiographic and meterological conditions aggravate air pollution problems in the Portland area. Low wind speeds and temperature inversions concentrate pollutants in the air. Inversions occur as frequently as 9 out of 10 days in late fall and early winter and are often accompanied by low wind speeds. Consequently, ventilation of the airshed is most restricted during these times of the year.

The Coast Range and the Cascade Range act as barriers to low-level wind movement in the Willamette Basin. Sometimes they also channel winds, bringing pollutants from the valley northward.

Air pollution is most commonly judged by reference to standards for ambient air quality. Both federal and State of Oregon standards are used in this study. There are two levels of federal standards--primary and secondary.

Federal primary standards are levels of ambient pollution which, allowing for an adequate margin of safety, are "requisite to protect the public *health*."

Federal secondary standards are levels of ambient pollution which are "requisite to protect the public *welfare* from any known or anticipated effects associated with the presence of air pollutants in the ambient air" (Ref. 1). Secondary standards are designed to protect against adverse effects on soils, water, vegetation, materials, animals, weather, visibility, and personal comfort and well-being, as well as public health. Like the federal secondary standards, the Oregon standards are intended to protect both the public *health* and *welfare* (Ref. 2).

NITROGEN DIOXIDE AND PHOTOCHEMICAL OXIDANTS

Relative to federal standards, photochemical oxidant levels are problems in the Portland area; nitrogen dioxide levels are not. Even though they are caused primarily by motor vehicle emissions, photochemical oxidant and nitrogen dioxide levels will not be significantly affected by the alternatives. This is because, as secondary pollutants, they are regional rather than localized in pattern, as explained above. Consequently, their levels depend on total emissions of the primary pollutants from which they are formed (hydrocarbons and oxides of nitrogen), rather then on where they are emitted.

As concluded in the preceding chapter, there will be little difference in total traffic between the alternatives. Therefore, there will not be significant differences between the alternatives in total emissions of hydrocarbons or oxides of nitrogen.

The alternatives will not significantly affect photochemical oxidants or nitrogen dioxide. Additional details on their existing levels and information on their health effects are contained in the Technical Appendix and Working Paper No. 6 (Ref. 3).

CARBON MONOXIDE

Significance

Carbon monoxide (CO) in an urban area comes primarily from motor vehicle exhaust. A 1970 study estimated that 97 percent of the CO in Portland air is from motor vehicles (Ref. 4). It is found in highest concentrations near its source. Because of these factors, CO is an excellent indicator of the local air quality effects of urban arterials.

Although CO does not affect vegetation at levels found in urban areas, it does have human health effects. CO can reduce the ability of blood to distribute oxygen to the body. Exposures to CO for 8 hours at levels in the range of 1.5 to 2 times the federal standard for maximum levels over an 8-hour period (10 milligrams per cubic meter) have been observed to affect a person's ability to estimate time intervals (Ref. 5).

High levels of CO are generally associated with traffic facilities. In any of the nation's 15 largest cities, an average automobile trip would expose riders to an average CO concentration of 12 to 46 milligrams per cubic meter (mg/m^3), with short-term peaks possibly greater than 115 mg/m^3 (Ref. 6). The federal standard for maximum 1-hour concentrations is 40 mg/m^3.

Existing Levels

On the basis of CO testing done for this study, it is concluded that background levels of CO in the Study Area do not approach the federal primary standard for either maximum 1- or 8-hour levels. The federal secondary and Oregon standards are the same as the federal primary standard. However, the 8-hour standard of 10 mg/m^3 is probably exceeded frequently near major traffic streets in winter, and both in winter and occasionally in summer near I-5.

Future Levels

The figures on the following page show predictions of the highest average levels of CO over an 8-hour

NO BUILD ALTERNATIVE CARBON MONOXIDE
(C.R.D. p. 75)

period that will occur in 1980 and 1990 under the No Build alternative. These levels are expressed using contours corresponding to various concentrations of CO in milligrams per cubic meter (mg/m^3). The predictions intend to show CO levels when vehicle emissions and stagnant meterological conditions combine to cause the highest levels over an 8-hour period in each year. Similar conditions might be expected to occur anywhere from 5 to 10 times in either year.

At any point along the 7 mg/m^3 contours in the figures, the 8-hour average CO level predicted is 7 mg/m^3. Between the 7 and 13 contours, the CO level predicted is above 7 mg/m^3 but below 13 mg/m^3. The other contours can be similarly interpreted.

The predictions were made using mathematical modeling which takes into account traffic volumes and other characteristics; motor vehicle emissions, including changes due to emission controls; and the way CO disperses in the air. Because of the assumptions made in the analysis regarding background pollution levels and meteorological conditions, the predictions may overstate CO levels.

Two sets of predictions were made, one assuming that no more stringent emission controls than are presently required will be in use (the "maximum" emission control strategy), and one assuming that the more stringent emission controls mandated by existing federal legislation will be enforced (the "minimum" emissions control strategy). There are virtually no differences between the contours predicting maximum CO in 1980 under the two assumptions; the predictions are close to the same either way. The differences between the two sets of predictions for 1990 are significant.

As a comparison of the two figures on page ~~75~~ 128 show, maximum 8-hour average CO levels will decline between 1980 and 1990 according to the predictions. This is due to both the projected decline in traffic volumes and improved emission controls. The decline will be greater if the "minimum" emissions control strategy holds up.

Impact Analysis. In both 1980 and 1990, there will be violations of the CO standard in the Study Area. These are associated primarily with I-5, Broadway, Weidler, and Union Avenue, and busy intersections. The effects of the build alternatives on CO in comparison with the No Build, reflect the effect they have on traffic patterns in the area.

As described in the preceding chapter, the traffic effect can be summarized as a redistribution caused by diversion from: (a) bridges south of the Fremont, (b) Williams, Vancouver, and Union Avenue south of Fremont Street, (c) I-5, and (d) Alberta and Killingsworth between I-5 and Union, to: (a) the ramps, (b) Fremont Street between Gantenbein and Union, and (c) Williams, Vancouver, and Union north of Fremont. This effect is proportional to the level of street improvements under each alternative. Capacity deficiencies in 1980 will cause significant diversions to Williams and Vancouver north of Fremont, which will not occur in 1990. Proportionately, the overall diversion effect, however, will be more pronounced in 1990. The effects on traffic volumes on streets east of Union will be minor in both 1980 and 1990.

In magnitude, the effects of the build alternatives on CO levels are not great. Except for locations between the Fremont Bridge and Union Avenue identified below, at no location do the predictions show a build alternative causing both the CO standard to be exceeded or not exceeded in comparison to the No Build, and a difference in level of more than 2 mg/m^3.

Outside the Fremont Bridge to Union Avenue Corridor. Outside the corridor between the bridge and Union Avenue, the build alternatives decrease exposure to CO above the standard in the vicinity of the Broadway-Weidler-I-5 interchange and along other parts of I-5 in the Study Area. These effects are generally proportional to the amount of traffic diversion and total traffic, and are minor. The Cook-Fremont and Fremont Boulevard alternatives increase exposure along Union Avenue north of Fremont Street. Fremont Boulevard also decreases exposure at the intersection of Union and Killingsworth under 1990 conditions. These effects are also minor.

All build alternatives will decrease predicted 1980 concentrations of CO by greater than 2 mg/m^3 relative to the No Build alternative at the interchange of Alberta Street with I-5. This is the only instance outside the bridge to Union corridor where the build alternatives will change predicted CO levels by more than 2 mg/m^3 in either 1980 or 1990.

Fremont Bridge to Union Avenue Corridor. As shown in the figure on page 133, The predicted CO levels in 1980 under the No Build alternative exceed the standard at the intersections of Vancouver, Williams, and Union with

CARBON MONOXIDE IN 1980
(R.O. p. 78)

Fremont. Under Short Cook, the standard will also be exceeded at the intersection of Cook Street and Vancouver. Cook-Fremont does the same and also causes the standard to be exceeded in the entire area between Williams and Vancouver Avenues from Cook Street to Fremont, and along Fremont to Union Avenue. Fremont Boulevard causes exposures to CO above the standard along the ramps, the connection to Fremont, and along Fremont to Union. The increase in CO over No Build levels will be by more than 2 mg/m^3 along the ramps from where they cross I-5 to Vancouver Avenue under the Short Cook and Cook-Fremont alternatives, and along the ramps, the connection to Fremont, and all the way to Union Avenue under Fremont Boulevard.

If the "minimum" emissions control strategy assumption holds up, there will be no violations of the CO standard along the corridor in 1990, according to the predictions shown on page ~~79~~ 136. If not, the standard will be exceeded at the intersection of Fremont and Union under the No Build alternative. Short Cook will slightly increase this exposure. Cook-Fremont will also increase the exposure at Fremont and Union and cause a small amount of exposure at the intersection of Fremont and Williams Avenue. Fremont Boulevard will cause CO levels to exceed the standard along the ramps, the connection to Fremont, and along Fremont to Union in 1990 under the "maximum" emissions control strategy.

Secondary Effects. According to the predictions, under the Cook-Fremont and Fremont Boulevard alternatives, some locations along Fremont Street between Gantenbein and Grand Avenue, including places of residence and employment, will be exposed to maximum 8-hour CO levels above the federal standard under 1980 conditions. They would not be so exposed under the No Build alternative. At other locations along Fremont where CO levels will exceed the standard under the No Build, Cook-Fremont and Fremont Boulevard will increase the level. At a few locations, levels will be in the range which has been associated with impaired ability to judge time intervals. The accuracy of the predictions and currently available data on the health effects of CO are not sufficient to establish whether there will be any health effect, but it appears at least possible.

If there are any health effects caused by the CO levels associated along Fremont with the Cook-Fremont and Fremont Boulevard alternatives, the number of homes affected would be small. It is impossible to judge whether the decreases in

CARBON MONOXIDE IN 1990
(C.R.D. p. 79)

exposures caused elsewhere by these alternatives would have the opposite effect, or how the two effects would balance.

LEAD

Significance

Like carbon monoxide, lead is a primary pollutant and motor vehicles are the largest contributors of lead to the ambient air. Lead levels in urban areas vary widely, ranging from less than 1 microgram per cubic meter ($\mu g/m^3$) in some to over 5 $\mu g/m^3$ in others. The severe health effects that lead can have are associated with levels above those typical of urban dwellers and usually result from ingestion of material which is high in lead content, rather than from respiration or from ingestion of foods which have been contaminated by atmospheric lead. As yet, the effects of long-term exposure to low levels of lead have not been established.

There are no federal standards for lead. The State of Oregon standard calls for a maximum average lead level over a 30-day period of 3.0 $\mu g/m^3$ (Ref. 2).

In the winter of 1972-73, the Multnomah County

Health Department conducted a survey of lead levels in blood among pre-school children living near I-5 in the Study Area. The survey found an unexpectedly high number of cases of elevated blood lead levels and what appeared to be a correlation between blood lead levels and distance of residence from the nearest major thoroughfare (Ref. 7). Further study since then does not indicate an unusually high incidence of elevated blood levels among residents living near I-5 in the Study Area, nor in the Portland population as a whole (Ref. 8). Nevertheless, lead has been examined here in some detail because of the public interest in the original findings.

Existing Levels

Lead levels have not been measured along I-5 but may well exceed the Oregon standard. From ambient lead measurements taken elsewhere for this study, it can be concluded that the Oregon lead standard is probably not exceeded in the Study Area outside the right-of-way of I-5.

Future Levels

Future lead levels in the Study Area have been calculated using emission rates, traffic characteristics, and a dispersal model in a manner similar to the analysis of carbon monoxide.

Because future lead emission rates are less certain, less confidence can be placed in the predictions. Nevertheless, they are adequate to draw some general conclusions.

According to the predictions, the only place in the Study Area where the Oregon lead standard will be exceeded is along I-5 between Russell and Going Streets. The levels in excess of the standard will be primarily within the right-of-way of the freeway. The standard will be exceeded in 1980, and in 1990 if widespread use of unleaded gasoline does not occur.

Impact Analysis

Lead levels in excess of the Oregon standard are predicted to occur on I-5 whether or not the Fremont Bridge ramps are opened. The effects of opening the ramps are minor. Although the build alternatives affect lead in the corridor between the Fremont Bridge and Union Avenue and elsewhere in the Study Area much as they do carbon monoxide levels, the maximum levels predicted are well below the standard.

SUSPENDED PARTICULATE

Lead is one constituent of total suspended particulate, which also consists of dust and other matter suspended in the atmosphere. Particulate is both local and regional in its pattern of generation and dispersal, and comes from many sources other than motor vehicles. Recent research in the Portland area indicates natural sources account for from 33 to 36 percent of total suspended particulate, industrial sources for 34 percent, exhaust emissions from dust raised by motor vehicles from 8 to 21 percent, and other manmade sources for 11 percent (Ref. 9).

Because of these factors, suspended particulate beyond its lead content is not especially important in planning for streets and highways. However, the results of the monitoring to determine lead levels indicates that the federal particulate standards may be exceeded in some parts of the Study Area. The alternatives will not have significant effects on levels of suspended particulate. This is because particulate emissions, as far as is known, are not dependent on vehicle speed, and the total emissions between alternates are not significantly different. Dust generated by vehicle movement is more important than exhaust emission of particulates; the quantity of dust is affected by frequency of street cleaning more than by differences in numbers of vehicles.

HYDROCARBONS

Hydrocarbons, which are primary pollutants, are important primarily because of their role in the formation of photochemical oxidants, or smog. The federal primary and secondary standards are both a maximum average of 160 $\mu g/m^3$ between the hours of 6 and 9 a.m. because maximum oxidant levels follow reactions among morning hydrocarbon and nitrogen oxide concentrations. It was estimated in 1970 that 70 percent of the hydrocarbons in Portland air come from motor vehicles. There is little data on the level of reactive hydrocarbons in Portland, but it is believed that the federal standard is exceeded throughout the city. Hydrocarbons and carbon monoxide are the two pollutants for which motor vehicles registered in the Portland metropolitan area are tested under the state's clean air program.

As concluded earlier, there will not be significant differences between the alternatives in total emissions of hydrocarbons.

Some biologically active hydrocarbons, such as those produced by incomplete combustion of gasoline and other residential and industrial fuels, are carcinogenic. Biologically active carcinogenic hydrocarbons are present in the atmosphere in far higher concentrations in urban and industrial areas than in rural regions. Conclusive experimental evidence is not yet available, but it appears that hydrocarbon carcinogens and ambient particulate concentrations increase the incidence of skin and lung cancers, the latter particularly among smokers. However, there are no federal or state standards which set hydrocarbon levels based on direct health hazards.

The carbon monoxide predictions are indicative of the proportional effects of the alternatives on hydrocarbon levels. Since it is not known at what levels hydrocarbons affect health, an analysis of their direct health effects is not possible.

EFFECT OF THE METERING

As described in Chapter 2 of Part I and discussed in the preceding chapter, the Cook-Fremont and Fremont Boulevard alternatives involve timing traffic signals at intersections to control traffic volumes. Because not enough is known about how this "metering" will affect traffic flow characteristics, the predictions of carbon monoxide and lead do not specifically take metering into account. Assuming that all cars delayed by the metering through an 8-hour period will be delayed an equal amount of time, the metering will add less than 3/4 mg/m^3 of carbon monoxide to predicted levels at 50 feet from any intersection affected in either 1980 or 1990. This does not alter any of the conclusions drawn from the predictions. The effect of the metering on lead emissions will be similar. The additional quantity of any of the pollutants addressed in this chapter caused by metering will be insignificant in comparison with total emissions in the Study Area.

MITIGATING MEASURES

As the figures showing predicted carbon monoxide levels demonstrate, the most effective way to mitigate the adverse effects of traffic on air quality is to control motor vehicle emissions.

Opportunities for minimizing impacts in the design of urban arterials are limited. Routing to minimize exposure is one possibility. This was taken into consideration in selecting the three build alternatives analyzed in this report. In comparison to other alternatives evaluated on a preliminary basis, they minimize the exposure of homes between the Fremont Bridge and Union Avenue to increased pollution levels.

SUMMARY COMPARISON OF ALTERNATIVES

The differences between the alternatives in terms of lead, suspended particulate, hydrocarbons, nitrogen dioxide and photochemical oxidants are not significant. The differences between the effects of the alternatives on air quality outside the corridor between the ramps and Union Avenue are also not significant. Therefore, a rating of the alternatives with respect to air quality must rest on their effects on carbon monoxide levels between the ramps and Union.

The No Build alternative and Short Cook can be rated the same. The difference in CO levels between these alternatives is probably within the range of accuracy of the predictions, the amount of both the increase in CO and area affected under Short Cook is small, and the impact may be susceptible to abatement in final design.

The Cook-Fremont alternative can be rated as having a greater adverse impact on air quality than Short Cook, and Fremont Boulevard as having a greater impact than Cook-Fremont. Both Cook-Fremont and Fremont Boulevard will cause CO levels above the standard between the ramps and Union Avenue under 1980 conditions. The area exposed and the increase in CO levels will be larger under Fremont Boulevard.

As the 1990 predictions indicate, none of the alternatives will cause violation of the CO standard in that year if the "minimum" emission control assumption holds up.

COORDINATION OF THE AIR QUALITY ANALYSIS WITH THE DEPARTMENT OF ENVIRONMENTAL QUALITY

During the course of this study, staff members of the Oregon Department of Environmental Quality (DEQ) have reviewed the monitoring procedures, including the calibration of instruments; the derivation of emission factors; and the applicability of measured and historical data to the Study Area. DEQ reviewed drafts of this report and the Technical Appendix and found the analysis adequate.

CONSISTENCY WITH STATE IMPLEMENTATION PLAN

The State Implementation Plan is a set of policies and regulations to attain compliance with national ambient air standards as required by the Federal Clean Air Act of 1970 (Refs. 10 and 11). The staff of the Oregon Department of Environmental Quality has reviewed the alternatives for consistency with the State Implementation Plan. Basing its judgment on whether the alternatives will cause new violations of air quality standards, it found all build alternatives to be inconsistent. The review states that revisions to the Short Cook and Cook-Fremont alternatives could make them consistent if the violations are eliminated.

Under state regulations, DEQ must issue a permit before construction of an arterial improvement classed as an "indirect source" of air pollution (Ref. 10). New violations of air quality standards are grounds on which such a permit may be denied. Furthermore, the Federal Highway Administration will not fund projects which are inconsistent with the State Implementation Plan. Final determination of consistency with the plan will be made by the Environmental Quality Commission.

Other factors considered in judging consistency with the State Implementation Plan and not addressed by the DEQ staff review are the effects on total vehicle miles traveled and public transportation. As concluded in the preceding chapter, the differences in total vehicle miles between the alternatives are small and any increase in total trips caused by opening the ramps will be limited because of the relatively minor improvements in access. None of the alternatives will offer either significant opportunities or constraints with regard to public transportation.

NOISE

The purpose of this section is to identify the impacts of traffic noise. Background information and a description of the methodologies used in the analysis are contained in the Technical Appendix.

As with air quality, noise impacts are based on standards established to protect the public health and welfare. In this report, Federal Highway Administration (FHWA) design standards for traffic facilities are the basic reference. All federally sponsored traffic facilities must meet these standards except in specific cases where exemptions are allowed (Ref. 12).

The measuring unit "decibel" (written symbolically as "dB") is used to express the relative loudness of a sound. In addition, the A-weighted frequency scale of a standard sound level meter is used in this study because it correlates best with the human response to loudness and to the annoying characteristics of a particular noise. The A-weighted scale is widely used in environmental noise studies, and the FHWA noise standards are based on the A-weighted system. The measuring unit in this study is written "dBA." The table on page ~~87~~ 149 gives representative examples of various dBA levels.

FHWA standards are expressed in terms of the dBA level exceeded 10 percent of the time. This is written symbolically as L_{10}. Thus, a location where noise exceeds 65 dBA, 10 percent of the time would be described as having an L_{10} of 65 dBA. The table on page ~~88~~ 150 lists the FHWA standards for different land uses.

Noise can have both psychological and physiological effects. Physiological effects include loss of hearing, sleep disturbance and vasoconstriction (constriction of the veins). Loss of hearing does not usually occur as a result of community noise since high levels and long exposure are required. Studies have shown that for acceptable speech indoors, background noise levels should be less than 45 dBA. This generally requires a steady state noise level outside the building of no more than 60 to 70 dBA, depending on architectural charactistics and time of year. Levels of noise causing sleep interference vary with individuals. With some people, levels as low as 35 to 40 dBA can cause interference. Interference from noise in the range of 55 to 60 dBA is common. Vasoconstriction generally occurs with levels of noise

SOUND LEVELS AND EFFECTS OF
ILLUSTRATIVE NOISES
(R.D. p. 87)

FEDERAL HIGHWAY ADMINISTRATION
EXTERIOR NOISE STANDARDS
(R.D. p. 88)

above 70 dBA and is proportional to the number of decibels by which the noise level exceeds 70 dBA.

Psychological effects range through annoyance, stress, and deterioration of work performance. The level at which these effects occur varies with the setting and the specific activity in which a person is engaged.

EXISTING LEVELS

Measured L_{10} noise at 40 locations in the Study Area are shown in the figure on page ~~89~~ 153 and compared with the FHWA standard for the type of land use at each location. This comparison shows that existing noise levels along major traffic streets are high. Noise samples indicating levels above the appropriate FHWA design noise level (for either Category B or C as described in the table on page ~~88~~ 150) were taken on Killingsworth, Alberta, Fremont, Broadway, Weidler, Union, Williams and Vancouver north of Fremont, and 33rd Avenue.

FUTURE LEVELS

The figures on pages ~~89~~ 154, ~~90~~ 155, and ~~91~~ 156 show predicted maximum future noise levels under each alternative. These levels are associated with peak hour traffic. The levels are expressed using contours corresponding to L_{10} noise of 55, 60, and

70 dBA. During the hour when traffic is heaviest, predicted noise at the 55 contour will exceed 55 dBA 10 percent of the time. Between the 55 and 60 contours, the noise level will exceed 55 dBA, but not 60 dBA, 10 percent of the time. Similarly, the noise level between the 60 and 70 contours will exceed 60 dBA, but not 70 dBA, 10 percent of the time. On the other side of the 70 contour, the noise level during the peak traffic hour will exceed 70 dBA or higher levels 10 percent of the time.

The contours were determined using a mathematical model developed by the Highway Research Board and approved by FHWA. The model takes into consideration projected traffic volume, speed, percentage of trucks, roadway configuration and surface, and the presence of buildings.

The noise predictions reflect projected total traffic in 1980 and 1990 and the effect the build alternatives have on traffic patterns in both years. Thus, the general decline in noise levels shown in the figures on page ~~90~~ 154 is due to the decline in traffic projected to occur by 1990 as well as to federal and state legislation mandating quieter trucks and cars. Nevertheless, in both years there will be many areas near major traffic

EXISTING NOISE
(R.D. p. 89)

NO BUILD ALTERNATIVE NOISE
(R.O. p. 90)

NoiseZin 1980
(R.D. p.91)

Noise In 1990
(R.D. p. 92)

streets in the Study Area with L_{10} noise greater than 70 dBA. This is similar to existing conditions.

IMPACT ANALYSIS

As described in the preceding chapter, the traffic effect of the build alternatives can be summarized as a diversion from: (a) bridges south of the Fremont, (b) Williams, Vancouver, and Union Avenue south of Fremont, (c) I-5, and d) Alberta and Killingsworth between I-5 and Union, to: (a) the ramps, (b) Fremont Street between Gantenbein and Union, and (c) Williams, Vancouver, and Union north of Fremont. This effect is proportional to the level of street improvements under each alternative. Although there will be extensive diversion in 1980, it will be constrained by capacity deficiencies on Fremont and Union Avenue. These will cause diversions to Williams and Vancouver north of Fremont that will not occur under 1990 conditions. Proportionally, the overall diversion effect will be greater in 1990. The effects on traffic volumes on streets east of Union will be minor in both 1980 and 1990.

Predicted Noise Levels and Exposures

The alternatives will not affect noise levels east of 7th Avenue. West of 7th, predicted noise levels are proportional to traffic volume. Noise levels will be higher on streets to which traffic is diverted by an alternative and lower on streets from which it is diverted. All exposures to noise levels above the FHWA standard for residences caused by the build alternatives will occur only within the corridor between the bridge ramps and Union Avenue. Outside the corridor, the build alternatives will cause a decline in noise levels along some streets. One notable example is that L_{10} noise above 70 dBA predicted in 1990 on Williams south of Fremont and along Alberta and Killingsworth between I-5 and Union under the No Build alternative is eliminated by the Cook-Fremont and Fremont Boulevard alternatives.

The table above compares the number of dwelling units which will be exposed to L_{10} noise above 70 dBA under the build alternatives but not under the No Build alternative. The structures containing these dwelling units are shown in the figures on pages ~~91~~ 155 and ~~92~~ 156. The impact of the Cook-Fremont and Fremont Boulevard alternatives will be much greater in 1990 than in 1980 because by then noise levels in general will be lower.

DWELLING UNITS EXPOSED TO L_{10} NOISE ABOVE 70 dBA BY ALTERNATIVES

	1980	1990
Short Cook	1	0
Cook-Fremont	1	40
Fremont Boulevard	19	46

The table on the following page takes into account both instances where noise levels will be higher because of build alternatives and instances where they will be lower. It shows the total number of residential units exposed to L_{10} noise above 70 dBA in the Study Area west of 7th Avenue for both 1980 and 1990, including the No Build alternative. The table was derived using the noise level contour maps from which the figures on pages ~~90~~ 154, ~~91~~ 155, and ~~92~~ 156 were drawn.

As the table shows, the largest number of exposures under 1980 conditions will occur with the Fremont Boulevard alternative which will expose 20 more residential units than the No Build alternative. The fewest exposures will occur with the Short-Cook alternative, which will expose 21 fewer units than the No Build alternative. Cook-Fremont will expose 14 fewer units than the No Build in 1980.

091721

UNITS EXPOSED TO L_{10} NOISE FROM 60 TO 70 dBA AND ABOVE 70 dBA
STUDY AREA WEST OF 7TH AVENUE

	RESIDENTIAL				COMMERCIAL				PUBLIC				INDUSTRIAL			
	1980		1990		1980		1990		1980		1990		1980		1990	
	ABOVE 70 dBA	60-70 dBA	ABOVE 70 dBA	60-70 dBA	ABOVE 70 dBA	60-70 dBA	ABOVE 70 dBA	60-70 dBA	ABOVE 70 dBA	60-70 dBA	ABOVE 70 dBA	60-70 dBA	ABOVE 70 dBA	60-70 dBA	ABOVE 70 dBA	60-70 dBA
NO BUILD	1,083	1,476	216	810	43	16	118	58	188	10	16	28	243	86	103	40
SHORT COOK	1,062	1,509	197	1,003	43	17	126	68	186	10	17	24	247	80	108	39
COOK-FREMONT	1,069	1,522	220	1,003	46	15	104	77	188	11	11	31	241	87	103	31
FREMONT BOULEVARD	1,103	1,543	241	867	46	19	84	91	190	9	10	36	247	81	90	40

The number of exposures to L_{10} noise over 70 dBA will decline drastically by 1990 under all alternatives. Fremont Boulevard will cause the largest number of exposures, 25 more residential units than the No Build. Short Cook will cause the smallest number, 19 fewer than the No Build. In contrast to 1980 conditions, Cook-Fremont will cause 13 more exposures than the No Build alternative.

The table also compares the number of residential units exposed to L_{10} noise from 60 to 70 dBA. Exposures to L_{10} noise above 60 dBA but below 70 dBA do not violate FHWA design standards, but do represent exposures to levels which are high according to other standards.

There are no adopted local standards for roadway noise. However, State of Oregon standards for noise levels at residences, schools, and hospitals caused by commercial and industrial sources envision noise levels comparable to a daytime L_{10} in the range of 60 to 65 dBA.[1] The State Department of Environmental Quality has proposed a standard for new public roads of an L_{10} of 63 dBA (Ref. 15).

In proposing a way of opening bridge ramps on a temporary basis until a long-term solutions is adopted (the "interim solution" discussed in Chapter 1, Part I), a citizens committee recommended an L_{10} of 65 dBA as the noise level which should not be exceeded at a residential property because of the opening (Ref. 16).

In both 1980 and 1990, the number of exposures to L_{10} noise between 60 and 70 dBA will be smallest under the No Build alternative. Fremont Boulevard will cause the largest number of exposures in 1980 but fewer than either the Short Cook or Cook-Fremont alternative in 1990. Short Cook and Cook-Fremont will cause the same number of exposures in 1990.

On the basis of overall residential noise exposures, the No Build and Short Cook alternatives can be rated the same. Exposures to L_{10} noise above 70 dBA will be lowest under Short Cook in both 1980 and 1990, and exposures to L_{10} noise between 60 and 70 dBA will be lowest under the No Build in both years. Under 1980 conditions, Fremont Boulevard will have the greatest adverse noise impact; exposures to L_{10} noise from 60 to 70 dBA and above 70 dBA will be highest among the alternatives. Under 1990 conditions, Cook-Fremont will have the greatest adverse impact. Although there will be fewer exposures to L_{10} noise above 70 dBA than with Fremont Boulevard, there will be significantly more exposures to L_{10} noise between 60 and 70 dBA.

Exposures of commercial, public, and industrial units will be roughly equivalent under all alternatives. By 1990, exposures of these types of structures to L_{10} noise above 70 dBA will be least under Fremont Boulevard. Exposures to L_{10} noise between 60 and 70 dBA will be greatest under this alternative.

Effects of Predicted Noise Levels

Fremont Bridge to Union Avenue Corridor. Noise levels are generally high in the Fremont Bridge to Union Avenue corridor and will remain so regardless of which alternative is adopted. Speech interference will occur outdoors at all levels above 60 dBA shown in the contours. This will affect the most residential properties under the Fremont Boulevard alternative, the fewest under the No build alternative.

Noise levels above 70 dBA can be expected to cause indoor speech interference. Levels sufficient to interfere with sleep will occur along Fremont Street within the corridor under all alternatives; the effect will be least under the No Build and Short Cook alternatives and greatest under the Cook-Fremont and Fremont Boulevard alternatives.

Boise School. In 1980, L_{10} noise in front of Boise School (on Fremont) will be higher than 70 dBA and generally from 60 to 65 dBA in the rear of the school and on the playground under all alternatives, including the No Build. Traffic noise from Fremont will possibly cause some interference with activities in classrooms facing Fremont if windows are open. The school grounds will not be suitable for quiet activities.

Because cars and trucks are expected to be quieter by 1990, as discussed earlier, noise levels at Boise School will be approximately 10 dBA quieter than in 1980 under the No Build and Fremont Boulevard alternatives and from 5 to 8 dBA under the Short Cook and Cook-Fremont alternatives.

Eliot School. Eliot School is located near I-5 south of Russell Street. Although quieter cars and trucks will cause a decline in noise levels at Eliot School by 1990, the rear of the building will still be exposed to L_{10} noise in excess of 70 dBA. The build alternatives will not affect this condition. There will be more traffic on Flint Avenue in front of the school under the No Build than under the build alternatives. However, the amount of traffic will not be great under any of the alternatives and the noise effect at the school will be mainly from I-5.

MITIGATING MEASURES

Noise Barriers

Noise barriers were considered for all residential properties where the build alternatives are predicted to cause L_{10} noise in excess of 70 dBA. Because they are effective only if they can be designed without frequent openings, noise barriers were judged inappropriate on Fremont Street, where most of the noise impacts occur.

The Project Features figure for the Fremont Boulevard alternative on page ~~24~~ 42 shows a noise barrier on the north side of the ramps and the connection to Fremont. This is the only place where a noise barrier is a cost-effective noise abatement measure for L_{10} noise above 70 dBA. The effect of the barrier was taken into account by the noise predictions. As the 1980 prediction figure shows, despite this effect, three houses west of the ramps will be exposed to L_{10} noise levels above 70 dBA.

Numerous designs for noise barriers are available; they vary in effectiveness and aesthetic quality. Where proposed under the Fremont Boulevard alternative, a landscaped earth berm would probably be most acceptable. There should be adequate space for its construction and it will be less visually disturbing than a wall. This berm could be architecturally integrated with the proposed pedestrian overpass. Between Fargo and Cook Street, the berm should be 8 feet high, and from Cook to Fremont, 10 feet high.

Other Mitigating Measures

Because noise barriers are feasible only in the one instance discussed above, the only way to effectively abate most of the adverse noise impacts of the build alternatives would be to insulate the affected houses against the intrusion of excessive traffic noise. However, Federal Highway Administration policy is to fund insulating residences only in cases where the impact is extremely severe. No such impacts have been identified at this stage. Insulating against excessive noise is not proposed as a mitigating measure because, in the absence of federal funding, it is unlikely that the City of Portland or Oregon State Highway Division will bear the cost.

In cases of severe noise impact, FHWA also considers acquiring the impacted property and relocating the occupants. Whether or not a noise impact warrants noise insulation or property acquisition is determined on a case by case basis. If any instances of severe impact exist, they will be identified in the final EIS.

FOOTNOTES

[1] Oregon law prohibits the operation of an industrial or commercial noise source that allows the noise level at a residence, school, or hospital to exceed an L_{10} of 65 dBA between 7:00 A.M. and 10:00 P.M. before 1978, and 60 dBA after 1977. All new commercial and industrial sources must meet the 60 dBA standard (Ref. 14).

REFERENCES

1. U.S. Environmental Protection Agency, "National Primary and Secondary Ambient Air Quality Standards," 42 CFR Part 410, 36 Federal Register 8186, 30 April 1971.

2. Oregon State Department of Environmental Quality, "Ambient Air Quality Standards," Oregon Administrative Rules, Chapter 340, Sec. 31-010 to 31-055.

3. CH2M HILL, Working Paper No. 6, Existing Air Quality and Noise Conditions, Fremont Bridge Access Study, December 1975.

4. Department of Environmental Quality, State of Oregon Clean Air Act Implementation Plan, January 1972., p. 4-J-19.

5. R.R. Beard and G.A. Wertheim, "Behavioral Impairment Associated with Small Doses of Carbon Monoxide," American Journal of Public Health, Vol. 57, 1967, p. 2012.

6. R.M. Brice and J.F. Roesler, "The Exposure to Carbon Monoxide of Occupants of Vehicles Moving in Heavy Traffic," Journal of the Air Pollution Association, Vol. 16, 1966, p. 597.

7. Multnomah County Health Department, Lead Poisoning Project Report, June 1974.

8. Oregon Graduate Center, A Study of Community Exposures to Lead in the Portland Metropolitan Area, unpublished draft, 16 April 1974.

9. ____________, The Impact of Emissions from Transportation Sources on Air Quality, unpublished draft, March 1976.

10. Oregon State Department of Environmental Quality, "State of Oregon Clean Air Act Implementation Plan," Oregon Administrative Rules, Chapter 340, Sec. 20-047.

11. The Clean Air Act of 1970, P.L. 91-604, 23 U.S.C.

12. Federal Highway Administration, U.S. Department of Transportation, "Procedures for Abatement of Highway Traffic Noise and Construction Noise," 23 CFR Part 772, 41 Federal Register, 16933, 23 April 1976.

13. U.S. Environmental Protection Agency, Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety, March 1974.

14. Oregon Department of Environmental Quality, "Noise Control Regulations for Industry and Commerce," Oregon Administrative Rules, Chapter 340, Sec. 35-035 et. seq.

15. ____________, Air Quality Control Division, Proposed Noise Control Regulations, February 1974.

16. East-End Fremont Bridge Ramps Ad Hoc Committee, "Final Recommendations," 14 December 1973, p. 5.

Chapter 3

LAND USE, REDEVELOPMENT, AND URBAN DESIGN

This chapter deals with the effects of the alternatives on land use patterns in the Study Area and with redevelopment opportunities and urban design considerations.

LAND USE

Generalized land use in the Study Area is shown in the figure on the following page. Land use in the Primary Impact Area is shown in more detail in the figure on page ~~103~~ 173.

Opening the Fremont Bridge ramps will not, in itself, result in any land use conversions except possibly as a direct result of property acquisition for right-of-way expansion. Rather, the ramps will only be one of a number of influences on the use of land and the timing of development.

East of Union Avenue the present predominantly residential pattern of land use is well established. Because the traffic impact in this area will be minor, land use will not be affected.

Residential land use patterns in Boise and Humboldt neighborhoods are more vulnerable. Some nonresidential uses exist along Williams and Vancouver Avenues between Fremont and Alberta, and much of the housing is in poor condition. As the traffic projections in Chapter 1 of Part II show, the build alternatives will significantly increase traffic on these streets prior to the general decline in traffic levels anticipated by 1990. The most important influence on land use conversions along these streets will be neighborhood planning, which supports containment of nonresidential uses. However, the negative effect the increase in traffic will have on residential quality could make this policy more difficult to uphold.

All of the build alternatives sharply increase traffic on Fremont between Vancouver and Union. Land use patterns even here, however, are not expected to change significantly. Existing plans and zoning regulations, the availability of land on other busy streets, and limited demand for commercial and industrial properties, all make the conversion of residential land in this corridor unlikely. On the other hand, opening the ramps could influence the course of change in two parts of the Study Area where land use is unstable and public policy is less certain. These areas are along Union Avenue and in the Eliot neighborhood.

STUDY AREA LAND USE
(R.D. p. 104)

PRIMARY IMPACT AREA LAND USE
(R.D. p. 105)

WILL BE ON 8½ x 11 PAGE

UNION AVENUE

The rundown condition of properties along Union Avenue is well known and well documented. The city's Planning Bureau has prepared the Union Avenue Redevelopment Plan (Ref. 1), which proposes street improvements, public coordination, and other assistance to stimulate private redevelopment for a variety of commercial, light industrial, and residential uses. Good site planning and building design will help to minimize conflicts between the different kinds of activities. Although the proposed street improvements are given a high priority by the city, implementation depends on funding by the state. The State Highway Division is currently short of construction money. However, the city is taking steps to utilize funds transferred from the Mt. Hood freeway project. Local matching funds are available from Housing and Community Development block grants.

Impact Analysis

The Short Cook alternative will not affect land use on Union because it will not significantly affect traffic on Union or improve access to it. The Cook-Fremont and Fremont Boulevard alternatives will increase traffic on Union north of Fremont, decrease traffic south of Fremont, and cause a marginal improvement in access to Union. These alternatives will not in themselves significantly change land use along Union. However, the increase in traffic on Union north of Fremont may benefit retail businesses there.

Crime and the fear of crime, physical deterioration, low incomes in the primary market area for retail businesses, and competition from Lloyd Center and other East-side commercial areas are some of the causes of the depressed economic and physical conditions along Union. A program of street lighting and other crime preventive measures is designed as part of the Union Avenue Redevelopment Plan.

Even though their effects may be minor, the Cook-Fremont and Fremont Boulevard alternatives will be generally supportive of the improvement of Union Avenue. The projected increase in retail business volume and employment along Union north of Fremont could result in new investment. Connecting the ramps to Union will tend to lessen the dependence of local merchants on the immediate market area. Outlets for goods and services which can draw on a larger market area will be most benefited. The advantage of Cook-Fremont and Fremont Boulevard, then, is in adding an additional element in support of Union Avenue improvement.

ELIOT NEIGHBORHOOD

As with Union Avenue, incompatible land use patterns and deteriorated conditions lie behind the instability that characterizes the Eliot Neighborhood.[1] Freeway construction, clearance for the Emanual Hospital Urban Renewal Project, and conversions to nonresidential uses have reduced residential land use to less than a quarter of the total. Vacant land or land containing derelict structures is the single largest category of land use in the neighborhood. If undeveloped land at the Emanual Hospital Urban Renewal Project is added to this category, it accounts for nearly 30 percent of net usable land. The only part of the neighborhood where residential use still predominates is between Williams and Union Avenue north of Knott Street.

The Eliot neighborhood plan, which is part of the Model Cities Plan (Ref. 2 and 3), calls for extensive residential redevelopment, including the area south of Knott to Hancock Street. Public policy as it relates to the neighborhood is uncertain because (a) public financing opportunities are limited, (b) no progress has been made on the rezoning program included in the neighborhood plan, (c) light industrial and other nonresidential uses are well established in the area south of Russell Street between Williams and Union, (d) the continuing decline of Eliot as a residential neighborhood suggests that public sector efforts are ineffective and has demoralized many residents, and (e) wholesaling and other uses for which highway access is important may be more appropriate than residential uses in parts of Eliot because of its central location and proximity to the freeway system.

Impact Analysis

If plans for residential redevelopment in Eliot south of Russell are revised and conversion to light industrial and commercial uses is encouraged, opening the ramps under any of the three build alternatives will support this change. Because the area is centrally located in the metropolitan area and because it is near the Broadway-Weidler-I-5 interchange, access is very good. To the extent that the alternatives will relieve traffic on Vancouver Avenue near Broadway and Weidler and provide an alternative interchange for trips between Eliot and northwest and southwest parts of the metropolitan area, they will improve the level of access. These effects will benefit business and light industry more than residential uses. As with the recovery of Union Avenue, opening the ramps will not change land use in this part of Eliot, but will support it if other conditions are present.

REDEVELOPMENT

There are three locations where the alternatives will cause a need for redevelopment--on Fremont near Williams and Vancouver Avenues under the Fremont Boulevard alternative, at the location of the McDonald's Restaurant at Union and Fremont under the Cook-Fremont and Fremont Boulevard alternatives, and on the land occupied by the bridge ramps under the Ramp Removal variation of the No Build. This section addresses each of these and the effect of the alternatives on the Emanuel Hospital Urban Renewal Project and on Bureau of Maintenance operations at Stanton Yard.

REDEVELOPMENT ON FREMONT NEAR WILLIAMS AND VANCOUVER (FREMONT BOULEVARD)

For the most part, residential land purchased for right-of-way on the north side of Fremont under the Fremont Boulevard alternative but not actually needed for right-of-way will be in parcels too small for reuse as individual lots. This land will be either sold to adjacent property owners or remain in public ownership. All commercial property acquired for right-of-way will be limited to what is actually needed. Nevertheless, the three businesses affected by these acquisitions near Williams and Vancouver will have to relocate or rebuild at the same location.

The diagrams on the following page show existing parcels and use and how two of the existing businesses could be resituated. Barring voluntary transfer of property rights (by sale or lease) of parcel B to the owner of parcel A, this could be accomplished through city intervention by use of its urban renewal authority. The properties affected are included in an area recommended as an urban renewal project by the Boise neighborhood plan (Ref. 4). Redevelopment along these lines would mitigate the adverse effects of the Fremont Boulevard alternatives on the businesses involved, improve the appearance of the area, and avoid leaving the property vacant.

After acquiring parcels D, E, F, and G for right-of-way expansion, the State Highway Division could sell what is not actually needed for right-of-way to the owner of parcel C.

POSSIBLE REDEVELOPMENT AT
FREMONT AND WILLIAMS / VANCOUVER

CR.D. p. 189

REDEVELOPMENT OF THE McDONALD'S RESTAURANT (COOK-FREMONT AND FREMONT BOULEVARD)

The Cook-Fremont and Fremont Boulevard alternatives will require the relocation of the McDonald's restaurant at the corner of Fremont and Union. The owner has indicated that the store will either be rebuilt at the same location or moved either off Union Avenue or outside the Study Area (i.e., either north of Killingsworth or south of Broadway). It is probable that conditions not related to the project will determine which course is taken. A critical factor within the scope of project design is the amount of land now occupied by the restaurant which is taken for right-of-way. As shown in the Street Improvements figures for Cook-Fremont and Fremont Boulevard, on pages ~~26~~ 38 and ~~25~~ 41, the amount of this land has been minimized.

The figure on ~~this~~ the following page shows how the site could be redeveloped if the restaurant remains at the existing location. The site plan includes parking for two more cars than does the present one, and the buffer strip along the lot on Grand Avenue is reduced from 12 to 7 feet. Another feature of the plan is that it will allow construction of a new building before the demolition of the existing one.

Access to the lot, particularly from Union Avenue southbound, is the most significant constraint to redevelopment. Whereas the turn into the McDonald's lot will remain hazardous under the No Build and Short Cook alternatives, it is prohibited under Cook-Fremont and Fremont Boulevard. To enter the lot, southbound traffic on Union will have to turn left onto Fremont and then onto Grand Avenue. This is an appropriate function for Fremont, which is a collector street intended to distribute traffic to and from Union. However, the arrangement shown in the figure will put an added traffic burden on Grand Avenue, which is a local street.

REDEVELOPMENT IF THE RAMPS ARE REMOVED

The figure on page 185 shows how the land occupied by the ramps could be used if the ramps are removed, as proposed under the Ramp Removal variation of the No Build alternative, plus an additional portion of the off-ramp. Only the portion of the on-ramp built on fill would be removed under this site plan. The fill portion plus 260 feet of the structural portion of the off-ramp would be removed to accommodate a road along the ridge. Approximately 8 acres of buildable land would be made available.

Removing the additional 260 feet of the off-ramp

POSSIBLE REDEVELOPMENT OF McDONALD'S

(R. O. p. 110)

184

POSSIBLE REDEVELOPMENT WITH RAMPS REMOVED

(R.D.p. 112)

would add an estimated $198,000 to the cost of removing the ramps, making the total cost of removal and regrading $482,000. The cost of the access road shown in the figure would be about $168,000. Assuming sale of the land in 1976 for the uses shown, the land would bring about $205,000.

No specific use of this land has been identified. One possibility is for the Bureau of Maintenance to use the land labeled "industrial re-use," thereby consolidating its facilities. The bureau could continue to use Stanton Yard, or the facility could be used wholly or in part by another city bureau, or sold. Similarly, the bureau could continue to use its property at the Albina Yards or sell some of it. Inquiries from private industry have been made about the availability of Albina Yard property. Funds from the sale of city property at the Stanton or Albina Yards, or elsewhere in the city, could be used to help finance redevelopment of the land.

THE EMANUEL HOSPITAL URBAN RENEWAL PROJECT

Emanuel Hospital and the current status of the Emanuel Hospital urban renewal project are described in Chapter 1 of Part II (p. 13), which concludes that all build alternatives and the "Hospital and Stanton Yard Only" variation of the

No Build alternative will cause a significant improvement in the ease and convenience of access to the Emanuel Hospital campus. Because much of the land cleared as part of the urban renewal project remains undeveloped, attracting additional investment in compatible facilities is an important public issue. Unlike traffic from other parts of the Study Area, from a quarter to a third of the traffic generated by the facilities at Emanuel are projected to use the ramps if they are opened. Since access is an important consideration for public institutions, the availability of the ramps could affect a decision to locate there.

The projections of traffic using the ramps going to or from the Emanuel campus assume a relatively small increase in total traffic generation. Even if a major new medical facility were to locate within the project, the increase in traffic on streets to and from the ramps is not expected to be a problem. These streets have ample capacity. To the extent that increased traffic will contribute to congestion on other area streets, particularly Broadway and Weidler and Vancouver near Broadway, the ramps will provide an alternate route to and from the campus.

Access between the ramps and Emanuel Hospital under the build alternatives, as shown in the street improvements figures on pages ~~17~~ 33, ~~20~~ 35, and ~~24~~ 41, was worked out with hospital staff to insure compatibility with the hospital's redevelopment and circulation plans.

THE BUREAU OF MAINTENANCE AND THE GREELEY AVENUE RAMPS

The city's Bureau of Maintenance facilities at Stanton Yard, located across Kerby Boulevard from Emanuel Hospital, and the facilities at the Albina Yards, located on the north side of the bridge ramps, are discussed briefly on pages ~~45~~ 76 and ~~46~~ 77. The Greeley Avenue ramps are proposed to connect I-5 south with Greeley to relieve the I-5-Going interchange and Going Street, which now carry most of the traffic between I-5 and Swan Island. The Greeley ramps as proposed are shown in the figure on page ~~111~~ 183 describing possible redevelopment with the east-end ramps removed.

Because they will serve different areas and different traffic demands, the Greeley Avenue ramps and the Fremont Bridge east-end ramps are related only in that they will both affect Bureau of Maintenance operations. The bureau describes its facilities at Stanton Yards as antiquated, incomplete, and unsuitable. The separation between

Stanton and Albina Yards, and the lack of an off-street staging area where equipment can be assembled, cause operating inefficiencies.

As proposed, the Greeley Avenue ramps would further constrain access between the Stanton and Albina Yards by cutting off Stanton Street, which is now used for most trips between the two yards. A recent study conducted by the Maintenance Bureau indicated that the access problem could be partially resolved by reorganizing bureau operations. Its long-range goal is a consolidated maintenance facility. However, if the bureau continues to operate at both yards, and assuming that the Fremont ramps are not removed and the Greeley Avenue ramps are built as proposed, the only solution for the problem of access between the two yards would be the construction of an interior road. Because of the steep terrain and the location of the ramps, this would cost in the range of $200,000.

At present, there are two traffic lanes in each direction on Kerby Boulevard. The Bureau of Maintenance uses the street for staging, i.e., assembling equipment for work crews. Although traffic on Kerby Boulevard is light, there is a conflict between traffic use and bureau use

150189

for staging, which causes a safety hazard. The bureau has prepared plans for modifications to the Stanton Yard buildings to remove some staging from Kerby and improve building utilization on an interim basis, and is seeking approval to restripe Kerby for one instead of two lanes in each direction. This and improved signing are expected to reduce the safety hazard.

Even with only one traffic lane in each direction, Kerby Boulevard is expected to have adequate capacity to accommodate the increase in traffic caused by opening the east-end bridge ramps. The added traffic will, nevertheless, increase the safety hazard. However, if a major traffic generator is developed in the southern portion of the Emanuel Hospital Urban Renewal Project in the future, the increased traffic volumes on Kerby Boulevard will clearly be incompatible with its use for staging. Both the increased safety hazard caused by opening the bridge ramps, and the possibility of having to relocate staging operations because of increased traffic could be avoided by establishing an off-street staging area for the bureau ahead of time, either as part of this project or otherwise.

Bureau personnel believe that the long-term solution to its facility problems is to consolidate operations at one site. The Albina Yards appear preferable for this purpose. Operation of heavy equipment on the steep streets that border Stanton Yards is difficult. Existing bureau property at the Albina Yards may be adequate to accommodate all operations if supplemented by the block located between Mississippi and Albina, Monroe, and Morris.[2] Bureau facilities were once located on this block but were cleared in anticipation of a ramp connecting I-5 with the Rose City Freeway that was planned at that time.

URBAN DESIGN

VISUAL IMPACT AND DESIGN CONSIDERATIONS

Three visual qualities of the area that will be affected by the build alternatives appear to be significant. One is the visual "edge" which roughly follows Williams and Vancouver Avenues. Closely spaced houses to the east give way to wider views allowed by the undeveloped property around Emanuel Hospital and the drop in terrain towards the Willamette River. The second characteristic is the "closed in" appearance of Fremont Street between Williams and Union, which is due to the narrow right-of-way and building setbacks and to the steep banks on the south side. The third visual characteristic is the generally dismal appearance of this strip of Fremont and its immediate vicinity. This is caused by the drabness of the nonresidential structures (e.g., the Continental Bakery and the School District building), vacant lots, deteriorated buildings, and sparse landscaping.

Street improvements along Fremont under the Short Cook and Cook-Fremont alternatives will be primarily within the existing right-of-way. Short Cook will allow more landscaping in the design, including additional street trees because less of the right-of-way will be occupied by roadway.

Only the Fremont Boulevard alternative will have a significant direct effect on the visual qualities described above. Widening the right-of-way will "open up" Fremont Street somewhat and the median strip will be landscaped. If the redevelopment discussed earlier is carried out, the appearance of the area can be improved. If not, the visual quality of the area is likely to remain unchanged in the foreseeable future.

Except as part of the redevelopment associated with them, the build alternatives do not offer significant opportunities for urban design.

Constructing the proposed noise barrier as an earth berm will minimize visual intrusion and provide opportunities for landscaping. An additional berm could be constructed along the south side of the connection between the ramps and Fremont to serve as a visual buffer between the roadway and the nearby houses. This berm would be ineffective as a noise barrier.

The pedestrian/bicycle overpass crossing the ramp connection under the Fremont Boulevard alternative should be designed for easy access from both sides. Because the area around it is open, the overpass will be very visible. Care should be taken to design an attractive structure. School District officials suggest that it be enclosed over the roadway to protect the traffic below.

URBAN FORM

Among the preliminary alternatives which would provide a connection between the Fremont Bridge ramps and Union Avenue to accommodate the total unconstrained projected demand for use of the route, Fremont Boulevard was selected in part because it minimizes property acquisition and disruption of the existing pattern of land use. It is also the least costly. Its selection reflects an appreciation that public intervention in the form of capital improvements can cause more harm than good in an area where social, economic, and physical conditions make the balance between decay and ongoing revitalization a delicate one. It also reflects the fact that public resources, both local and federal, are limited. Other proposals affecting the area, notably the Union Avenue Redevelopment Plan, reflect the same considerations.

Two basic and accepted principles of urban form are that traffic streets should skirt neighborhoods and that residential use should be organized in neighborhoods. For the most part, the existing land use pattern in the vicinity of the ramps respects these principles, as do the build alternatives. However, Fremont Boulevard will add to the isolation of residential properties south of Fremont and east of Commercial Avenue, and to the already incongenial residential environment of the houses near the ramps but not purchased for right-of-way. It may make sense to purchase these houses and assist their occupants in relocating. Not only are many of the houses in very poor condition, but their location is unsuitable, and will be made more so by opening the ramps. Barring redevelopment of the entire area between Boise School and Vancouver Avenue, alternative uses of this land are not apparent. It may be best to leave the entire area as landscaped open space.

FOOTNOTES

1. In this section, references to Eliot Neighborhood include only the area west of Union.

2. According to the bureau, "past studies have indicated in excess of 500,000 square feet would be necessary to accommodate all operations. The Albina and reacquired Morris Yard properties would provide less than 400,000 square feet. Additional study would be necessary to determine actual space needs" (Ref. 5). The Morris Yard property is the block described in the text.

REFERENCES

1. Portland Bureau of Planning, Union Avenue Redevelopment Plan Summary, October 1975.
2. Eliot Neighborhood Development Program, August 1973.
3. Draft Model Cities Comprehensive Plan, June 1973.
4. A Plan for Boise-Humboldt, undated.
5. Letter from Les Davis, Superintendent, Bureau of Maintenance, to John Lang, Bureau Chief, Bureau of Streets and Structural Engineering, 25 June 1976.

158197

Chapter 4
RELOCATION

PROPERTIES AFFECTED BY PROJECT IMPACTS

All of the three build alternatives will require some property acquisition for increasing right-of-way. Short Cook will not require acquisition of any structures nor any relocation. Cook-Fremont requires acquisition and the relocation of only the McDonald's restaurant at the intersection of Fremont and Union Avenue. Fremont Boulevard will require acquisition of 20 houses and the buildings occupied by one church, one public service agency, and four businesses. All households occupying these houses, the four businesses, church and public service agency will have to relocate. Property acquisition under the alternatives is shown in the Street Improvements figures for each in Chapter 2 of Part I. Houses and nonresidential structures whose occupants will be eligible for relocation benefits under Fremont Boulevard are shown in the figure ~~below~~ on page 200.

In Chapter 1 of Part II, a special right-turn lane from Union Avenue southbound to Fremont Street westbound is suggested as one way to reduce congestion associated with these alternatives.

Under Cook-Fremont, this would require acquisition of the building on the northwest corner of Union and Fremont (see figure on preceding page), and the building next door to it on Union, which houses the Maternal and Infant Care Clinic. Under Fremont Boulevard, the special right-turn lane would require the additional acquisition of the Maternal and Infant Care Clinic and the building next to it to the north, now a motorcycle shop. The occupants of these buildings would have to relocate.

Although many properties beyond the right-of-way for each of the alternatives are affected indirectly, only those needed for right-of-way expansion will be purchased. Owners of properties affected by noise, reduced air quality, or other impacts are not eligible for compensation unless their properties are acquired for right-of-way.

WHO WILL BE RELOCATED

A door-to-door survey (Ref. 1) was conducted during the fall of 1975 in an area roughly bounded by Beach Street, Union Avenue, Kerby Avenue, and Fargo Street. The survey was designed to provide information about the social and economic characteristics of residents potentially affected by the range of street improvement alternatives considered during the course of this study. The

LOCATION OF HOUSEHOLDS AND BUSINESSES
ELIGIBLE FOR RELOCATION BENEFITS,
FREMONT BOULEVARD ALTERNATIVES

(R.D. p. 118)

findings of the survey for those households relocated by the Fremont Boulevard alternative are as follows:

1.	Number of Residential Structures	20
2.	Number of Dwelling Units	24
3.	Number of Occupied Dwelling Units	17
4.	Number of Occupants	40
5.	Number of Owner-Occupied Units	10
6.	Number of Renter-Occupied Housing Units	7
7.	Average Length of Residence in Units	9 (Range: 1 to 26 years)
8.	Average Length of Residence in Neighborhood	15 (Range: 1 to 29 years)
9.	Percent Racial Minority Residents	93 (37 black)
10.	Median Square Footage Range of Dwelling Unit	500-999
11.	Median Household Income Range	$5,000-5,999
12.	Average Household Size	2.4 (Range: 1 to 7
13.	Total Occupants under 18	10

Lot 201

14.	Number of Occupants 65 and Over	7
15.	Number of Occupants 65 and Over Living Alone	3
16.	Number of Households Without Car	6
17.	Number of Households Without an Employed Person	8 (Each receives public assistance)
18.	Number of Households With Employed Persons Riding Bus to Work	3
19.	Number of Households With Employed Persons Walking to Work	0

This information suggests some of the general needs which must be considered in formulating a relocation plan if the Fremont Boulevard alternative is implemented. Assuming that (1) households currently owning their home will choose to purchase a replacement house and (2) renters able to afford monthly payments of $200 will choose to purchase their new dwelling, ten houses in the $20,000 to $30,000 price range must be available for purchase.[1] Of these, nine are for one- or two-person households (one of these must have good access to bus transit) and one must accommodate a four-person family including two small children.

Rental units having the following characteristics must be available to accept relocated households:

Monthly Rent	Number of Units Needed	Characteristics
$40 or less	4	3 will accommodate elderly persons without a car needing transit service.
$83 - 104	2	Needs good bus transit access and special transit consideration for elderly person.
$125 - 146	1	Must accommodate 6-person family including 4 small children and needs good transit access.
$146 - 167	1	Needs good bus transit access and special transit consideration for elderly person.
$300	1	Must accommodate 7 persons including two small children and needs good transit access.

The relocation of elderly persons is always of special concern. Many elderly people have no personal transportation and need to be within walking distance of needed services or depend upon other persons for mobility. Three households consist of an elderly individual living alone and two others of elderly individuals left alone during the day. Relocation of these persons will have to take into account their transportation requirements.

One relocation unit for purchase and two for rent must be suitable for families of from four to seven persons, each having small children. The units must be of adequate size and room arrangement, the neighborhood environment must be suitable for children, and schools should be easily accessible.

RELOCATION BENEFITS

Oregon State Highway Division (OSHD) policy stipulates that when property is taken "no family or individual will be required to vacate any dwelling until having found or been offered adequate replacement housing. Further, any replacement housing considered will be fair housing open to all persons regardless of race, color, religion, sex, or national origin" (Ref. 2).

To implement this policy, OSHD has developed a Relocation Assistance Program which compensates individuals and families displaced by its actions. The program has two basic thrusts--providing information to those being displaced, and providing monetary compensation where possible to relieve the cost of relocation.

Information is made available at the OSHD office in Portland. There are maintained current lists of replacement dwellings and business locations as well as current data on required deposits for utilities, closing costs, typical down payments, interest rates, and FHA and VA mortgage loan requirements. Also available are maps showing the location of schools, parks, playgrounds, shopping areas, and public transportation routes. Right-of-way personnel are directed to insure that all displaced individuals and families are aware of the assistance available to them.

Monetary compensation is available to displaced families and individuals for moving and storage costs and replacement housing costs as described in the following discussion. The figures presented here are generally the maximum amounts available. The actual benefits to which owners or tenants are entitled are determined by the right-of-way agent assigned to interview the occupants, purchase their property, and assist them with relocation.

INDIVIDUAL AND FAMILY MOVING EXPENSES

Moving expenses will be reimbursed upon filing a written claim with the State Highway Division. Payment will either be equal to a reasonable expense for moving personal property within a 50-mile radius or to the nearest available and adequate site, or according to the following set schedule:

$ 60	(1 room)
100	(2 rooms)
140	(3 rooms)
180	(4 rooms)
220	(5 rooms)
260	(6 rooms)
300	(7 rooms or more)

In addition each displaced homeowner or renter will be paid a $200 dislocation allowance.

STORAGE OF PERSONAL PROPERTY

In addition to recovery of moving expenses, persons displaced may also receive payment for the cost of up to 1 year's storage of personal property, if the circumstances make this action beneficial to both the owner and the state.

REPLACEMENT HOUSING

OSHD will pay a displaced homeowner a purchase price equal to the fair market value of his property. In the event that a replacement house cannot be purchased for that price, OSHD is authorized to make up the difference. It is also authorized to compensate the owner for the increased interest costs of financing the replacement dwelling and for closing costs. However, the combined total of this payment may not exceed $15,000, and is available only to owners occupying their dwelling for not less than 180 days prior to the beginning of negotiations for purchase of the property.

Owners occupying their dwelling for less than 180 days but 90 days or more prior to the beginning of negotiations may be eligible for additional payments of up to $4,000. The payment received will be equivalent to the amount necessary to make a down payment on the purchase of a replacement dwelling and to reimburse the displaced owner for his actual closing costs. OSHD does not consider deposits for taxes or insurance as closing costs.

If the owner-occupant for less than 180 days but 90 days or more chooses to rent rather than purchase a replacement dwelling, he is eligible for a payment to rent a suitable replacement dwelling. The actual payment will be the amount determined by OSHD as necessary to rent a comparable dwelling for 48 months, not to exceed $4,000. To be eligible, the displaced owner must rent a "decent, safe and sanitary" replacement dwelling within 1 year after the date of displacement from the dwelling acquired by OSHD.

The benefits and eligibility requirements to displaced renters are similar to those for owner-occupants for less than 180 days but 90 days or more. The replacement housing benefit, however, will be the increase in rent necessary to rent a comparable dwelling for 48 months, or the amount determined by OSHD as necessary to rent a comparable dwelling for 48 months, whichever is less. Again, the total payment will not exceed $4,000.

Public Law 91-646, Title II, Section 216, insures that no payment received as a relocation benefit "shall be considered as income for the purposes of the Internal Revenue Code of 1954; or for the purpose of determining the eligibility or the extent of eligibility of any person for assistance under the Social Security Act or any other Federal Law."

BUSINESSES AND NONPROFIT ORGANIZATIONS

Displaced businesses and nonprofit organizations will be reimbursed for the cost of moving personal property up to 50 miles or to the nearest available and adequate site. The actual cost of searching for a replacement location may be claimed up to $500.

In lieu of moving expenses, a displaced or discontinued business may be eligible to receive an amount equal to the average annual net earnings of the business during the two tax years preceding the year in which the business is displaced. The payment cannot exceed $10,000 and will not be less than $2,500. Those who choose the "in lieu" payment are not eligible for any other relocation payment.

AVAILABILITY OF REPLACEMENT HOUSING

Policies of the Oregon State Highway Division and the Federal Highway Administration prohibit the dislocation of any household without the availability of "decent, safe, and sanitary" replacement housing. Potential replacement housing must be suited to the requirements of the households to be relocated.

Replacement housing is found from one of three sources. The primary source is the private housing market, with limitations imposed by the relocation benefits available. Second, the Housing Authority of Portland will give first priority on any of its vacant units to eligible households displaced by public action but not able to secure adequate housing on the private market. When neither of these sources produces a suitable dwelling unit, "housing of last resort," can be provided as part of the project expense--by new construction if necessary. The federal Uniform Relocation Assistance and Land Acquisition Policies Act of 1970, Section 206(a), allows project funds to be used for construction of necessary housing when there is no alternative source.

There is no way to say with any certainty that adequate replacement housing will be available just when it is needed for all of the individuals and families that may be replaced. However, the relatively small number of dwellings that will be acquired, together with recent relocation experience, suggests that sufficient relocation housing can be found.

Between 1971 and 1974, approximately 170 families were relocated as part of the Emanuel Hospital urban renewal project. Most of these families were relocated within a mile of their former location and in housing substantially better than the housing they occupied before.

More recently the Portland Development Commission has assisted 74 families to relocate as part of the Eliot I and Eliot II projects. On the basis of this experience, the commission staff indicates that replacement housing can readily be found for the 17 households that would need to be relocated if Fremont Street is improved.

The Housing Authority of Portland (HAP) will give priority to displacees for any vacancies it may have at the time relocation occurs. However, units will not be held open in anticipation of the need for replacement housing. As of April 21, 1976, HAP managed approximately 4,600 public housing units in the Portland area, and every unit was occupied. The waiting list for vacant units now has more than 4,000 names. Persons on the waiting list since 1971 and 1972 are only now being provided for. Therefore, a relocation plan for the Fremont Bridge Ramp project cannot depend on HAP for replacement housing.

In view of the city's experience with finding relocation housing, it is unlikely that "last resort" housing will be needed.

FOOTNOTES

1. One renter household's payment capability exceeds $200 monthly, but total income is brought in by 4 wage earners not likely to remain as a single household for the financing period of a new house purchase.

1-72 212

REFERENCES

1. CH2M HILL, Project Area Survey, Fremont Bridge Access Study, August 1975.
2. Oregon State Highway Division, Moving Because of the Highway, Salem, Oregon, 1974.

H32B

Chapter 5

SOCIAL CONDITIONS AND IMPACTS

While it is difficult to break out strictly "social" issues as against economic issues or concerns with the physical condition of the area, the analysis in this chapter attempts to identify significant characteristics and impacts related to the livability of the neighborhoods affected by the project.

EXISTING CONDITIONS

The various studies prepared in the last several years for the Model Cities program describe in general and in particular the past and present conditions in the west half of the Study Area. Aside from conditions that are easily observed, for purposes of this study perhaps the most important social fact affecting the lives of those who live and work in this part of the city is the uncertainty they feel about public actions affecting their future.

Eliot neighborhood, in particular, has experienced continuing economic pressure for changes in land use zoning in some areas, little or no demand for the properties in other areas, and a major relocation of many of its residents in recent years. For the most part the remaining residents are poor and black and many of them are elderly.

Boise neighborhood, to the north, is generally more stable and has a smaller proportion of rundown properties.

The following information summarizes some relevant facts about or affecting social conditions in the Study Area. Boise and Eliot neighborhoods, taken together, are compared with the Study Area as a whole.

1. Thirty-seven percent of the Study Area population is black. Boise and Eliot neighborhoods are 69 percent black.
2. Twenty-three percent of Study Area households are at or below the federal poverty level. The proportion is 39 percent in Boise and Eliot.
3. Some form of public assistance is part or all of 12 percent of household incomes in the Study Area. In Boise and Eliot alone the figure is 31 percent.
4. Unemployment is about 10 percent in the Study Area; 15 percent in Boise and Eliot.
5. The Study Area consists of predominately stable single-family residential neighborhoods. Boise and Eliot have a high propor-

tion of substandard housing. Much of the single and multifamily housing in Eliot has been demolished for freeways and urban renewal projects. Much of the housing in the south part of Eliot has been replaced by commercial and light industrial use.

6. Since 1966, a substantial amount of federal money has been spent for housing rehabilitation in Study Area neighborhoods but not in Eliot because badly blighted conditions gave Eliot a lower priority rating for these funds.

This information and its more complete presentation in Working Paper 2 was obtained primarily from 1970 Federal Census reports, from visual surveys of the area, and from communication with persons involved with public and social service agencies and programs, institutions, and community organizations operating within the study area.

Earlier analysis has indicated that primary impacts are limited mainly to the area roughly bounded by Kerby Avenue, Beech Street, Union Avenue, and Fargo Street. This is true with reference to institutions, community facilities, elderly and handicapped residents, residents in general, and pedestrian circulation and access.

The table on page ~~120~~ 217 presents information about residents of this area. The table also shows the

SOCIAL CHARACTERISTICS OF RESIDENTS DIRECTLY IMPACTED[1]

	NUMBER OF HOUSEHOLDS	NUMBER OF PERSONS	NUMBER OF PERSONS 65 YEARS AND OLDER	NUMBER OF PERSONS UNDER 18 YEARS	% HOMEOWNER HOUSEHOLDS	% BLACK (non-white)	AVERAGE LENGTH OF RESIDENCE IN NEIGHBORHOOD	AVERAGE LENGTH OF RESIDENCE IN DWELLING	MEDIAN HOUSEHOLD INCOME (annual)	% OF HOUSEHOLDS WITH TOTAL INCOME FROM PUBLIC ASSISTANCE	NUMBE VACA UNIT
ACT AREA RESIDENTS	274	701	103	271	55	86	16	11	6,000 – 6,999	38	49
SEHOLDS EXPOSED TO :E ABOVE FHWA DESIGN NDARD BY ALTERNATIVE											
980											
REMONT BOULEVARD	18	45	4	13	28	93	17	9	4,000– 4,999	9	1
OOK-FREMONT[2]	1	–	–	–	–	–	–	–	–	–	–
HORT COOK	0										
190											
REMONT BOULEVARD	49	109	20	29	31	94	15	8	3,000– 3,999	29	4
OOK-FREMONT	29	61	10	17	58	80	18	14	6,000– 6,999	13	18
HORT COOK[2]	1	–	–	–	–	–	–	–	–	–	–

---

[1] COVERS AREA ROUGHLY BOUNDED BY KERBY AVENUE, BEACH STREET, UNION AVENUE AND FARGO STREET.

[2] INFORMATION PERTAINING TO A SINGLE HOUSEHOLD WITHHELD.

characteristics of households living in structures exposed to noise levels above the Federal Highway Administration design standard by the Cook-Fremont and Fremont Boulevard alternatives. Characteristics are shown for households affected in both years for which noise predictions were made. Most of the households affected in 1990 will be exposed to noise levels above the standard in 1980 even under the No Build alternative.

SOCIAL IMPACTS

Social impacts are caused by changes in traffic volumes, automobile and pedestrian circulation patterns, noise levels, air quality, and visual quality. This analysis is focused mainly on those portions of the Study Area receiving the most significant impacts.

There is a street life in Eliot and Boise neighborhoods that serves a social function which is sensitive to the street environment. Beyond that, the environment of the street in any neighborhood has a great deal to do with its livability. Heavy traffic is noisy, smelly, and dangerous. Even in neighborhoods where people spend more time indoors or in their backyards, heavy traffic is incongenial to neighborhood amenity. All of the day-to-day activities that go on in a neighborhood are influenced by the characteristics of the traffic on the street--its volume, rate of flow, and mix of vehicle types.

The present street environment in the Study Area is generally supportive of the types of activities that occur there. There are exceptions, such as Fremont Street between Vancouver and Union Avenue, where volume of traffic, noise, and vehicle exhaust are already bothersome to the people who live there or who walk along the street.

Each of the alternatives has a different effect on the street environment, as described below.

No-Build

Ramp Removal. Removal of the at-grade portions of the bridge ramps will make possible a street between the area northwest of the ramps and Kerby Boulevard and improve local access to Boise School and Emanuel Hospital by car and foot.

Permanent Closure. Permanent closure of the ramps without removing the at-grade portions will leave unsettled for some people the question of their future use. This condition may detract from efforts to upgrade the area's residential environment. Pedestrian access to Boise School will remain unchanged.

Limited Access. By maintaining use of the ramps in the present limited manner, the same effects as described for the Permanent Closure variation will occur.

Hospital and Stanton Yard Only. Providing use of the bridge ramps to Emanuel Hospital will support the long-term improvement of the street environment by improving the feasibility and thereby speeding completion of the hospital's expansion project. Filling in portions of the large areas lying vacant around the hospital will improve the area's aesthetic (visual) quality and development continuity, and will tend to stimulate other improvements that will serve the social needs of those who live and work there. Pedestrian access to Boise School will remain unchanged.

For all No Build variations, the street environment along Fremont Street from Williams to Union Avenue will remain as it is today, assuming improvements are made to the Fremont/Union intersection. With no physical improvements to the street, the present traffic congestion will intensify.

Short Cook

Short Cook offers Emanuel Hospital full use of the bridge ramps with the same potential benefits to the street environment described for the hospital and Stanton Yard only variation of the No Build alternative. The effects on Fremont Street are similar to those for the No Build although the adverse effects of congestion will be mitigated by street improvements as part of the project to increase capacity. Williams Avenue north of Fremont will also have traffic volumes above capacity in 1980. However, the mixed-use environment there is not as sensitive to the impacts of heavier traffic as the solid line of residences along Fremont Street.

Cook-Fremont

This alternative has the same impact on Emanuel Hospital and Williams Avenue north of Fremont described for the above alternatives. Fremont Street, projected to carry twice the traffic it presently does, will be improved. Even so, the residential street environment will deteriorate further with heavier traffic and restrictions on on-street parking.

Restricting on-street parking will also reduce the accessibility of social service agencies near the Fremont Street/Union Avenue intersection. Although the pedestrian circulation pattern will be unchanged, greater traffic volumes, higher noise levels, and poor air quality will degrade the pedestrian environment along Fremont from Union Avenue to Vancouver Avenue. Pedestrian access to Boise School from Eliot neighborhood will be adversely affected, but not significantly.

Fremont Boulevard

The effect on the local residential environment associated with improving access to Emanuel Hospital will be the same as described above. The social impacts of the Fremont Boulevard alternative in comparison to the other alternatives arise from the fact that it will eventually cause more traffic between the ramps and Union Avenue. It will have the greatest effect on pedestrian circulation and residential quality.

Pedestrian crossing on the south side where the ramp connection intersects with Fremont Street will be prohibited. Pedestrians on Fremont will have to use the north side. Access to Boise School from Eliot neighborhood will not be cut off because of the pedestrian overpass crossing the connection between the ramps and Fremont Street proposed as part of the project. The location of this overpass coincides with the route used by most Eliot neighborhood school children who attend

Boise School; Fremont Boulevard will be the safest of the build alternatives for these children. Fencing along the connection will discourage pedestrians on the roadway.

Combined with the intersection design, the high traffic volumes under Fremont Boulevard will make pedestrian circulation at the intersection of Fremont and Union difficult. Pedestrian access to some uses there is important. Whereas conditions are not good for pedestrians today, they will worsen under Fremont Boulevard. Crossing Fremont anywhere between the ramp connection and Union will become more hazardous. Fremont must be crossed to get to the grocery store which is nearest to the residential area just south of it.

In 1980, the amount of traffic on Fremont between Vancouver and Union Avenue under Fremont Boulevard will be the same as under Cook-Fremont. By 1990, however, there will be considerably more traffic. This traffic will adversely affect the residential quality of the adjoining properties in both cases. The effect will be lessened by the greater degree of street improvements under Fremont Boulevard. These will mean less congestion, and the relocation under Fremont Boulevard will avoid exposure of the affected residents from the effects of the traffic. In terms of both its physical appearance and the traffic using it, Fremont between Vancouver and Union will be a major arterial closely comparable to Union Avenue. Its suitability for residential use will be similar.

Because of capacity deficiencies on Union in 1980, there will be extensive traffic diversion to Williams and Vancouver Avenues north of Fremont. Whereas the other alternatives primarily affect Williams, which is largely nonresidential, in this respect, Fremont Boulevard will also affect Vancouver Avenue, which is mostly residential. The diversion to Williams and Vancouver will not occur in 1990, but in the interim the residential quality along these streets will decline.

As pointed out in the preceding chapter, Fremont Boulevard requires the Albina Legal Clinic and Immanual Free Methodist Church to relocate.

Chapter 6

ENGINEERING AND CONSTRUCTION

DESIGN CHARACTERISTICS

From an engineering standpoint, the project alternatives are basically designs for arterial or collector streets.

COMPLIANCE WITH DESIGN STANDARDS

Oregon State Highway Division standards for urban arterial and collector streets were generally used as design criteria in the layout of the alternatives. An exception to these standards was made for the Cook-Fremont alternative. Under this alternative, the pavement width of Fremont Street is 46 feet, which conforms to the City of Portland standard for four moving lanes within a 60-foot right-of-way. However, the Oregon State Highway Division standard calls for a 47-foot minimum pavement width.

DESIGN PROBLEMS

Under the Hospital and Stanton Yard Only variation of the No Build alternative, the connection between the ramps and Kerby Boulevard has a relatively tight turning radius. Traffic coming from the Fremont Bridge must be adequately warned by signing to allow reduction in speed. The turn should be no problem for traffic to the bridge.

The intersection between the ramp connection and Kerby Boulevard for both the Short Cook and the Cook-Fremont alternatives has an alignment that is less than desirable. This alignment was selected because of the expansion plans of Emanuel Hospital and the low traffic volumes expected to use the intersection. A deceleration lane with adequate signing will enable the traffic coming from the bridge to negotiate the curve at this intersection without hazard.

As described on page ~~16~~ 31, the Short Cook alternative includes traffic controls on Williams and Vancouver Avenues to prevent lane changes between Fremont and Cook Streets. The purpose is to restrict direct access between the bridge ramps and Fremont east of Williams. These controls will require drivers northbound on Williams who desire to turn right on Fremont to be in the right lane before reaching Cook Street, two blocks south of Fremont. Similarly, drivers southbound on Vancouver who desire to turn right on Cook Street to get onto Kerby Boulevard, Gantenbein Avenue or the bridge must be in the right lane before reaching Fremont. Confusion can be avoided by signing.

UTILITY RELOCATION

Relocation of existing utilities will be minor in all cases and should not involve interruption of service. Utility poles for power and telephone will be relocated behind the new curb lines. Some high voltage lines will need to be relocated, but these too can be moved without interrupting service.

CONSTRUCTION

DURATION

The table shows the estimated time needed to construct each alternative. These estimates are based on similar projects of the same magnitude. Shorter construction times will increase the intensity of construction impacts. Construction unduly shortened by contract will increase construction costs.

TABLE
(R.D. p. 134)

+87227

CONSTRUCTION IMPACTS

Because of the similarity between the build alternatives, the impacts caused by the construction of these alternatives will be generally very similar.

Circulation and Access

No Build Variations. The construction of any of the No Build variations will have almost no effect on existing traffic circulation. Kerby Boulevard, which is affected by all of the variations, has a very low volume capacity ratio. Construction on Kerby Boulevard will be very minor and should not restrict traffic.

Short Cook and Cook-Fremont Alternatives. These alternatives are almost identical in construction up to Union Avenue. Fremont Street is 6 feet wider under the Cook-Fremont alternative. The effect of construction on traffic circulation will be the same for these two alternatives up to Union Avenue.

It is probable that Kerby Boulevard would be closed for up to 2 months between Monroe Street and Gantenbein. This will partially restrict access to Stanton Yard but should otherwise have little effect.

Construction on Williams and Vancouver will at times restrict traffic to one lane. This will cause congestion during rush hours and restrict access to the abutting properties. Because these streets are one way, the effect will not be as serious as on Fremont Street.

Maintaining two-way traffic on Fremont Street during construction will necessitate removal of all on-street parking. Even then, heavy congestion will occur during rush hours. Access to residences and businesses along Fremont will be reduced and for short periods will be eliminated.

Increased congestion on Williams, Vancouver, and Fremont Streets will cause motorists to find alternative routes around the construction area. Several methods can be used to reduce congestion and protect against the use of local streets by through traffic.

The contractor can be required to limit his hours of work so that construction activity is restricted during peak traffic hours. This will increase the cost of the project, and it will not discourage those motorists who chose to avoid the construction from using neighborhood streets.

A more positive method would be to direct through traffic away from the construction by placing signs at intersections where traffic can be directed to other arterials. Under the Cook-Fremont alternative, the signal at Fremont and Union could be installed early and the intersection striped for a left-turn lane from Union, or the entire east end of the project could be completed before construction is started on Fremont west of Union and on Williams and Vancouver.

Neighborhood streets can also be protected by installing all proposed traffic diverters before construction on Fremont, Williams, and Vancouver is started.

Construction of the Cook-Fremont alternative will cause congestion at Union and to the east. This project should be phased so that construction on Union Avenue is completed before construction is started on Williams and Vancouver.

Fremont Boulevard Alternative. Although this project is larger, its impact during construction will not be so severe as with Short Cook or Cook-Fremont. Most of the construction is on Fremont Street. Almost all property adjacent to and north of Fremont Street between Williams and 6th Avenue

230
~~140~~

will be purchased. This confines access problems to properties on the south side of Fremont. It will also allow the two lanes on the north half of Fremont Street to be constructed with relatively minor disruption to the existing traffic on Fremont between Vancouver and Union.

This project should also be phased so that construction does not occur simultaneously on the Williams-Vancouver couplet and on Union Avenue.

Air Quality and Noise

The impacts during construction on air quality and noise will vary directly with the size of the proposed project, with the exception of the ramp removal variation of the No Build alternative.

No Build Variations. Ramp removal will generate dust and noise, affecting Boise School and Emanuel Hospital. Grading the site into a useable parcel of land will open a large area of bare soil. This can cause a dust problem for the immediate vicinity.

Seeding the bare soil immediately after grading will help reduce dust. Seeding can only be effective if done at the proper time of year. The contract should be let so that work will be completed in the fall.

The construction equipment used in removing the ramp pavement and grading the site will cause a noise problem for Boise School, unless construction occurs during the summer months.

The other No Build variations are minor construction projects and will have only minor air and noise impacts.

Build Alternatives. Any street construction project in an urban area will cause air and noise pollution. Since no large quantities of earth will be moved, dust will be a problem only when subgrade is excavated and exposed. Proper watering will greatly reduce dust.

Air and noise pollution caused by the operation of construction equipment can be minimized by enforcing existing city regulations. The proposed city noise ordinance would further reduce noise from construction. The contract should include requirements for watering the subgrade.

Water Quality

Rainfall runoff from fine grain, erodable soils which have been bared by construction will carry the soil particles into the Willamette River. The effect of soil-laden runoff on the receiving stream is dependent on the relative quantities, which are dependent on the area opened by the construction. The relative area of any of the alternatives is extremely small. In addition, areas opened to bare soil under all alternatives except the Ramp Removal variation of the No Build would not be expected to remain open during the winter months but would be paved with at least a bituminous base course.

To control both dust and soil erosion, the construction contract should include provisions requiring that bare areas be watered and immediately seeded or mulched. It should also require that straw or hay bales be placed in run-off channels to reduce sediment.

Utility Disruption

Relocation of power and telephone lines will be accomplished without disrupting service.

Problems may be expected with the old waterlines when the streets are rebuilt. These lines are cast iron and have either lead or mortar joints. Construction activity on the subgrade may cause some of the joints to leak. Repair will mean shutting down the affected line between valves, usually two to three blocks apart, for about 2 hours. These temporary shutdowns will leave some residents and businesses without water. Because of the adequate number of fire hydrants, there will be no fire danger from closing the lines for short durations.

PROJECT COSTS

The table on the following page shows the estimated cost of implementing the alternatives assuming all costs are incurred in 1976. The figures for the Ramp Removal variation of the No Build cover only removing the portion of the ramps built on fill and regrading the land. Costs associated with redevelopment are addressed in Chapter 3 of Part II.

All costs listed are believed eligible for federal participation amounting to 78 percent under the Federal Aid to Urban Arterials Program. The remaining 22 percent will be shared equally by the Oregon State Highway Division and the City of Portland.

The figures in the table represent the costs of the alternatives as they are described in Chapter 2 of Part I. Measures suggested in this report to mitigate the adverse effects of the alternatives would add to these costs. Replacing the garages

195

235

ESTIMATED 1976 PROJECT COSTS

	NO BUILD VARIATIONS					
	RAMP REMOVAL	PERMANENT CLOSURE OR LIMITED BRIDGE ACCESS	HOSPITAL AND STANTON YARD ONLY	SHORT COOK	COOK-FREMONT	FREMONT BOULEVARD
CONSTRUCTION	$203,000	$10,800	$139,100	$1,104,000	$1,273,000	$1,486,000
NOISE BARRIER						42,000
ENGINEERING AND CONTINGENCIES	81,200	4,200	55,600	441,000	549,200	693,000
PROPERITY ACQUISTION						
RESIDENTIAL AND VACANT				2,000	600	171,000
COMMERCIAL					53,700	173,800
ADMINISTRATION				300	8,100	51,700
TOTAL				2,300	62,400	396,500
RELOCATION						
RESIDENTIAL						94,600
COMMERCIAL					6,500	26,000
ADMINISTRATION					1,000	18,100
TOTAL					7,500	138,700
TOTAL PROJECT COST	$284,000	$ 15,000	$195,000	$1,548,000	$1,892,000	$2,846,000

NOTE: TOTAL PROJECT COSTS ROUNDED TO NEAREST THOUSAND on the north side of Fremont which are narrow and close to the sidewalk with open parking spaces, as discussed in page ~~52~~ 89, would add an estimated $10,000 to the cost of Cook-Fremont. Constructing open off-street parking spaces in front of houses on the north side of Fremont which do not have off-street parking would add about $8,000 to the cost of this alternative.

A special right-turn lane from Union southbound to Fremont westbound, as discussed on page ~~58~~ 99, would add an estimated $203,000 to the cost of the Cook-Fremont alternative and an estimated $149,000 to the cost of Fremont Boulevard. Metering traffic at the ramps under the Short Cook and Fremont Boulevard alternatives, which is discussed on pages ~~57-59~~ 98-99 would not add to the cost of these alternatives.

Chapter 7

ECONOMICS

What will be the economic impacts of alternative solutions for the Fremont Bridge ramps? To help answer this question, a variety of economic costs and benefits are considered. Properties affected are identified where possible. Quantifiable impacts are summarized in a cost-benefit analysis. A judgment is made of how the alternatives may affect the long-term economic destiny of the Study Area.

IMPACTS

GENERAL

High unemployment and low incomes have persisted in Eliot and Boise neighborhoods for years. Public programs have helped to improve economic conditions. But without public or private intervention on a massive scale, the prospect is for continuing depressed economic conditions in the foreseeable future. Alternative ramp opening plans could affect economic conditions for specific areas and for specific properties.

Opening the ramps will have some favorable impact on current and future programs which generally aim at improving economic conditions in the Boise-Eliot-Union Avenue area. Hospital-related development, Union Avenue redevelopment, investment in the Walnut Park shopping area, and employment and income-boosting programs are examples of intervention which individually would not significantly alter existing unfavorable economic trends, but which taken together might have an important cumulative impact in the long run.

Opening the ramps will be supportive of hospital-related development. Improved access would be important in a decision to locate the Veterans Administration Hospital or any other major medical facility in the immediate vicinity of Emanuel Hospital. An expanded major medical complex could also create additional business and employment opportunities and therefore might result in some economic gains for the immediate area.

The effect of ramp opening on the redevelopment of Union Avenue will be mixed. The portion of Union Avenue north of Fremont will probably benefit from the Cook-Fremont and Fremont Boulevard alternatives because they will send more traffic north on Union from Fremont. Businesses along Union Avenue south of Fremont will in general be adversely affected by reduced traffic volumes, assuming that traffic is positively correlated with more retail business. Larger traffic volumes on commercially oriented streets in general result in increased sales and employment. These impacts will vary between alternatives because of the differing magnitudes of traffic impacts involved.

In general, opening the ramps will improve private investment opportunities around the intersection of Union Avenue and Killingsworth Street (Walnut Park) because of increased traffic. However, the amount of traffic from the ramps in the case of the Short Cook and Cook-Fremont alternatives is small. Only the Fremont Boulevard alternative is likely to encourage investment in the Walnut Park area to any significant degree.

In summary, the economic impacts of opening the ramps are not clearly positive or negative. They vary according to location, type of business or property affected, and the alternative under consideration. The remainder of this chapter identifies these impacts more specifically. A general conclusion is that opening the ramps alone does not significantly improve the long run economic outlook in the Study Area as a whole. Opening the ramps may be supportive of other efforts that, taken together, may have a significant impact on the economy of the area.

COMMERCIAL ACTIVITY

Eliot Neighborhood

Ramp opening is unlikely to stimulate much retail business development in the Eliot neighborhood. Traffic volumes are projected to decline when compared with those of the No Build alternative on the major existing or potential commercial streets, which include Union, Vancouver, and Williams Avenues. As a result, investment in outlets for retail goods and services will be less attractive in most of the Eliot area. The exception is along Fremont Street from the ramps to Union, ignoring existing neighborhood plans to preserve housing. Relatively high traffic volumes, improved access, and a location between Northeast Portland residential areas and downtown could promote commercial development along this portion of Fremont. However, current planning and zoning policies, congestion, parking restrictions, and the available land on Union Avenue, discourage such development.

The overall effect is uncertain, although there probably will be some net incentive for new retail establishments to locate in the immediate vicinity of the ramps if permitted. Businesses like gas stations, fast-food outlets, and convenience-type grocery stores may try to locate near the ramps.

Boise and Humboldt Neighborhoods

Benefits to business appear more positive for the Boise and Humboldt neighborhoods, including Union Avenue north of Fremont. The build alternatives generate more traffic to existing or potential commercial locations than does the No Build alternative. Increased traffic can result in higher sales of retail goods and services in two ways. Automobile-related and convenience goods businesses depend on traffic directly as the source of much of their demand, and retail establishments in general benefit from visibility. Examples of firms likely to benefit are furniture and appliance stores, automobile dealerships, restaurants, and specialty stores. The commercial impacts will tend to be most positive on portions of Union Avenue. Williams and Vancouver Avenues may realize lesser, but still positive impacts, and Mississippi Avenue is expected to be adversely affected. Mississippi has several small, economically marginal retail businesses that could be negatively affected by reduced traffic. Except at its intersection with Union, the impact on

Killingsworth is expected to be small because the traffic impact is small at that distance from the ramps.

Part of the economic problem for businesses in the Boise, Humboldt, and Eliot neighborhoods is the low average income levels in these areas. The neighborhoods comprise the primary market for most of the businesses there, particularly the retail stores, and low income levels cause low levels of demand for goods and services. Opening the ramps is unlikely to expand significantly the markets for these firms because Downtown, the Lloyd Center, and several other locations will still be closer and more attractive to West-side residents. People driving through Boise and Humboldt neighborhoods may have a tendency to shop more along Union Avenue. However, Lloyd Center, the Hollywood District, and Broadway-Weidler are such strong competitors for purchasing power in Northeast Portland that the market area of Union Avenue businesses will probably expand only slightly.

Other Areas

Locations east of Union Avenue will not be significantly affected by any of the alternatives. Traffic impacts are too small and distances from the ramps too great to affect commercial development in any significant manner on such streets as Killingsworth east of Union, 33rd Avenue, Fremont east of Union, and Broadway-Weidler.

INDUSTRY

General

Access to and from freeways, other industrial areas, railroads, customers, and suppliers determine in large part the suitability of an area for industrial development. Thus, the impacts of ramp opening depend significantly on how access is improved.

Eliot and Boise Neighborhoods

The businesses along Mississippi, Vancouver, and Williams Avenues that are engaged in manufacturing, wholesaling, and distribution will benefit from opening the ramps. Access to the Northwest Portland industrial area will be improved. The magnitude of these benefits, however, is not large. The estimated driving time to Northwest Portland for most of these firms is about 3 minutes less by way of the Fremont Bridge than by alternate routes. Time savings of from 1 to 3 minutes are expected for trips to Beaverton and Downtown. In terms of attracting new light industry, the small improvement in access alone would probably be insufficient to attract new investment to the Study Area rather than to Northwest Portland, Beaverton, or other industrial locations in the metropolitan area.

Traffic will not be a problem for industrial or wholesale firms if the ramps are opened. Most of the existing firms are located well away from direct traffic impacts of any of the alternatives. Potential problems for large trucks in parking or backing up to loading docks therefore do not appear significant. As concluded in Chapter 1 of Part II, it appears that any problems for Continental Bakery in this regard should be manageable.

PUBLIC SERVICES

Ramp opening will have a positive effect for emergency and public service vehicles. Access to Emanuel Hospital will be improved. Emergency police and fire protection to the immediate area will be somewhat improved. However, the time savings for ambulance, police, and fire vehicles is not large, and the number of emergency vehicle trips is small. There is no way to estimate the number of lives that might be saved if the ramps were opened.

Opening the ramps may also enable use by the

Tri-Met mass transit system, but because the time savings per vehicle to most destinations is small, the economic benefits of potential mass transit use, if any are expected to be correspondingly small. Tri-Met has no plans to change service if the ramps are opened.

Direct-service bus routes between Northeast Portland and major employers in the Beaverton area have been mentioned as one way to encourage minority employment. Opening the Fremont Bridge ramps might reduce the travel time involved in this type of service. A faster route, however, is not expected to encourage employers to hire more Northeast Portland residents. Similarly, it is not expected that these residents would be more likely to accept a job offer because of 1 to 3 minutes in time savings. Therefore, direct service itself might encourage minority employment, but the issue of ramp opening or closure is unrelated.

PROPERTY VALUES

Residential

Property values are affected by access and pollution, among other things. As a general matter, good access has a favorable impact on property values. Pollution has a negative impact. The components of pollution are air quality and, more important in this case, noise.

Property values in the immediate vicinity of the ramps and along Fremont Street to Union Avenue are low. This is caused by the age and condition of the houses, the poor quality of Fremont Street for residential use, the prospect that homes will be acquired for right-of-way (a condition that has existed for at least the past 5 years), and to the generally depressed property values in the area.

It seems likely that improving access will cause at least a small increase in the value of residential properties that are not affected adversely by heavier traffic. There may also be some indirect positive effects on residential values. Institutional development at the Emanuel site may be stimulated by opening the ramps and in turn generate demand for housing nearby, and therefore increase property values.

The value of houses near the connection between the ramps and Fremont Street under the Fremont Boulevard alternative will probably decline. These houses will be severely impacted by traffic noise and will become even more isolated than they are now from the surrounding neighborhoods. Some are now in very poor condition and there is no prospect for their rehabilitation.

The Model Cities Plan is for redevelopment of properties along Fremont Street for higher density residential use. With extensive redevelopment (i.e., clearance and rebuilding), property values will no doubt increase significantly as a result of the improvements. This could happen in any case, although access to the Fremont Bridge would probably help to stimulate redevelopment. Redevelopment on this scale could be made compatible with the use of Fremont as a major traffic street under any of the alternatives.

The increased noise caused by traffic under the build alternatives will clearly have an adverse effect on the quality of residential properties along Fremont unless or until extensive redevelopment takes place. This will exert a negative pressure on property values, but it is unlikely that their value will decline. Demand for the affected properties as low-income housing will remain, and the trend in property values in this area, as everywhere, is upward. Moreover, landscaping under the Fremont Boulevard alternative will improve the appearance of the street.

Property values along Fremont will not increase because of the Cook-Fremont and Fremont Boulevard alternatives, but they will probably not decline.

Commercial

Increasing access to commercial properties increase their value somewhat. If the ramps are opened, the value of commercial properties along Union north of Fremont may increase from improved access, although the amount of increase is unlikely to be high and is dependent on other environmental conditions. The value of properties along Union Avenue south of Fremont may be adversely affected because of a decrease in the amount of traffic there. This should be more than offset by implementation of the Union Avenue Redevelopment Plan.

COST-BENEFIT ANALYSIS

A cost-benefit analysis attempts to quantitatively measure the net benefits or costs of a proposed project. The result is usually expressed in terms of the value of benefits per dollar of investment. The cost-benefit analysis for this study follows the standard methodology. However, because some important costs and benefits are not quantifiable, the results should be viewed as only partially indicative of the net effect of each alternative.

ASSUMPTIONS

Costs and benefits were estimated relative to the No Build alternative. Future costs and benefits were converted to the base year of 1976. Types of costs and benefits considered are listed in the table on the following page.

Project costs are from the table on page 137. They include estimated construction costs, property acquisition costs, relocation costs, and engineering and contingencies. Utility expenses will be borne by utility companies to relocate or modify facilities to accommodate project construction.

Business payroll impacts represent the decline in employment associated with business relocation and changes in traffic volumes. The effect of the latter is based on an assumption that retail employment is proportional to traffic volumes and that the relationship between traffic volumes and retail employment in 1975 in individual parts of the Study Area will remain constant. The impact on business sales was based on the employment impact using ratios of sales per employees.

Time savings represent the dollar value of reduced driving time within the Study Area afforded by each build alternative. Similarly,

COST-BENEFIT ANALYSIS SUMMARY

PRESENT VALUE OF COSTS AND BENEFITS OVER 15 YEARS

(Benefits are in *italics*)

	NO BUILD VARIATIONS					
	RAMP REMOVAL	PERMANENT CLOSURE OR LIMITED BRIDGE ACCESS	HOSPITAL AND STANTON YARD ACCESS ONLY	SHORT COOK	COOK-FREMONT	FREMONT BOULEVARD
PROJECT COSTS	$284,000	$15,000	$195,000	$1,548,000	$1,992,000	$2,648,000
UTILITY EXPENSE				10,000	10,000	25,000
PROJECT IMPACTS						
BUSINESS PAYROLLS				1,198,000	2,341,000	1,098,000
BUSINESS SALES				8,543,000	16,698,000	7,800,000
TIME SAVINGS				*7,088,000*	*10,051,000*	*9,677,000*
VEHICLE OPERATION COST SAVINGS				*755,000*	*1,445,000*	*439,000*
PROPERTY VALUES						
RESIDENTIAL				*294,000*	*545,000*	*624,000*
COMMERCIAL				*20,000*	*95,000*	*166,000*
TOTAL				*314,000*	*638,000*	*790,000*
ACCIDENT COSTS						51,000
TOTAL COSTS	$284,000	$15,000	$195,000	$11,299,000	$21,041,000	$10,908,000
TOTAL BENEFITS				*8,157,000*	*12,136,000*	*10,906,000*
NET COSTS	$284,000	$15,000	$196,000	$ 3,142,000	$ 8,905,000	$ 2,000
BENEFIT/COST RATIO				.72	.58	1.0

NOTE: PRESENT VALUE OF FUTURE COSTS AND BENEFITS DERIVED USING A DISCOUNT RATE OF 7%.

the vehicle operation cost savings represent savings from decreased travel distances afforded by the build alternatives.

The property value impacts reflect assumptions based on the experience of other communities when transportation improvements were made. These are that residential property values tend to be increased by improved access and decreased by noise and air pollution, and that commercial property values are affected by traffic volumes. Under all build alternatives, the value of residential property not abutting a traffic route is assumed to increase. The increases are in the range of 5 to 10 percent of current values. Residential properties along a traffic route are assumed not to significantly change in value because of the generally offsetting effects of access and pollution. The value of some commercial properties is estimated to increase and the value of others to decrease.

A more detailed discussion of the assumptions made in the cost-benefit analysis is contained in the Technical Appendix.

FINDINGS

The analysis indicates that none of the alternatives result in net economic gains. From a strict cost-benefit standpoint using the assumptions in the analysis, the most favorable alternative is Fremont Boulevard, followed closely by the Permanent Closure and Limited Bridge Access variations at the No Build alternative.

Only the cost of removing the fill portion of the ramps and regrading the land is included in the cost-benefit analysis summary table for the Ramp Removal variation of the No Build alternative. If the additional costs associated with redevelopment and resale value of the land as described in Chapter 3 of Part II are considered, the net cost would be $445,000.

Decline in business sales is the largest cost item for all build alternatives. Under Fremont Boulevard, the cost in business sales reflects the largest decline in employment due to business relocation. However, the redistribution of traffic to commercially oriented streets under this alternative is expected to ultimately cause a net increase in retail employment. This is in contrast to Cook-Fremont, under which both relocation and traffic distribution are anticipated to reduce retail employment. This decline in employment accounts for the relatively greater negative impact on payrolls and sales. Under Short Cook, no loss due to relocation is expected, but a loss due to redistribution of traffic from more to less commercially oriented streets is expected.

The results of the cost-benefit analysis are more sensitive to changes in the assumptions made in estimating payroll and sales impacts than to changes in other assumptions. However, it does not appear that reasonable changes in these assumptions would make either the Short Cook or Cook-Fremont alternative economically justified, nor would they change the relative ranking of the build alternatives. One assumption, which, if changed, would result in a positive benefit-cost ratio for the Fremont Boulevard alternative relates to the relocation of the McDonald's restaurant at Union and Fremont. If it is assumed that the McDonald's will relocate within the Study Area, the ratio would be over one.

Chapter 8
OTHER IMPACTS

SHORT-TERM USE VERSUS LONG-TERM PRODUCTIVITY

The National Environmental Policy Act requires that an environmental impact statement address "the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity." This section briefly identifies some trade-offs of this nature to give an added perspective to the comparison of alternatives. The focus is on the extent to which alternatives would foreclose future options for the use of the environment.

RAMP REMOVAL

If the ramps are removed, the short-term gains will be the avoidance of any adverse impacts caused by bridge traffic through the neighborhoods, and the potential of reclaiming from 6 to 8 acres of land for urban uses. Lost will be the use of the ramps and the improved cross-river access their use would afford. If, over the long-term, the intensity of land use in the vicinity of the ramps significantly increases, the magnitude of this lost access will become greater. Based on the pattern of land use change near the Willamette

River in northeast Portland over the last 20 years, it is conceivable that such an intensification could occur in parts of the Eliot neighborhood and along Union Avenue. This could increase traffic demand even if public transit improves.

LIMITED BRIDGE ACCESS AND HOSPITAL AND STANTON YARD ONLY

These alternatives will afford improved access to the Emanuel Hospital Urban Renewal Project. In the short-term, this may help attract new uses for the undeveloped land in this project. In the long-term, activity at the project grows, use of the ramps will also increase. These alternatives will preclude reclaiming the land occupied by the ramps for other uses. In addition, although these alternatives would not foreclose the possibility of expanding the level of access to the bridge via the east-end ramps in the future, doing so then may be at a greater cost than at present.

BUILD ALTERNATIVES

Potential environmental gains and losses, in both the short and long-term, will be greater with the build alternatives. Short-term gains will be improved access to the Primary Impact area and

Union Avenue, which may encourage or support commercial activity and redevelopment in these areas, and some improvements in traffic flow. Short-term losses will be the conversion of some residential land to street right-of-way, increased noise and air pollution levels, and a decline in the residential quality of streets carrying additional traffic. The importance of improved access could increase if land use becomes more intensive in the long-term. Long-term losses include the adverse effects of a motor vehicle-based transportation system, which the ramps will help sustain as part of the highway network. If, in conjunction with other attributes of the area, the build alternatives encourage conversions of land use type as well as intensity, the role of the area near the ramps as a source of low income housing could also be lost.

In addition to these trade-offs between short-term and long-term environmental effects, there are others identified in the transportation, air quality, and noise analyses. According to the 1980 projections of traffic, the build alternatives will cause congestion on some streets, but by 1990 their net effect will be to reduce congestion. Similarly, Cook-Fremont and Fremont Boulevard alternatives will initially cause violations of the carbon monoxide standard where they would not occur under No Build alternative. By 1990, they will not cause violations, assuming enforcement of motor vehicle emission controls. With respect to noise, the impact will in some ways be greater in the short-term than in the long-term, and in other ways will be lesser in the short-term.

IRREVERSIBLE COMMITMENT OF RESOURCES

Related to the question of long-term productivity is the commitment of unrecoverable resources. The National Environmental Policy Act requires that an impact statement identify "any irreversible and irretrievable commitments of resources that would be involved in a proposed project if it is implemented."

Aside from the use of the land occupied by the ramps and the proposed connection to the local street system, there are no resource commitments which can be tied exclusively or with certainty to the project. Most impacts will be indirect. Resource uses which will be affected by the alternatives, which consist primarily of surrounding land uses, are and will be influenced more strongly by factors other than access or traffic. Nevertheless, the alternatives will have the effect of supporting some community objectives with respect to land use and working against others. Objectives the alternatives will support are redevelopment at the Emanuel Hospital Urban Renewal Project and along Union Avenue. Preserving residential use along Williams and Vancouver Avenues north of Fremont Street is a community objective which the alternatives would work against.

HISTORICAL AND CULTURAL RESOURCES

None of the properties in the Study Area are listed in the National Register of Historic Places. As indicated by the figure below, seven properties in the Study Area have been designated as historical landmarks by the Portland Historical Landmarks Commission. None of these properties are in the immediate area of the project and none will be directly affected by any of the alternatives. None of the properties will be indirectly affected by any of the impacts described in Chapter 3, Part II.

According to the State Historic Preservation Office, the Statewide Inventory of Historic Sites and Buildings contains no properties in the Study Area (Ref. 1). However, this inventory is not considered complete.

PORTLAND HISTORICAL LANDMARKS

(R.D. p. 150)

Based on available information, none of the structures removed by the Fremont Boulevard alternative are believed to have special historical, cultural, or architectural signficance.

Three structures within one block of Fremont may have significance. These are the churches shown in the figure on page 3 just north of Fremont on Mallory and at the intersection of Rodney and Ivy, and the School District building located on the north side of the block bounded by Fremont, Beech, Mallory, and Garfield (the building on the south side of this block is not thought to be significant). Noise levels at these locations will be affected by the Cook-Fremont and Fremont Boulevard alternatives, but will remain below an L_{10} of 70 dBA.

The Portland Historical Landmarks Commission was consulted in evaluating the preliminary alternatives. The potential significance of the church at Rodney and Ivy, and the school building beside it, were taken into account. The commission concluded that the Fremont Boulevard alternative was preferable to the other preliminary alternatives that would use Ivy or Cook Street for the connection to Union Avenue (Ref. 2).

Potentially significant structures that are affected by a federally sponsored project must be identified and their disposition agreed upon by state and federal officials responsible for historic preservation (Ref. 3). If a build alternative is selected, surveys will be conducted to identify any significant historical, architectural, or cultural resources affected. These surveys will be accomplished prior to completion of the Final Environmental Impact Statement and will be coordinated with the State Historic Preservation Officer.

REFERENCES

1. Letter from Paul B. Hartwig, State Historic Preservation Office, to CH2M HILL, 17 August 1976.

2. CH2M HILL, *Working Paper No. 7, Evaluation of Preliminary Alternatives, Fremont Bridge Access Study*, December 1975.

3. Advisory Council on Historic Preservation, "Procedure for the Protection of Historic and Cultural Properties," 36 CFR Part 800, 39 *Federal Register*.

Chapter 9

ADVERSE IMPACTS THAT CANNOT BE AVOIDED

This chapter briefly summarizes those impacts that cannot be altogether avoided if the project is undertaken.

TRANSPORTATION

The build alternatives redistribute traffic in the Study Area west of 7th Avenue. Some individual properties may be adversely affected by changes in access. This is caused chiefly by street closures or other traffic control devices. The inconvenience caused by these changes is considered to be small and, on the whole, beneficial by protecting against unnecessary traffic. Some properties may be adversely affected by increased traffic if the mitigating measures proposed for each alternative are not sufficient to avoid congestion.

AIR QUALITY

There will be a decline in air quality along streets that will carry increased traffic.

NOISE

People who live or walk along streets that carry increased traffic will be subjected to higher noise levels. Noise along Fremont Street west of Union Avenue under the Cook-Fremont and Fremont Boulevard alternatives cannot be reduced by berms or similar barriers.

LAND USE

Properties immediately adjacent to heavy traffic may be considered less desirable for residential use.

RELOCATION AND SOCIAL IMPACTS

Despite monetary benefits and other assistance available to those families and businesses who are displaced, there is bound to be some amount of trauma associated with having to move. This is especially the case for older people and those with limited resources.

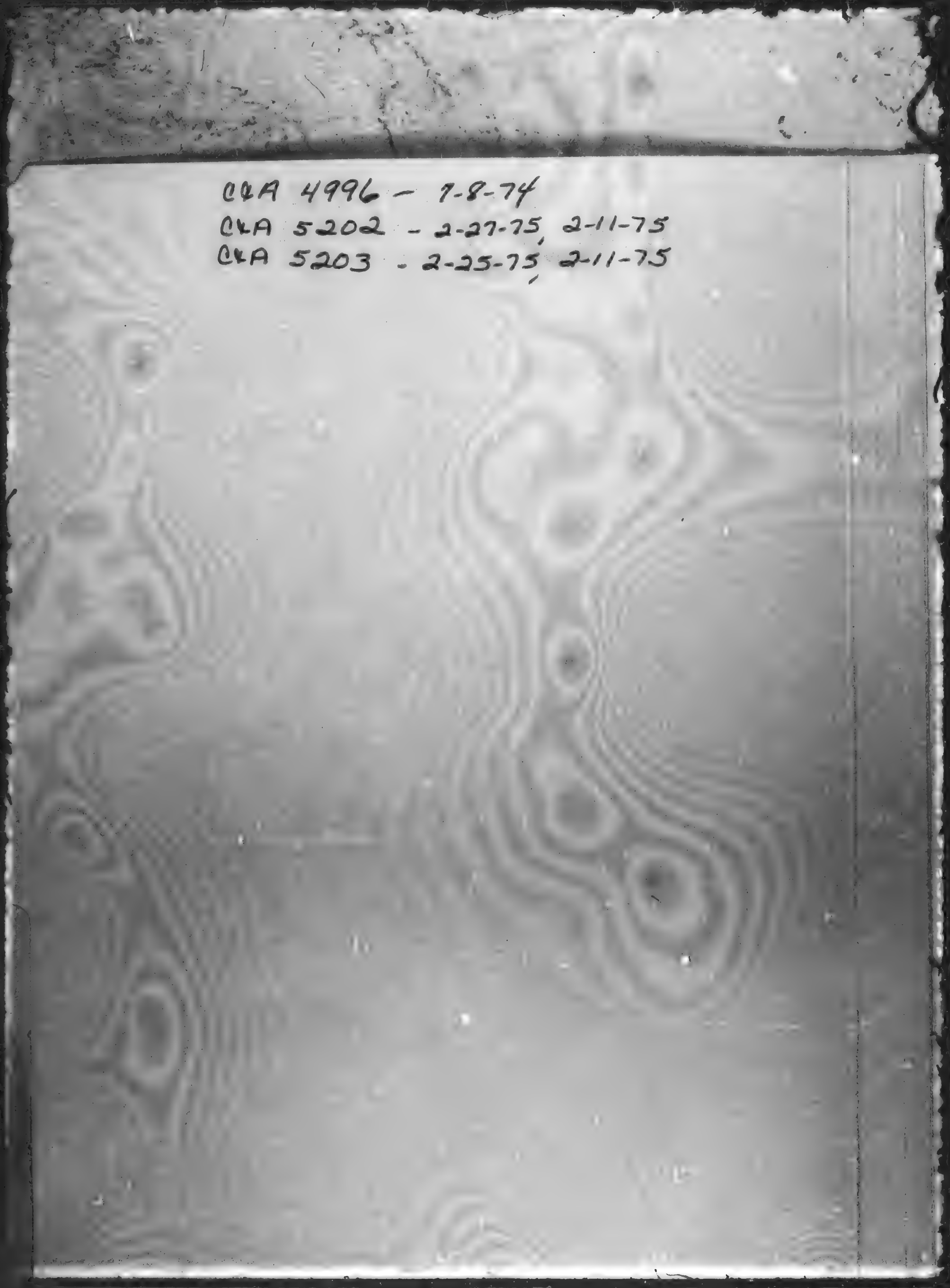
ECONOMIC IMPACTS

The value of some residential properties that are affected by heavy traffic may decline marginally, even though property values are already low. The redistribution of traffic may adversely affect some businesses, especially traffic-dependent businesses located along streets where traffic volumes will be reduced.

IMPACTS DURING CONSTRUCTION

Construction activities are certain to cause some temporary adverse impacts. These will include construction noise, air pollution (including dust), and minor detours that will increase the volume of traffic on some streets.

1979 E. Fremont Br. Conn. on 8909
FAU 9910 in Portland
(gr, pave, sign & illum.) #2



C&A 4996 - 7-8-74
C&A 5202 - 2-27-75, 2-11-75
C&A 5203 - 2-25-75, 2-11-75

326-1917-430

THE CITY OF
PORTLAND
OREGON

DEPARTMENT OF
PUBLIC WORKS
CONNIE McCREADY
COMMISSIONER

OFFICE OF
PUBLIC WORKS
ADMINISTRATOR

400 S.W. SIXTH AVE.
PORTLAND, OR. 97204

K
ME [illegible] PR1 PR2 DE
O.S.H.D. - METRO
OCT 21 1976
OB FILE T/A

October 19, 1976

Mr. Max J. Klotz
Metro Planning Engineer
Oregon State Highway Division
5821 NE Glisan Street
Portland OR 97213

Re: E Fremont Bridge Connection
FAU System Project M-2029(1)

Dear Max:

Enclosed is Progress Report No. 16 submitted by CH2M-HILL for work on the Fremont Study.

Very truly yours,

John M Lang

JOHN M. LANG, CHIEF
Bureau of Street and Structural Engineering

STR:kp

Encl.

NOTED
H.S.COULTER

RECEIVED
STATE HWY ENGR
OCT 25 '76
REFER TO
FOR
Info Inves R/D D/R Sign Act File

cc: [redacted]
Hunter
Schroeder
Bothman
Rulien
Potter

FREMONT BRIDGE--UNION AVENUE CONNECTION

Progress Report No. 16

Covers Period From: 25 May 1976
To: 15 October 1976

Project Elements

A review draft of the Fremont Bridge Access Study was completed and printed and copies delivered to the Office of City Engineer on 8 June for distribution to members of the Citizens Contact Committee and Technical Review Committee. All comments were received by 7 September. A meeting with city, OSHD, and DEQ staff was held on 15 September to discuss changes in the air quality and noise sections of the report. The text of the report was revised and copies delivered to the Office of City Engineer on 3 October for final review and approval by the city, OSHD, and FHWA. Corrections and changes to the report's graphics are currently underway and a newspaper-type summary is being prepared.

If the approved report is returned by 27 October, as expected, it will be finalized and printed for delivery to the city the week of 8 November. The newspaper summary will be delivered the following week. The city will distribute both the report and the summary. This will be followed by a community information meeting to present the findings of the study.

Contract Administration

CH2M HILL's billing for the period from 25 April 1976 to 24 May 1976 reached the total cost plus fixed fee currently authorized by the contract. Costs incurred by CH2M HILL and Earth Metrics, Inc. above the maximum authorized in the contract are expected to be in the range of $30,000 by the time the community information meeting is held. Discussions between CH2M HILL and the Office of City Engineer concerning an increase in the authorized maximum cost were initiated in late June and are continuing.

RECEIVED
OCT 19 1976
BUREAU OF STREET AND
STRUCTURAL ENGINEERING

326-1917-430

8909

CH2M HILL
engineers
planners
economists
scientists

8 October 1976

P9253.00

Mr. Glen R. Pierce
Bureau of Street and Structural Engineering
Department of Public Works
400 S.W. Sixth Avenue
Portland, Oregon 97204

NOTED
C.S. HUNTER

Dear Glen:

In response to your letter of 22 September, we agree that the length of an extension in the time allowed for completion of the work under the Fremont project contract is difficult to determine at this time.

If you choose not to act on our request for a time extension until later, we agree to proceed with the understanding that the time limit will be extended and that the work we are doing is under an active agreement.

Sincerely,

Richard S. Ivey
Director of Planning

cc: Bob Bothman, OSHD
Cliff Christianson, FHWA

RECEIVED
STATE HWY. ENGR
OCT 27 76
REFER TO
FOR

ME PE PR1 PR2 DE
O.S.H.D. - METRO
OCT 11 1976
FILE T/A

10/18/76
Schroeder
can we do this?
Bothman

cc Bothman
Schroeder
Hunter

Portland Office ■ 200 S.W. Market Street, 12th Floor Portland, Oregon 97201 503/224-9190 TWX: 910/464-4720 Cable: CH2MHILL

LEE JOHNSON
ATTORNEY GENERAL

JAMES W. DURHAM
DEPUTY ATTORNEY GENERAL

DEPARTMENT OF JUSTICE
TRIAL DIVISION
~~104 STATE OFFICE BUILDING~~
SALEM, OREGON 97310
TELEPHONE: (503) 378-6313

211 Highway Building

September 21, 1976

Mr. R. L. Schroeder
Assistant State Highway Engineer
State Highway Building
Salem, OR 97310

copy in
Leg 8

RE: Contract Interpretation State, City and CH2M-Hill, Inc.
Study of the Fremont Bridge to Union Ave. Connection

Dear Mr. Schroeder:

In reviewing the terms of the contract and all correspondences that have been exchanged between the City, State and CH2M it is my opinion that the terms of paragraph 20 (b) control. This paragraph provides very specifically that unless increases in the maximum amount of the contract as set forth in the agreement ($327,300.13) are authorized in writing by State neither party is obligated to pay over that amount to the consultant. The paragraph also provides that consultant must have the approval of State and City prior to commencing any work over and above the maximum amount set forth. The paragraph also provides that the consultant is not required to incur any costs in excess of the maximum amount unless an increase has been allowed by the State. The paragraph also provides that the State and City shall allow appropriate increases in the maximum amount should any substantial approved increase in the scope, character, schedule, or complexity of services actually performed by the consultant be different than those set forth in Exhibit A.

In reading the correspondence it appears that the consultant was aware in May of 1976 that it was going to overrun the contract, but did not make an application for an increase in the maximum amount of the contract, but merely continued to work and then made an informal request on July 1, 1976 to the City to increase the amount of the contract.

I do not have any facts on which to make a determination on whether there has been any "substantial improved increase in the scope, character, schedule, or complexity of services actually performed by consultant as compared with the scope, character, schedule, or complexity of services outlined in Exhibit A."

Even if such information was available, the consultant did not follow the proper procedure of notifying the City and State prior to the time that it

9-23-76
Copy To Bothman

NOTED
R. L. SCHROEDER

RECEIVED
SEP 22 1976
Office of
Assistant State Highway Engineer

exceeded the maximum amount provided for under the contract. This prevented the City from exercising its option at that time to terminate the contract and complete it with its own forces. The fact that the consultant has continued to work, while laudable, is not in conformity with the agreement. While I might agree that the consultant has continued to work in good faith, there were specific provisions in the contract that it was required to follow in requesting additional payments. For some unknown reason it has preferred not to follow these procedures. Therefore, in my opinion, if the City wishes to, it can terminate the contract at this point and complete the work with it's own forces.

Sincerely yours,

Jack L. Sollis
Assistant Attorney General

JLS:sjb

FORM 81-734-3030

OREGON STATE HIGHWAY DIVISION

INTER-OFFICE CORRESPONDENCE
Portland, OR 97213
September 10, 1976

FILE: 326-1917
(430)

FROM: ROBERT N. BOTHMAN ebg
Ass't. State Highway Engineer

SUBJECT: E. Fremont Bridge
environmental study

TO: ROBERT L. SCHROEDER
Ass't. State Highway Engineer

SALEM

I believe I have provided you with prior correspondence relative to the subject consulting agreement with CH2M-Hill, the city of Portland, and OSHD.

The attached correspondence brings that data up to date.

The consultant continues to request a position from the Highway Division relative to their interpretation that the agreement is a cost-plus, fixed-fee type contract. The consultant further interprets the contract as providing for adjustment of the initial limitation of costs as the project progresses.

The city of Portland has interpreted the agreement to be a lump-sum type compensation unless there is a change in the character, schedule, or complexity of the project. The city claims there has been no such change and, therefore, the consultant should complete the work within the amount bid.

Although I have expressed, on several occasions, to both the city and the consultant, that the management of the project rests with the city, it appears an interpretation of legal wording of the contract is in order. Please obtain such an interpretation from our legal counsel.

ebg

attachments

RECEIVED
SEP 10 1976
LEGAL

RECEIVED
SEP 10 1976
Office of
Assistant State Highway Engineer

NOTED
R. L. SCHROEDER

THE CITY OF
PORTLAND
OREGON

DEPARTMENT OF
PUBLIC WORKS
CONNIE McCREADY
COMMISSIONER

OFFICE OF
PUBLIC WORKS
ADMINISTRATOR

400 S.W. SIXTH AVE.
PORTLAND, OR. 97204

326-1917
430

ME PE PR1 PR2 DE
O.S.H.D. - METRO
SEP 3 1976
FILE T/A

September 1, 1976

CH2M-Hill
200 Market Building
Portland, Oregon 97201

Attention: Mr. William F. Johnson

Dear Bill:

Thank you for your letter of August 31, 1976 clarifying your firm's position regarding the consulting agreement for the Fremont Bridge Environmental Study. We assume it supersedes the previous correspondence from Mr. Richard Ivey of your firm.

Your statement of the disagreement in contract interpretation is essentially correct, although not stated in the legal terms or with the emphasis we would choose. I think our previous correspondence and discussion speak amply to this point.

I want to be sure that CH2M-Hill understands that the City of Portland has not in any of our correspondence or conversations authorized your firm to incur costs to the City in excess of the amount stated in our agreement. Only the City Council, acting by ordinance, would have authority to authorize you to incur additional expense on behalf of the City.

We agree that it is essential to reach a quick understanding on the intent of the contract language. We are available to discuss this with you at your convenience.

Sincerely,

Cowles Mallory

COWLES MALLORY, P.E.
City Engineer

CM:jd

cc: Bob Bothman, OSHD
Cliff Christiansen, FHWA

CH2M HILL
engineers
planners
economists
scientists

RECEIVED
SEP 1 1976
CITY ENGINEER

31 August 1976

P9253.00

Mr. Cowles Mallory, P.E.
City Engineer
400 S.W. Sixth Avenue
Portland, Oregon 97204

Dear Cowles:

At our meeting yesterday concerning the Fremont Bridge Environmental Study project, I indicated we would clarify CH2M HILL's position regarding the Consulting Agreement and continuation of the work.

CH2M HILL intends to continue the work, unless directed to do otherwise, The next stage of which is to (a) prepare and publish the combined Draft Environmental Impact Statement/ Technical Study, (b) prepare and publish Draft Environmental Impact Statement Summary newspaper, and (c) present findings to public at a citizens' meeting. This work will proceed when all comments are received from the reviewing agencies.

It is essential for the three parties to the Agreement to reach a common understanding in the near future of the intent of the language pertaining to our compensation for services rendered.

We interpret the Agreement as a "cost plus fixed fee" type of compensation using the initial estimate of project effort and corresponding costs as an initial limitation of costs by the City, State Highway Division, and Federal Highway Administration. We also interpret the Agreement to provide for adjustment of the initial limitation of costs as the project progressed and the character, schedule and complexity of the assignment became better defined. This interpretation by CH2M HILL was and is based on prior precedents set during similar projects on the I-505 Freeway and the Mt. Hood Freeway Projects and the actual process of developing the work program and budgets for the Fremont work.

We understand that the City of Portland believes the Agreement is a "lump sum" type of compensation with no present basis for adjustment of the initial limitation of costs. The State Highway Division has apparently not made their position known as yet.

Exhibit A attached to the Agreement outlined the anticipated work in general terms and listed many tasks which were expected to require the consultant's efforts. These tasks were then assigned an estimated time to complete and corresponding estimated costs. The sum of the estimated task costs was used to provide the initial "limitation of costs" included in the Agreement and as a base for negotiation of the "fixed fee." Inclusion of the estimated time and cost budgets (including labor fringe benefits and estimated overheads) in Exhibit A would not have been necessary or desirable if the Agreement had been intended to be a "lump sum" type of compensation. Thus, we believe that the Agreement language and inclusion of Exhibit A signified an intent to provide for a "cost plus fixed fee" type of compensation whereby the consultant would be paid for the level of effort required to complete the project.

The misunderstanding appears to be entirely related to the language of the Agreement pertaining to our compensation for effort expended. Our position is, and always has been, to pursue and complete the work in accordance with the intent and the terms of the Agreement. We truly believe that this is the position of all three parties to the Agreement and that when the intent of the language is resolved all parties will act accordingly.

Very truly yours,

William F. Johnson

William F. Johnson

j

cc: Bob Bothman, OSHD
Cliff Christianson, FHWA

[illegible]

FORM 81-734-3030

OREGON STATE HIGHWAY DIVISION
INTER-OFFICE CORRESPONDENCE
Portland, OR 97213
August 31, 1976

FILE: 326-1917
(430)

FROM: ROBERT N. BOTHMAN Bothman
Asst't. State Highway Engineer

SUBJECT: East Fremont

TO: MEMO TO THE FILE

I met on August 30 with representatives of the city, including Cowles Mallory, John Lang, and Glen Pierce; and representatives of CH2M Hill, Bill Johnson and Dick Ivey; and Max Klotz, OSHD.

The purpose of the meeting was to reach an agreement which would allow completion of the project. Ivey, Project Manager for the consultant, has advised the city that $50,000 will be required to complete the work outlined in the consultant agreement. He said the cause for the overrun is due to the complexity of the project.

The city is withholding the last billing from the consultant, about thirty thousand dollars, pending a resolution as to whether the consultant will finish the work outlined in the contract. About thirty-eight thousand remains to be paid the consultant on the $327,300 contract.

The position of the consultant is that the contract is a cost-plus contract. The city has taken the position the work covered in the work program shall be accomplished with a maximum cost to the city of the contract amount, unless a series of conditions are met which justify additional payment for the work. The city feels that no such conditions have been detailed by the consultant.

Ivey indicated he has not presented such detailed information but was requesting concurrence from the city that they would allow additional payment.

NOTED
R L SCHROEDER

Mallory explained to the consultants that he had told them on several occasions, starting in June and reiterated for this meeting, that he was not going to request additional payment--the work is to be completed within the contract amount. His tack at this meeting was to establish the work which the consultant was agreeable to complete. They should either turn over the information put together to date--that is a rough draft of the DEIS--or they should complete the comments and review on the DEIS and turn that rough document over to the city. They should complete the DEIS in final form ready for printing, or they should print the DEIS.

The consultant's indication was they were not willing to do any additional work. However, they requested until the morning of August 31 to determine their actual position.

The city wishes to make no further payment to the consultant. If additional work has to be done in order to complete the project, the city will do such work with their own forces, or by others.

RECEIVED
SEP 1 1976

I explained to both the city and the consultant that the Highway Division is in partnership with the city on the contract--that the management was by the city, and the Highway Division does not play an active part in such management. The Highway Division will not interpret or serve as arbitrator between the city and the consultant. I said Provision 10 in the contract did not pertain to the issue at hand.

I advised that if a legal question was requested from either the consultant or the city, the state would render a decision. The assistant city attorney present indicated that the city would handle legal interpretations of the contract and that, in fact, it would be unusual for a partner such as the state to become an arbitrator between the other partner, the city, and the consultant.

The settlement of the contract is simply a city issue. The project is a city project. The project has been managed exclusively by the city. The city has legal representation. Until action is taken to involve the state, I see no reason why we should be come involved with the management of the project and the contract.

ebg

cc: [redacted]
Walt Barrie

THE CITY OF
PORTLAND
OREGON

DEPARTMENT OF
PUBLIC WORKS
CONNIE McCREADY
COMMISSIONER

OFFICE OF
PUBLIC WORKS
ADMINISTRATOR

400 S.W. SIXTH AVE.
PORTLAND, OR. 97204

326-1917
Δ30

PR1 PR2 DE
O.S.H.D. - METRO
AUG 20 1976
FILE T/A

August 19, 1976

CH2M-Hill
200 SW Market Street
Portland, Oregon 97201

Attention: Richard S. Ivey
Director of Planning

Dear Dick:

In accordance with the request in your letter of August 12, 1976, I have asked Glen Pierce of our staff to arrange a meeting among representatives of the City, the State, and your firm to discuss the issues you have raised concerning your firm's contract to perform planning work on the Fremont Bridge access ramps.

meeting to be 8/30/76 Monday at 2:00PM in Metro Office.

Since you have requested the meeting in accordance with Section 10 of our contract, I would appreciate receiving from you prior to the meeting a statement of the questions of fact that you believe are unresolved. Your statement would then form the agenda for that meeting.

So that the State and Federal Highway Administration will be aware of the background in this matter, I am sending copies of this letter and our previous correspondence to both Bob Bothman and Cliff Christianson.

Sincerely,

COWLES MALLORY, P.E.
City Engineer

CM:jd
Encl.

cc: City Attorney's Office
John Lang
Glen Pierce

RECEIVED
STATE HWY ENGR
AUG 25 '76
REFER TO
Schroeder
FOR
Info Inves R/D D/R Sign Act ✓ File

RECEIVED
AUG 26 1976
Office of
Assistant State Highway Engineer

NOTED
R. L. SCHROEDER

BIU 4-1-76

326-1917
430

CH2M
HILL
engineers
planners
economists
scientists

12 August 1976

P9253.00

PR1 PR2 DE
O.S.H.D. - METRO
AUG 13 1976
FILE

Mr. Cowles Mallory, P.E.
City Engineer
400 S.W. Sixth Avenue
Portland, Oregon 97204

Dear Cowles:

I have your letter of August 10. Since the city's expectations are different from ours, I request that the parties to the contract meet together, so that we can resolve any misunderstanding about the contract and agree on the next step toward completing this project. I am making this request in accordance with Section 10, which assigns to the State the responsibility for resolving any differences that might come up.

At this point, we have not made any "claim for extra payment," as described in your letter. We have indicated that we have incurred costs up to the maximum amount stated in Section 20 of the contract, and I described in my letter of July 1 those work elements in which we have exceeded the cost estimates in Exhibit A of the contract that were made and agreed to at the beginning of our project.

We should be able to agree now on the estimated cost of carrying this work through the publication of the Draft EIS. In the circumstances, we should probably wait on a decision by the City Council as to what the final solution of the ramp problem will be before we try to estimate the cost of preparing a Final EIS, so that we will all have a better understanding of the scale of effort that will be needed.

I am sending copies of this letter to Bob Bothman, OSHD, who is the designated liaison officer for the State, and Cliff Christenson, FHWA.

9/7/76
[illegible]:
Attending to the
its schedule Sept 7
B

Sincerely yours,

Richard S. Ivey
Director of Planning

pm

Discussed w/ Ivey
8/17
Discussed w/ [illegible]
8/18
Discussed w/ Pierce
8/18 suggest legal
opinion from City Atty
with discussion State Atty
B

OREGON

DEPARTMENT OF
PUBLIC WORKS

CONNIE McCREADY
COMMISSIONER

OFFICE OF
PUBLIC WORKS
ADMINISTRATOR

400 S.W. SIXTH AVE.
PORTLAND, OR. 97204

August 10, 1976

CH2M-Hill
200 SW Market Street
Portland, Oregon 97201

Attention: Richard S. Ivey
Director of Planning

Subject: FAU Project M-2029 (1)
Fremont Bridge Access Study

Dear Dick:

On July 16, 1976 I advised you that we would obtain a formal legal opinion from our City Attorney's Office concerning your claim for extra payment on the above referenced project. The City Attorney's Office has advised us that the City has no obligations for extra payments to CH2M-Hill under this contract.

The City only assumes an obligation for extra costs when we officially approve a change in the scope of the work. In our previous conversations, you have stated that in your opinion the scope of the work has not changed from the original contract.

As stated in our previous letter dated July 7, 1976, the City expects that your firm will complete the contract and perform all of the work elements contained therein within the amount stated in our contract.

Sincerely,

COWLES MALLORY, P.E.
City Engineer

CM:jd

cc: Stan Torgrimson
John Lang
Glen Pierce

RECEIVED
AUG 11 1976
BUREAU OF STREET AND
STRUCTURAL ENGINEERING

OREGON

DEPARTMENT OF
PUBLIC WORKS

CONNIE McCREADY
COMMISSIONER

OFFICE OF
PUBLIC WORKS
ADMINISTRATOR

400 S.W. SIXTH AVE.
PORTLAND, OR. 97204

July 16, 1976

CH2M-Hill
200 SW Market Street
Portland, Oregon 97201

Attention: Richard S. Ivey
Director of Planning

Dear Dick:

I have reviewed your letter of July 14, 1976 in which you suggest a meeting among the state Assistant Council, the City Attorney, and your firm to discuss interpretation of your contract with the City.

From our discussions and correspondence I was unaware that there was a problem of legal interpretation of the contract. In any event I have previously discussed this matter with our City Attorney and he concurs with the position I have expressed. I have requested a formal legal opinion from the City Attorney's office on the specific point you raised with Glen Pierce. We will advise you when we receive this opinion.

At the present time I do not see any benefits that would be derived from the joint meeting which you suggest.

Sincerely yours,

COWLES MALLORY
City Engineer

CM:jd

cc: John Osburn
Glen Pierce

RECEIVED
JUL 19 1976
BUREAU OF STREET AND
STRUCTURAL ENGINEERING

CH2M
HILL
engineers
planners
economists
scientists

RECEIVED
JUL 15 1976
CITY ENGINEER

14 July 1976

Mr. Cowles Mallory
City Engineer
City of Portland
400 S.W. Sixth Avenue
Portland, Oregon 97204

Dear Mr. Mallory:

I have the letter you wrote me on July 7.

As you suggested, I got in touch directly with the Highway Division, specifically with Jack Sollis, Assistant Counsel, who was referred to me by Bob Schroeder. Mr. Sollis suggested that the city attorney, Mr. Osborn, is the appropriate city official to advise on the interpretation of the contract. Mr. Sollis suggested that he would be glad to discuss with Mr. Osborn the Highway Division's practice and experience in interpreting and administering this type of contract.

Perhaps, in the circumstances, all of the parties to the contract should meet together to discuss how the remaining work will be completed. I would be glad to arrange a meeting.

Sincerely,

Dick Ivey

Richard S. Ivey
Director of Planning

J

cc: Jack Sollis, OSHD
Gary Potter, OSHD
Cliff Christianson, FHWA

PORTLAND
OREGON

DEPARTMENT OF
PUBLIC WORKS
CONNIE McCREADY
COMMISSIONER

OFFICE OF
PUBLIC WORKS
ADMINISTRATOR

400 S.W. SIXTH AVE.
PORTLAND, OR. 97204

July 7, 1976

Mr. Richard S. Ivey
Director of Planning
CH2M-HILL
200 SW Market Street, 12th Floor
Portland OR 97201

SUBJECT: FAU Project No. M-2029(1)
Fremont Bridge Access Study

Dear Mr. Ivey:

We have reviewed your letter of July 1, 1976, concerning project costs on the Fremont Bridge Access Study. I will comment separately on the main points of your letter.

You refer to the General Provisions of our contract which states in part that the consultant shall not be required to incur costs in excess of the maximum amount stated in the contract. This clause is clearly intended to provide for additional compensation to the consultant when there is an approved increase in the scope of work as outlined in the contract. It is not intended to relieve the consultant of the responsibility of fulfilling the contract within the budget limit.

You indicate that you feel there were significant changes in the "character, schedule, and complexity" of services to be provided under the contract. My letter dated May 28, 1975, recognized the potential delay to the project schedule due to delays in receiving 1990 traffic data from ODOT. However, the consultant was not requested to stop all work, and in fact significant work items continued, as evidenced by the monthly progress reports. A cost adjustment was not requested at that time by the consultant.

You indicate that the process of selecting alternatives and the time spent responding to citizens proved to be more complex and time consuming than anticipated. We believe these items should have been anticipated in your work program. However, if the consultant felt that these items were exceeding the scope of work as outlined in the contract, a cost adjustment should have been requested at the time of occurance.

Finally, you indicate a need for a great deal of flexibility in the manner in which the consultant manages a study of this kind. We feel the work program specified in the contract provides this flexibility. However, we also expect that the consultant's cost estimate will realistically reflect this flexibility.

Based on the documentation received to date, I cannot recommend any additional compensation to your firm for the Fremont Bridge Access Study. The City expects that your firm will complete the contract and perform all of the work elements contained therein within the amount stated in our contract.

We have confirmed our position with appropriate State Highway Division and Federal Highway Administration personnel. However, you may wish to contact those agencies directly.

Sincerely,

COWLES MALLORY, P.E.
City Engineer

CM:kmc

cc: Max Klotz, OSHD
Cliff Christianson, FHWA
John Lang
Glen Pierce

CH2M
HILL
engineers
planners
economists
scientists

1 July 1976

P9253.00

Mr. Cowles Mallory
City Engineer
City of Portland
400 S.W. 6th Avenue
Portland, Oregon 97204

Dear Mr. Mallory:

In our progress report for April we indicated that our billings were approaching the amount presently authorized. Our May statement brought our total billings to the authorized amount, $327,300. We have continued to work and to incur costs beyond that amount in completing the draft report, which was submitted to the city for review on 8 June 1976.

As we indicated in meeting with you last week, a substantial amount of the work described in Exhibit A still remains to be accomplished. Our draft report is currently under review by City and State agencies, the Federal Highway Administration, and the citizens contact committee. The technical review committee will need to consider the comments received, and a final report needs to be published. A summary report will then be prepared for distribution by the city to citizens in the study area. The work program also provides that once the City, State, and Federal agencies have agreed on the disposition of the ramps, a final environmental impact statement will be prepared.

Our contract for professional services recognizes the nature of this type of study by providing a budget limit but also stipulating that the consultant shall not be required to incur costs beyond it. This letter responds to your request that we indicate a basis for requesting an additional budget authorization to complete the work program.

An analysis of direct labor costs indicates that our pre-contract estimates have been exceeded by our expenditures in the categories of transportation, which included the traffic analysis; geometric design and engineering; air quality and noise; and generally in the broad category of planning, which includes citizen involvement, land use analysis, social analysis, and the environmental analysis. Our cost estimates for project administration, mapping, and the economic analysis closely reflect our actual expenditures.

Using direct labor costs, our budget estimates and actual expenditures through our April billing period are as follows:

	Estimated	Actual
Project Administration	$13,010	$ 9,028
Transportation (Traffic)	16,253	23,862
Engineering (Geometrics)	18,928	20,994
Economics	7,495	6,369
Planning (includes B, C, G, H, I, and J from the Work Program)	26,417	36,233

Our subcontractor for air and noise had also exceeded the amount authorized, and was unable to bill $2,474.26.

The consultant's contract refers to changes in the "scope, character, schedule, or complexity of services" as a basis for changing the amount of expenditures authorized. You asked me to respond to this section of the contract.

There was no significant change in the general scope of the study in the sense that we were asked to address new work elements. We do feel there were significant changes in the "character, schedule, and complexity" of services. You will recall that several months into the project we were asked to stop work for approximately 4 months until the traffic data from ODOT expected at the outset of the study could be brought up to date. We called a special meeting of the technical review committee to make this scheduling decision. We indicated at that time that we would continue work on some other parts of the work program in order not to lose momentum with our citizen groups, but we did incur unanticipated costs in obtaining data to be provided by the client and consequently some additional costs in coordinating the various work elements.

The process of selecting alternatives proved to be substantially more complex and time consuming than anticipated. We described nine alternatives in considerable detail in Working Paper 7, and the final selection of four alternatives with three variations of the No-build represented some significant changes from the original set, following a great deal of deliberation by all of the parties to the study. Considering the history of the project, I think we all felt that this part of the study process was the most critical, and that it was important to leave everyone with the feeling that the study process had been conducted openly and fairly and with careful consideration of all reasonable alternatives. Our working papers and their wide distribution reflect this.

It is difficult to reconstruct all of the various events that took place, the numbers of informal meetings, and the time taken to respond to citizen concerns. I can cite, as an example, the several days spent by staff members to provide information and otherwise respond to the issue of the location of the Veterans Hospital. But actually much more time was spent responding to the requests of individual citizens, and to make certain that our working papers were sensitive to the variety of public and private concerns that were expressed as we got further into the study.

As we indicate in the introduction to our report, we have prepared a document that serves a multiple purpose. It is a decision-making document for the city but it also serves as a Preliminary Location Study Report and Environmental Statement as required by the Oregon Department of Transportation Action Plan for Transportation Planning, and which also reflects the requirements of the Federal Highway Administration and the National Environmental Policy Act. Our report is responsive to the large number of regulations and their interpretation, some of them changing.

Consequently, I think it is apparent that there needs to be a great deal of flexibility in the manner in which the consultant manages a study of this kind if the several client agencies are each going to receive a useable product and the study is not going to create more problems than it solves. All of the uncertainties inherant in this process cannot be anticipated in estimating costs, and there is a natural tendency to estimate in favor of the best possible experience.

We believe now that it will cost in the range of $50,000 to $60,000 to complete the work described in Exhibit A, although it is difficult indeed to know the actual amount of work when the City and State have not yet made a decision on which alternative to "build". It may well be, of course, that the city staff could conduct some or all of the remaining work.

We would like to meet with the City and the State as soon as possible to discuss this further.

Sincerely yours,

Richard S. Ivey

Richard S. Ivey
Director of Planning

pjo

8909

FORM 81-734-3030

OREGON STATE HIGHWAY DIVISION FILE:

INTER-OFFICE CORRESPONDENCE

April 7, 1976

Salem, OR. 97310

FROM: Gary A. Potter, Manager ORIGINAL SIGNED BY
Environmental Section GARY A. POTTER

SUBJECT: E. Fremont Interchange
Historic & Archeology
Requirements

TO: Jef Kaiser, Region Environmentalist
Metro

The following approach will be acceptable for development of the subject EIS.

- A commitment in the draft EIS that a archeology survey will be conducted before construction if a build alternative is selected.
- A discussion of Historic resources in the study, a statement of only local significance, (no sites on National Register).
- A statement that if a build alternative is selected, a specific historical survey of local items of significance would be conducted for that alternative.

I discussed these items with Dick Ivey of CH2M/Hill yesterday. Please see that the City of Portland and CH2M/Hill receive this information.

GAP:ss

cc: R. L. Schroeder
R. N. Bothman
C. T. Christiansen-FHWA

NOTED
R. L. SCHROEDER

RECEIVED
APR 7 1976
Office of
Assistant State Highway Engineer

8909

CCN 21-10-1
Emanuel
Hosp.
Sup.

OREGON STATE
HIGHWAY DIVISION

ROBERT W. STRAUB
GOVERNOR

F. B. KLABOE
Administrator and
State Highway Engineer

Telephone 238-8226
METROPOLITAN SECTION • 5821 N.E. GLISAN • PORTLAND, OREGON 97213

March 12, 1976

J. DAVID HUNT
Executive Director
Portland Development Commission
1700 Southwest Fourth Avenue
Portland, OR 97201

NOTED
E. S. HUNTE

NOTED
F. B. KLABOE

Landscaping proposed by the consultant to Emanuel Hospital for right-of-way adjacent to the hospital's urban renewal project has been reviewed.

Area 2, on the westside of N. Kerby Avenue near N. Russell Street, although adjacent to the freeway structures, and the right-of-way required in order to maintain the structures, is not subject to restriction insofar as landscaping. The recommendations of the architect are satisfactory to the Highway Division.

Area 3, located north of N. Stanton Yard is adjacent to auto travel lanes, and is therefore subject to restrictions insofar as the planting of large trees within a 30-foot distance from the travel lanes. Low-growing, small-diameter conifers and/or English ivy within that 30-foot area would be acceptable. A screen planting of trees adjacent to the property line, outside the 30-foot line, would also be acceptable to the Highway Division.

At such time as you wish to proceed with this effort, the necessary confirmation can be obtained by a simple permit subject to the final design of the improvement.

ebg
ROBERT N. BOTHMAN
Ass't. State Highway Engineer

ebg

cc: F. B. Klaboe
E. L. Hardt

RECEIVED
STATE HWY ENGR
MAR 15 '76
REFER TO
ESH
FOR
Info Invest R/D D/R Sign Act File

NOTED
R. L. SCHROEDER

RECEIVED
MAR 22 1976
Office of
Assistant State Highway Engineer

Form FHWA 121 (Rev. 5-73)

8909

UNITED STATES GOVERNMENT

Memorandum

DEPART...NT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
Box 300
Salem OR 97308

DATE: March 9, 1976

In reply refer to: 1041DA.6

SUBJECT: Oregon M-0800(1)
East Fremont Connection
City of Portland

FROM : G. L. Green, Division Administrator

TO : Mr. F. B. Klaboe, Administrator & State Highway Engineer
Salem, Oregon

— not in Gen. Files
ja.

Reference is made to a letter dated March 4, 1976 to Mr. Christianson, FHWA Area Engineer, from Glen Pierce, Associate Civil Engineer, City. Mr. Pierce's letter transmitted a copy of the proposed outline for the Draft EIS on this project and requested our Area Engineer to indicate acceptability.

The proposed outline has been reviewed and is considered acceptable subject to the following comments:

1. The Draft EIS must contain a statement of the purpose of the project supporting the need.
2. A description of how this project fits the transportation needs of the area including compatibility with the CRAG Interim Transportation Plan and the Portland proposed Arterial Streets Plan would be appropriate.
3. The EIS should refer to coordination with State, CRAG and Local officials as well as the general public.
4. Mention should be made regarding contact with the State Historic Preservation Officer regarding points of historical significance.

Copies of this memorandum have been forwarded to Mr. Pierce and to Mr. Klotz in your Metro office.

RECEIVED
STATE HWY ENGR
MAR 11 '76
REFER TO
Schroeder
FOR

Info	Jones	R/D	D/R	Sign	Act	File
✓						

Copy To Potter — (Get FHWA letter in Gen. Files)
3-12-76

for G. L. Green

cc:
Klotz (Metro OSHD)
Pierce (City of Portland
OSHD (Potter)

NOTED
R. L. SCHROEDER

RECEIVED
MAR 12 1976
Office of
Assistant State Highway Engineer

8909

FORM 81-734-3030

OREGON STATE HIGHWAY DIVISION
INTER-OFFICE CORRESPONDENCE
February 4, 1976
Portland, OR 97213

FILE: 326-1917
(270)

NOTED
E. S. HUNTER

FROM: ROBERT N. BOTHMAN
Ass't. State Highway Engineer

SUBJECT: East Fremont Bridge connection

TO: MEMO TO THE FILE

I attended a public meeting, conducted by the city of Portland and CH2M Hill, on the subject project, January 2.

The meeting was conducted by John Kelly and Dick Ivey of CH2M Hill, assisted by Glen Pierce of the city of Portland. About fifty people were in attendance, consisting of about half from east of Union Avenue and half from west of Union Avenue.

Four no-build and three build alternatives were discussed. About one-fourth of those present were in opposition of opening the ramps and opposed all alternatives with the exception of the as-is alternative. About one-fourth favored one of the various build alternatives. It appeared that those who spoke were quite emotional and were opposed to the oppening of the ramps, or were supportive of the opening of the ramps.

Opposition to opening of the ramps centers from those residents along Fremont east of Union Avenue who do not want the additional traffic load on Fremont caused by opening the ramps and drawing traffic from the Parkrose area through their neighborhoods to the Fremont Bridge. This is the representation that prevented the opening, on a temporary basis, of the ramps three years ago . At that time those residents in the Boise and Eliot neighborhoods west of Union Avenue had consented to opening the ramps pending solution of a permanent connection to Union Avenue.

The consultants have not been able to develop a satisfactory solution to the requirement of providing access from the bridge to Union Avenue, but limiting access or through traffic on Fremont east of Union Avenue. Until a solution is developed which accomplishes that requirement I doubt that a build alternative will be adopted.

The alternatives are very similar to those of the Highway Division, three years ago. The Cook-Fremont alternative has been initiated, not by the consultant, but by the advisory committee, which is no surprise since that similar alternative was developed three years ago by the two neighborhoods.

Prior to a "go" project, it will be necessary to establish a means to restrict east/west traffic from the bridge on Fremont. This could be accomplished by allowing no through-traffic on Fremont at Union, requiring that traffic turn onto Union, either north or southbound.

ebg

cc: E. B. Klaboe
Glen Pierce

RECEIVED
MAR 10 1976
Office of
Assistant State Highway Engineer

NOTED
R. L. SCHROEDER

RECEIVED
STATE HWY ENGR
FEB 6 '76
REFER TO 454
FOR
Info
Inves
R/D
D/R
Sign
Act
File

8909

Form FHWA 121 (Rev. 5-73)

UNITED STATES GOVERNMENT

Memorandum

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
Box 300
Salem OR 97308

DATE: January 26, 1976

In reply refer to: 1041DA.6

SUBJECT: Oregon M-0800(1)
East Fremont Connection

FROM : G. L. Green, Division Administrator

TO : Mr. F. B. Klaboe, Administrator & State Highway Engineer
Salem, Oregon

Mr. Glen Pierce from the City of Portland has requested from our engineers clarification regarding any possible Interstate fund payback that might be involved in the project alternatives. Because of the policy and administrative questions that could be involved, I would appreciate the opportunity to review the alternatives and funding issue with you and your staff.

Please advise us of a convenient time.

for G. L. Green

cc:
Bothman (OSHD Metro)
Pierce (City of Portland)

RECEIVED
STATE HWY ENGR
JAN 28 '76
REFER TO
Schroeder
FOR

Info	Inves	R/D	D/R	Sign	Act	File
					✓	

8909

FORM 81-734-3030

OREGON STATE HIGHWAY DIVISION
INTER-OFFICE CORRESPONDENCE
January 19, 1976
Portland, OR 97213

FILE: 326-1917
(210)

FROM: MAX J. KLOTZ
Metro Planning Engineer

SUBJECT: Fremont Bridge-Union Avenue connection
TAC meeting 1/7/76

TO: MEMO TO THE FILE

The purpose of the subject meeting was to boil down the nine alternatives prepared by consulting engineer, CH2M to three or four, which would be addressed in the environmental impact statement.

CH2M reported on their citizen involvement program, particularly a meeting that they had the previous evening involving the Boise, Humboldt, and Elliott neighborhoods. About fifty persons attended. There was strong objection to all connections through the neighborhood to Union Avenue, but if a connection was absolutely necessary, the Fremont Boulevard was preferred. Of the short connections, the short-Cook route was preferred. There was also some support for a no-build alternative, with possibly a hospital-only access as an option.

The representative from the Portland maintenance bureau said they preferred the no-build alternative wtih the ramp removal. They are aprehensive of interferrence with their staging operations on Kerby Street.

The need for payback of the federal funds, expended for construction of the ramps, if the ramps were to be removed, was discussed. The extent of the payback necessary is not presently known.

RECEIVED
STATE HWY ENGR
JAN 20 '76
REFER TO
FOR
Info Inves R/D D/R Sign Act File

I told the committee that with the shortage of money, I did not know of the availability of funds for repayment, especially if there was no particular need for the property for some other purpose.

Four of the alternatives were finally selected by this committee, to go to Connie McCready as the committee's recommendation of alternates to be addressed in the EIS.

These alternatives are:
1. No-build, permanent closure--possible options to this would be a hospital connection, similar to the temporary one that now exists, and a possible ramp removal which could be studied in more detail later as a separate project.
2. Short-Cook, as a short connection
3. Fremont Boulevard as a connection to Union Avenue
4. The Cook-Ivy couplet connection to Union Avenue

NOTED
F. B. KLABOE

It is not known at this time whether or not there will be need for further meetings of this committee.

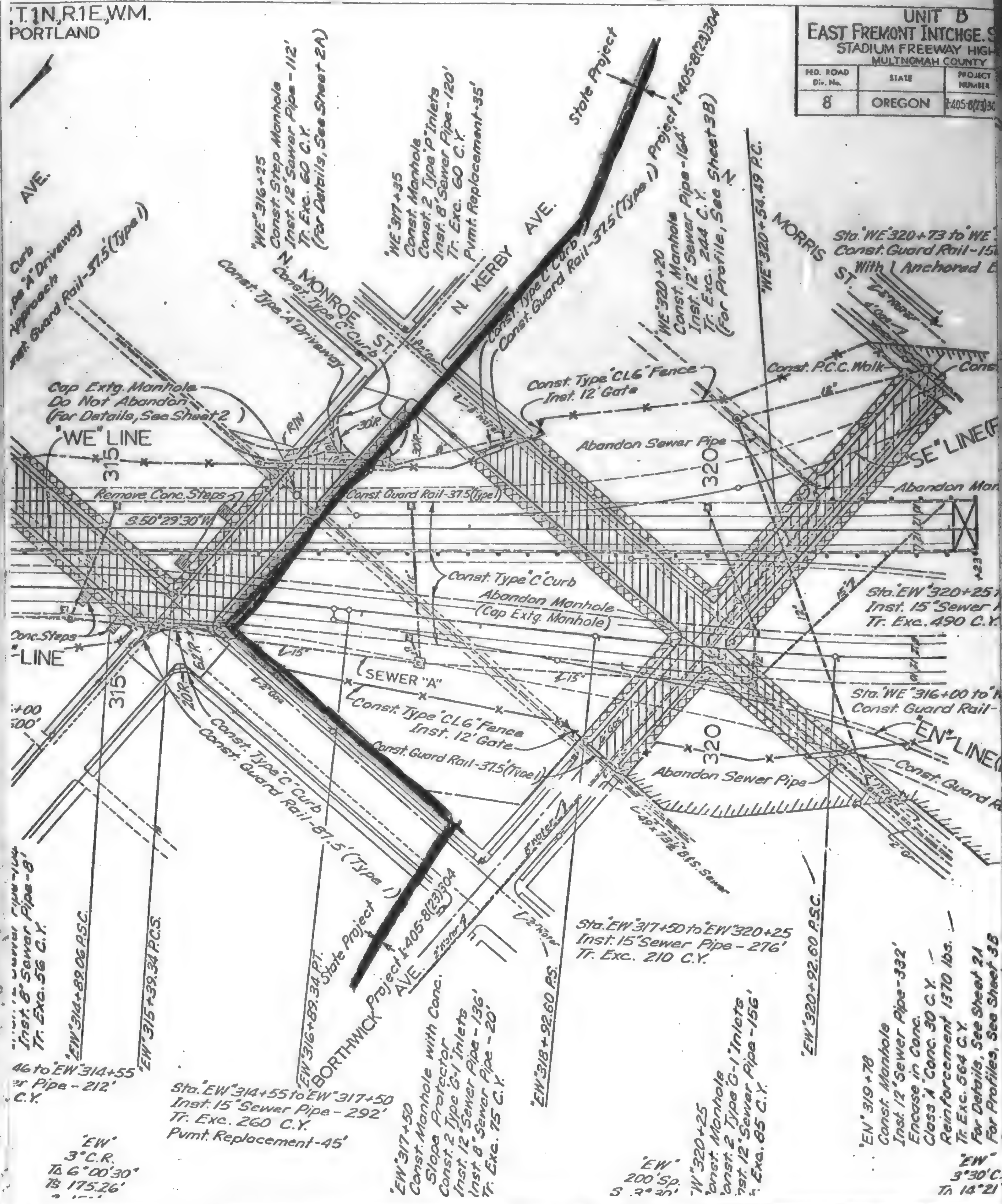
Prints of all alternatives are attached.

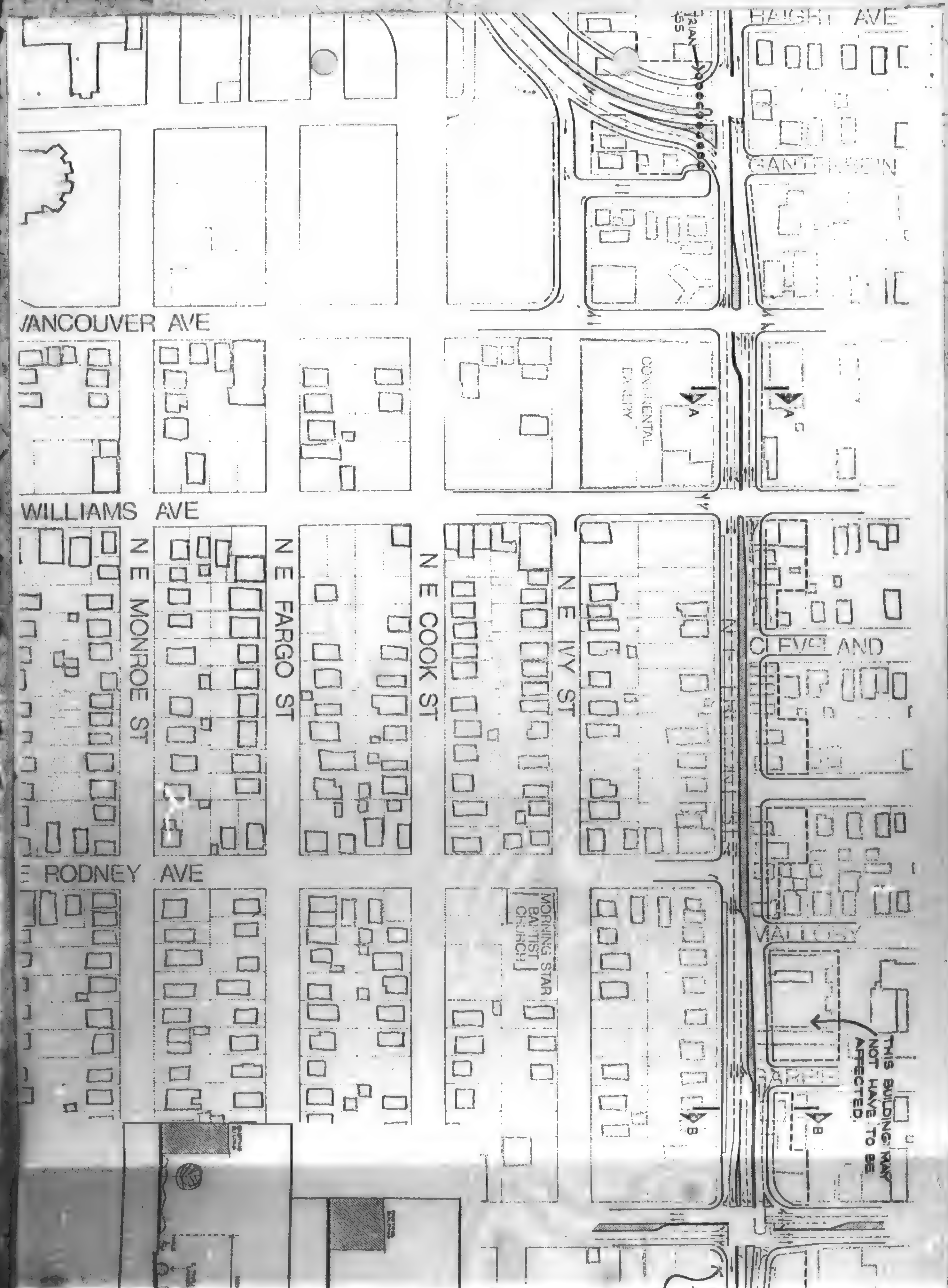
ebg

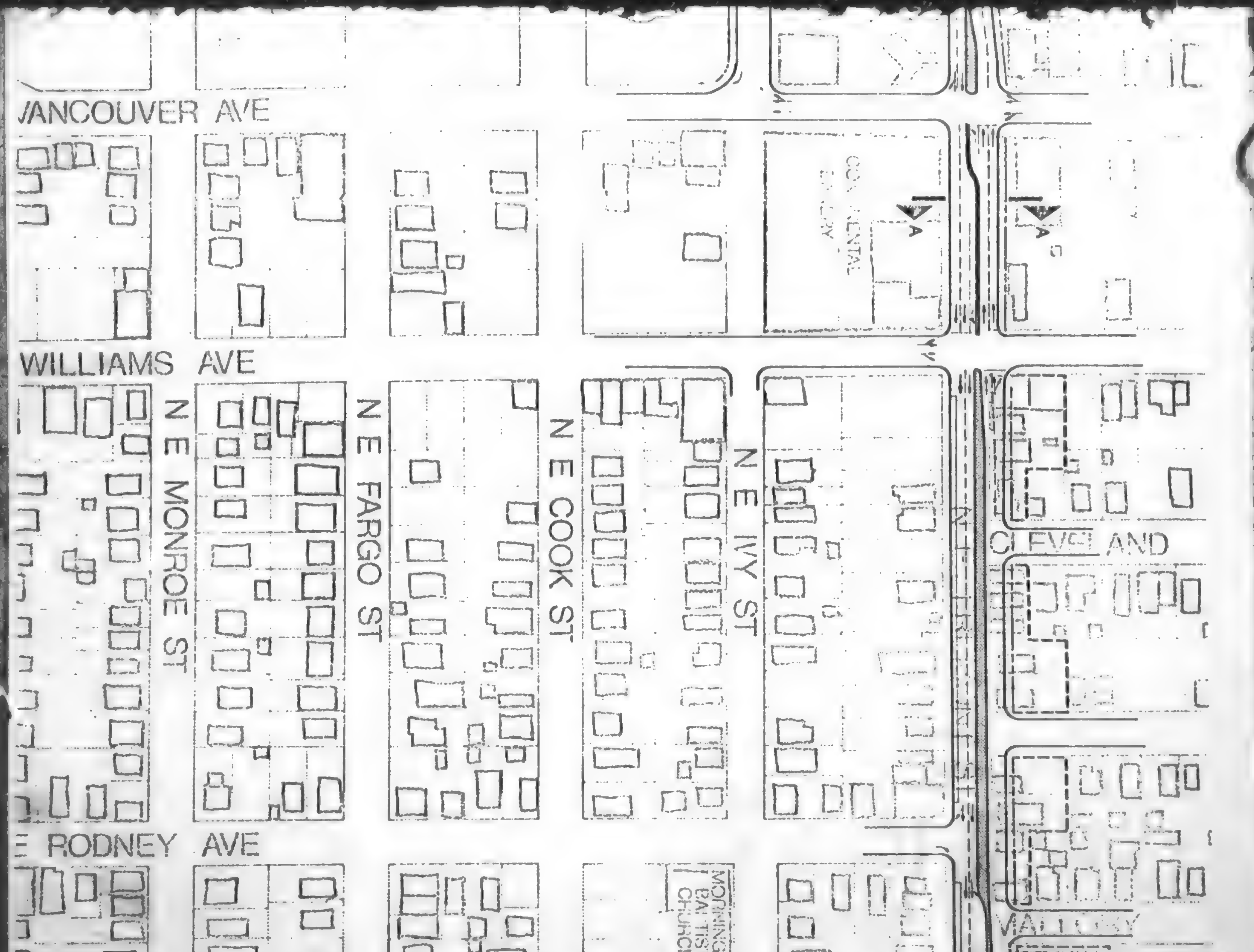
cc: F. B. Klaboe, E. S. Hunter, E. L. Hardt

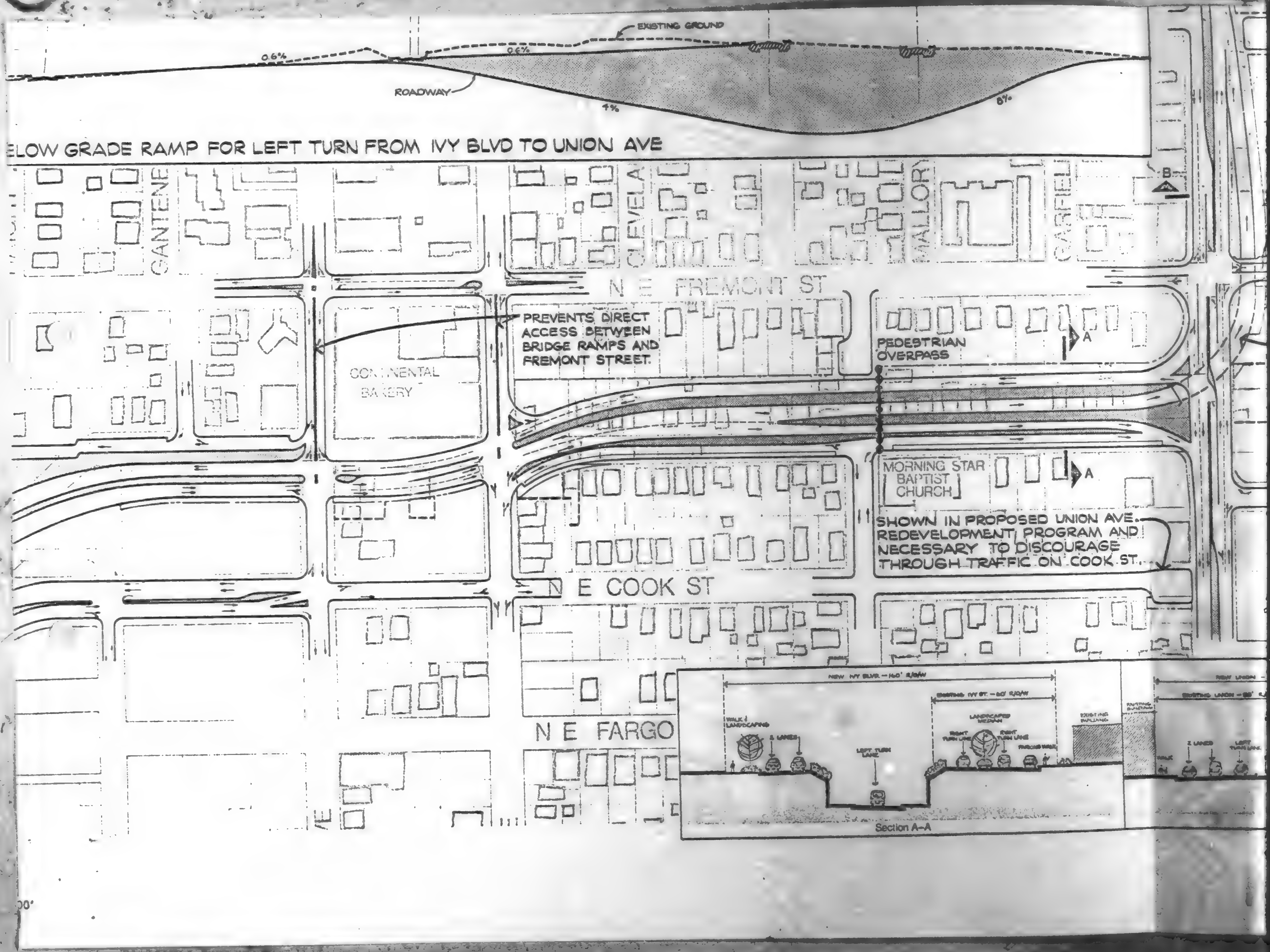
UNIT B
EAST FREMONT INTCHGE. S
STADIUM FREEWAY HIGH
MULTNOMAH COUNTY

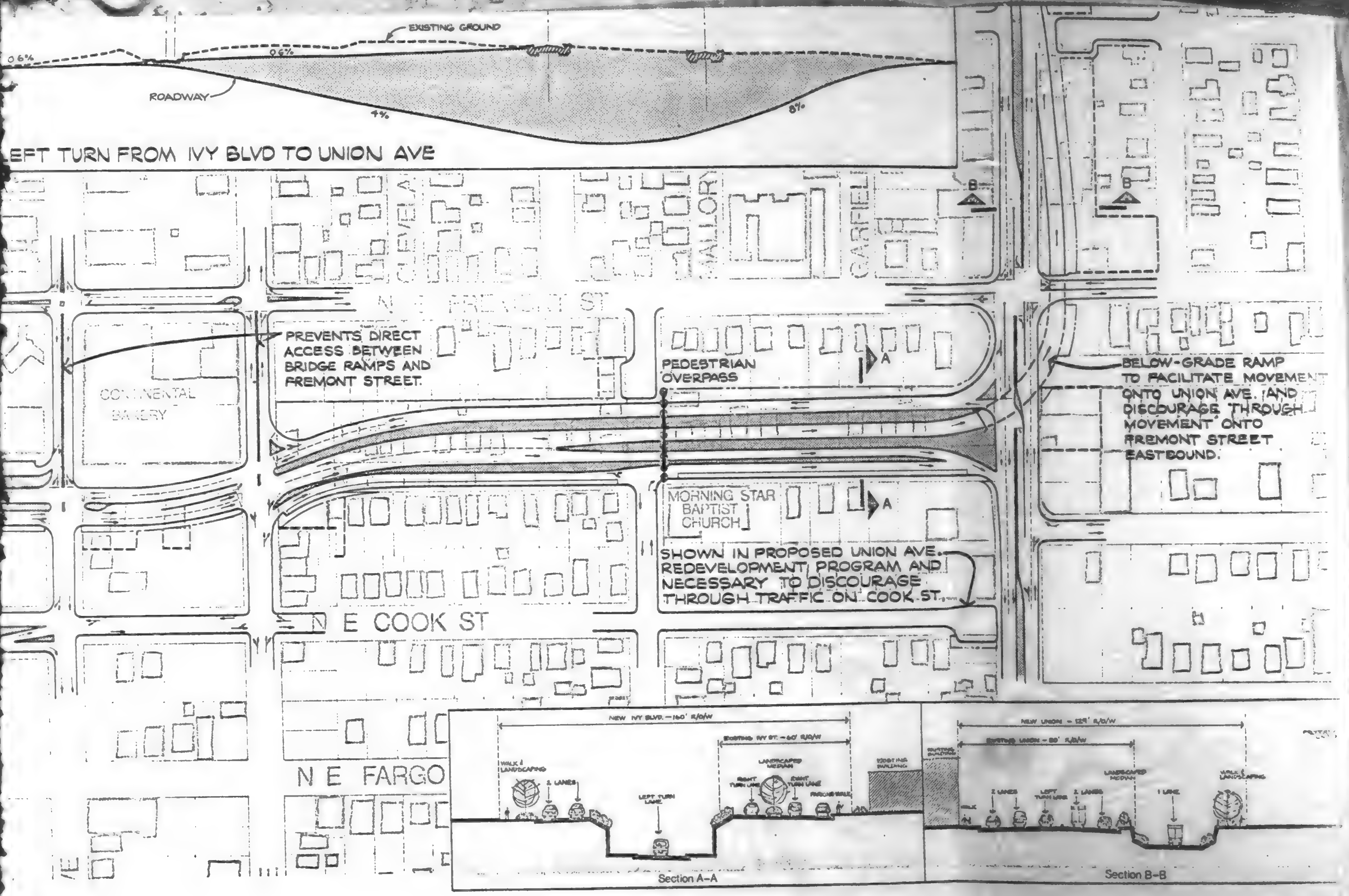
FED. ROAD Div. No.	STATE	PROJECT NUMBER
8	OREGON	I-405-8(23)30


T.1N.,R.1E.,W.M.
PORTLAND
AVE.
Curb
pe "A" Driveway
Approach
Guard Rail-37.5' (Type 1)
"WE" 316+25
Const. Step Manhole
Inst. 12" Sewer Pipe - 112'
Tr. Exc. 60 C.Y.
(For Details, See Sheet 2A)
"WE" 317+35
Const. Manhole
Const. 2 Type "P" Inlets
Inst. 8" Sewer Pipe - 120'
Tr. Exc. 60 C.Y.
Pvmt. Replacement-35'
N. MONROE ST.
Const. Type "C" Curb
Const. Type "A" Driveway
N. KERBY AVE.
State Project
Project I-405-8(23)304
Const. Type "C" Curb
Const. Guard Rail-37.5' (Type 1)
"WE" 320+20
Const. Manhole
Inst. 12" Sewer Pipe - 164'
Tr. Exc. 244 C.Y.
(For Profile, See Sheet 3B)
N. MORRIS ST.
"WE" 320+54.49 P.C.
Sta. "WE" 320+73 to "WE"
Const. Guard Rail-15
With Anchored E
Cap Extg. Manhole
Do Not Abandon
(For Details, See Sheet 2)
"WE" LINE
315
R/W
30'R.
12'R.
Remove Conc. Steps
S.50°29'30"W.
Const. Guard Rail-37.5' (Type 1)
Const. Type "CL6" Fence
Inst. 12' Gate
Const. P.C.C. Walk
Const.
Abandon Sewer Pipe
320
"SE" LINE
Abandon Man
Const. Type "C" Curb
Abandon Manhole
(Cap Extg. Manhole)
Sta. "EW" 320+25
Inst. 15" Sewer
Tr. Exc. 490 C.Y.
Conc. Steps
LINE
315
62'R.
20'R.
SEWER "A"
15"
Const. Type "CL6" Fence
Inst. 12' Gate
Const. Guard Rail-37.5' (Type 1)
Sta. "WE" 316+00 to "
Const. Guard Rail-
"EN" LINE
320
Abandon Sewer Pipe
Const. Guard R
Const. Type "C" Curb
Const. Guard Rail-87.5' (Type 1)
49x73½ B.C.S. Sewer
Inst. 8" Sewer Pipe-8'
Tr. Exc. 56 C.Y.
"EW" 314+89.06 P.S.C.
"EW" 315+39.34 P.C.S.
46 to "EW" 314+55
Pipe - 212'
C.Y.
"EW" 316+89.34 P.T.
State Project
Project I-405-8(23)304
BORTHWICK AVE.
Sta. "EW" 314+55 to "EW" 317+50
Inst. 15" Sewer Pipe - 292'
Tr. Exc. 260 C.Y.
Pvmt. Replacement-45'
"EW" 317+50
Const. Manhole with Conc.
Slope Protector
Const. 2 Type "G-1" Inlets
Inst. 12" Sewer Pipe - 136'
Inst. 8" Sewer Pipe - 20'
Tr. Exc. 75 C.Y.
"EW" 318+92.60 P.S.
Sta. "EW" 317+50 to "EW" 320+25
Inst. 15" Sewer Pipe - 276'
Tr. Exc. 210 C.Y.
"EW" 320+25
Const. Manhole
Const. 2 Type "G-1" Inlets
Inst. 12" Sewer Pipe - 156'
Exc. 85 C.Y.
"EW" 320+92.60 P.S.C.
"EN" 319+78
Const. Manhole
Inst. 12" Sewer Pipe - 332'
Encase in Conc.
Class "A" Conc. 30 C.Y.
Reinforcement 1370 lbs.
Tr. Exc. 564 C.Y.
For Details, See Sheet 21
For Profiles, See Sheet 3B
"EW"
3°C.R.
T∆ 6°00'30"
TS 175.26'
"EW"
200' Sp.
S 3°30'
"EW"
3°30' C.
T∆ 14°21'

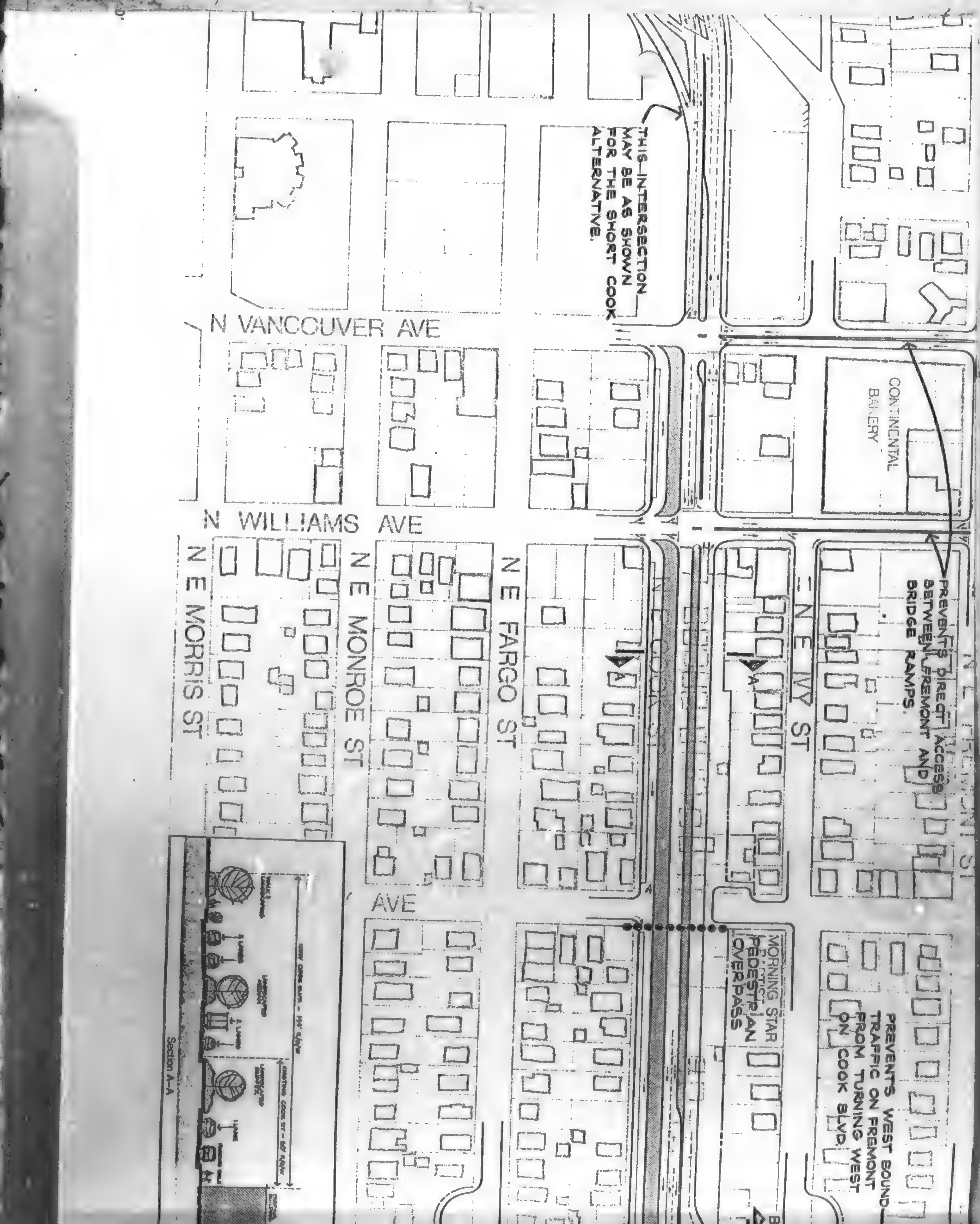

HAIGHT AVE
GANTENBEIN
VANCOUVER AVE
CONTINENTAL BAKERY
A
A
WILLIAMS AVE
N E MONROE ST
N E FARGO ST
N E COOK ST
N E IVY ST
CLEVELAND
RODNEY AVE
MORNING STAR BAPTIST CHURCH
MALLORY
THIS BUILDING MAY NOT HAVE TO BE AFFECTED.
B
B


FREMONT BOULEVARD
VANCOUVER AVE
WILLIAMS AVE
RODNEY AVE
N E MONROE ST
N E FARGO ST
N E COOK ST
N E IVY ST
MORNING STAR BAPTIST CHURCH
CLEVELAND
MALLORY
A
B
THIS BUILDING MAY NOT HAVE TO BE AFFECTED.
INTERSECTION DESIGN AND TRAFFIC LIGHT PHASING ENCOURAGE FLOW BETWEEN UNION AND FREMONT AND DISCOURAGE FLOW ACROSS UNION ON FREMONT.
Section A-A
Section B-B


EXISTING GROUND
0.6%
0.6%
ROADWAY
4%
8%
ELOW GRADE RAMP FOR LEFT TURN FROM IVY BLVD TO UNION AVE
GANTENE
CLEVELA
MALLOR
GARFIEL
B
N E FREMONT ST
PREVENTS DIRECT ACCESS BETWEEN BRIDGE RAMPS AND FREMONT STREET.
CONTINENTAL BAKERY
PEDESTRIAN OVERPASS
A
MORNING STAR BAPTIST CHURCH
A
SHOWN IN PROPOSED UNION AVE. REDEVELOPMENT PROGRAM AND NECESSARY TO DISCOURAGE THROUGH TRAFFIC ON COOK ST.
N E COOK ST
N E FARGO
NEW IVY BLVD. — 140' R/O/W
EXISTING IVY ST. — 60' R/O/W
WALK & LANDSCAPING
2 LANES
LEFT TURN LANE
LANDSCAPED MEDIAN
RIGHT TURN LANE
RIGHT TURN LANE
PARKING WALL
EXISTING BUILDING
EXISTING BUILDING
NEW UNION
EXISTING UNION — 80'
WALK
2 LANES
LEFT TURN LANE
Section A–A
00'


EXISTING GROUND
0.6%
0.6%
ROADWAY
4%
8%
LEFT TURN FROM IVY BLVD TO UNION AVE
CLEVELA
MALLORY
GARFIEL
N E FREMONT ST
PREVENTS DIRECT ACCESS BETWEEN BRIDGE RAMPS AND FREMONT STREET.
CONTINENTAL BAKERY
PEDESTRIAN OVERPASS
A
B
BELOW-GRADE RAMP TO FACILITATE MOVEMENT ONTO UNION AVE. AND DISCOURAGE THROUGH MOVEMENT ONTO FREMONT STREET EASTBOUND.
MORNING STAR BAPTIST CHURCH
SHOWN IN PROPOSED UNION AVE. REDEVELOPMENT PROGRAM AND NECESSARY TO DISCOURAGE THROUGH TRAFFIC ON COOK ST.
N E COOK ST
N E FARGO
NEW IVY BLVD. — 160' R/O/W
EXISTING IVY ST. — 60' R/O/W
WALK & LANDSCAPING
2 LANES
LEFT TURN LANE
LANDSCAPED MEDIAN
RIGHT TURN LANE
RIGHT TURN LANE
PARKING WALK
EXISTING BUILDING
Section A–A
NEW UNION — 129' R/O/W
EXISTING UNION — 80' R/O/W
EXISTING BUILDING
WALK
2 LANES
LEFT TURN LANE
2 LANES
LANDSCAPED MEDIAN
1 LANE
WALK & LANDSCAPING
Section B–B

IVY
BOULEVAR

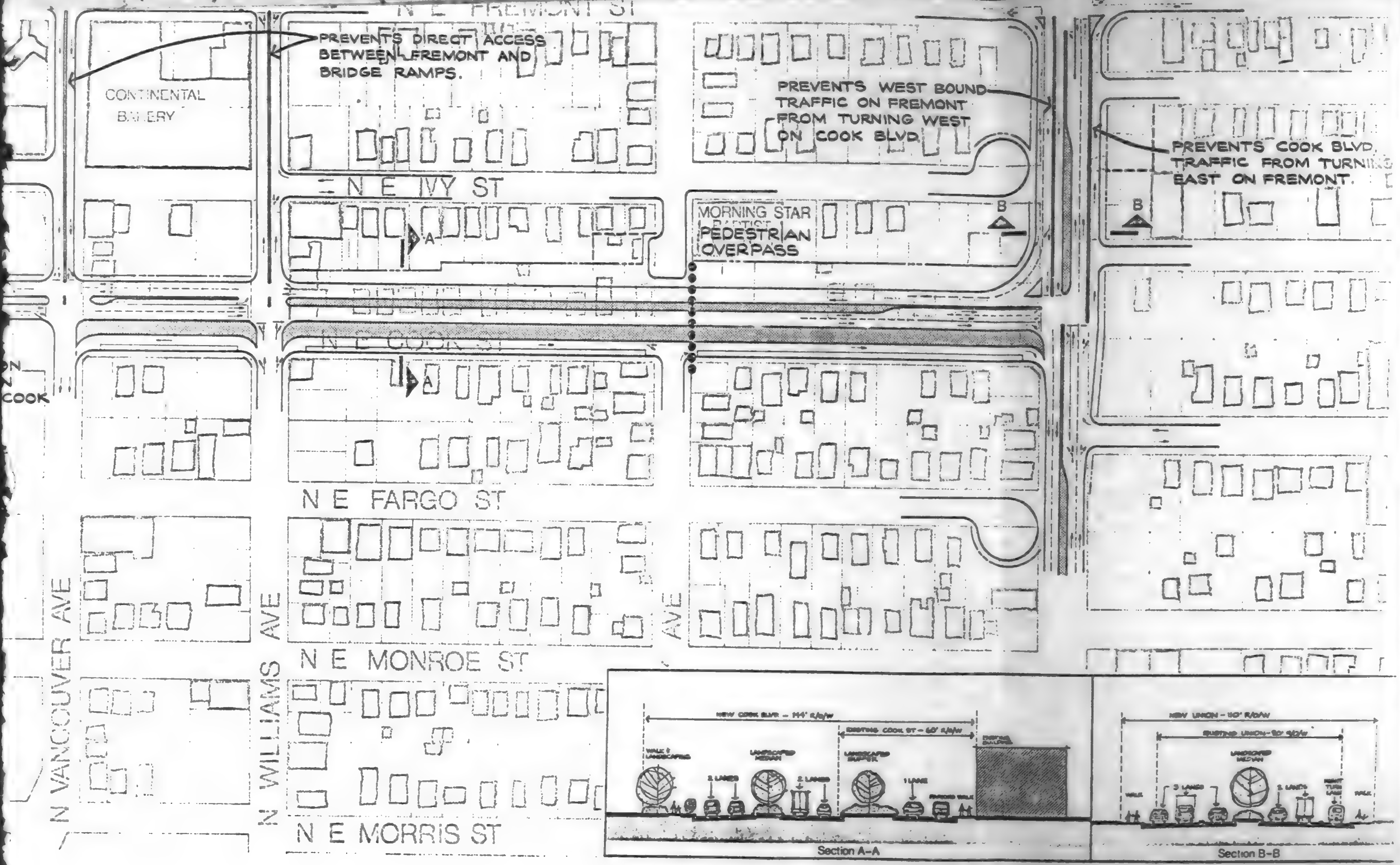

N VANCOUVER AVE
N WILLIAMS AVE
N E MORRIS ST
N E MONROE ST
N E FARGO ST
AVE
N E IVY ST
N E FREMONT ST
CONTINENTAL BAKERY
A
A
B
Section A-A

THIS INTERSECTION MAY BE AS SHOWN FOR THE SHORT COOK ALTERNATIVE.

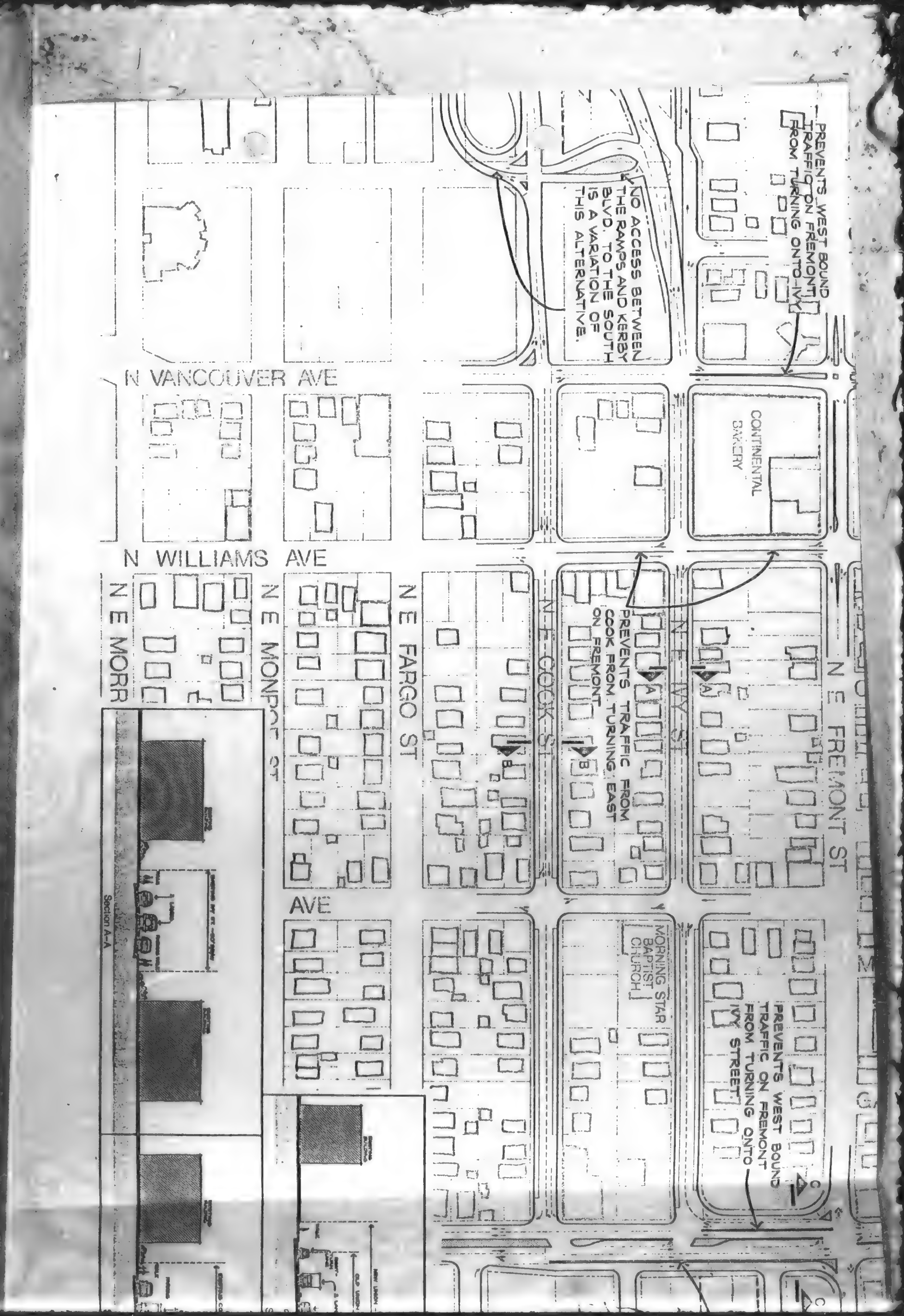
PREVENTS DIRECT ACCESS BETWEEN FREMONT AND BRIDGE RAMPS.

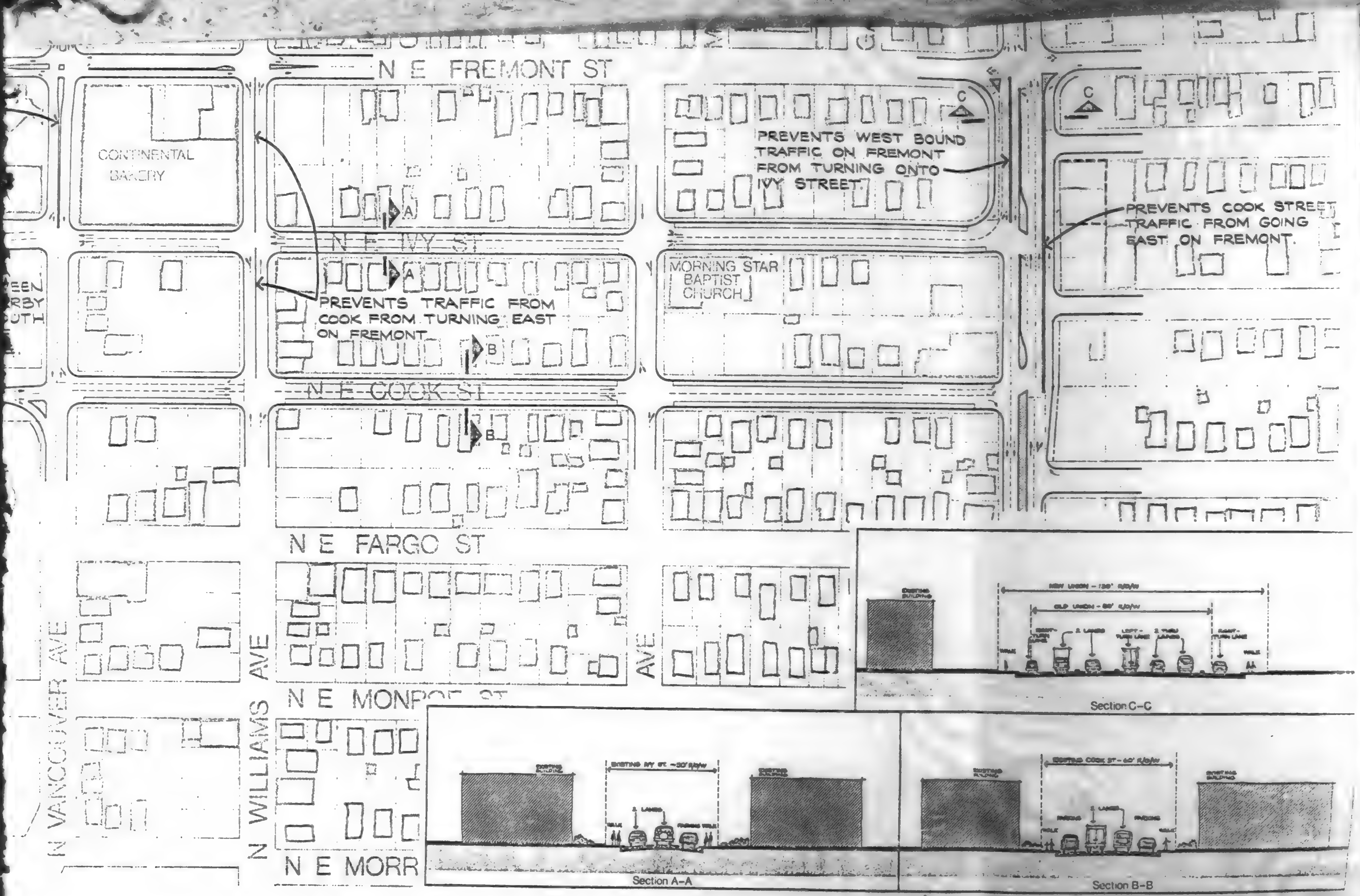
MORNING STAR PEDESTRIAN OVERPASS

PREVENTS WEST BOUND TRAFFIC ON FREMONT FROM TURNING WEST ON COOK BLVD.

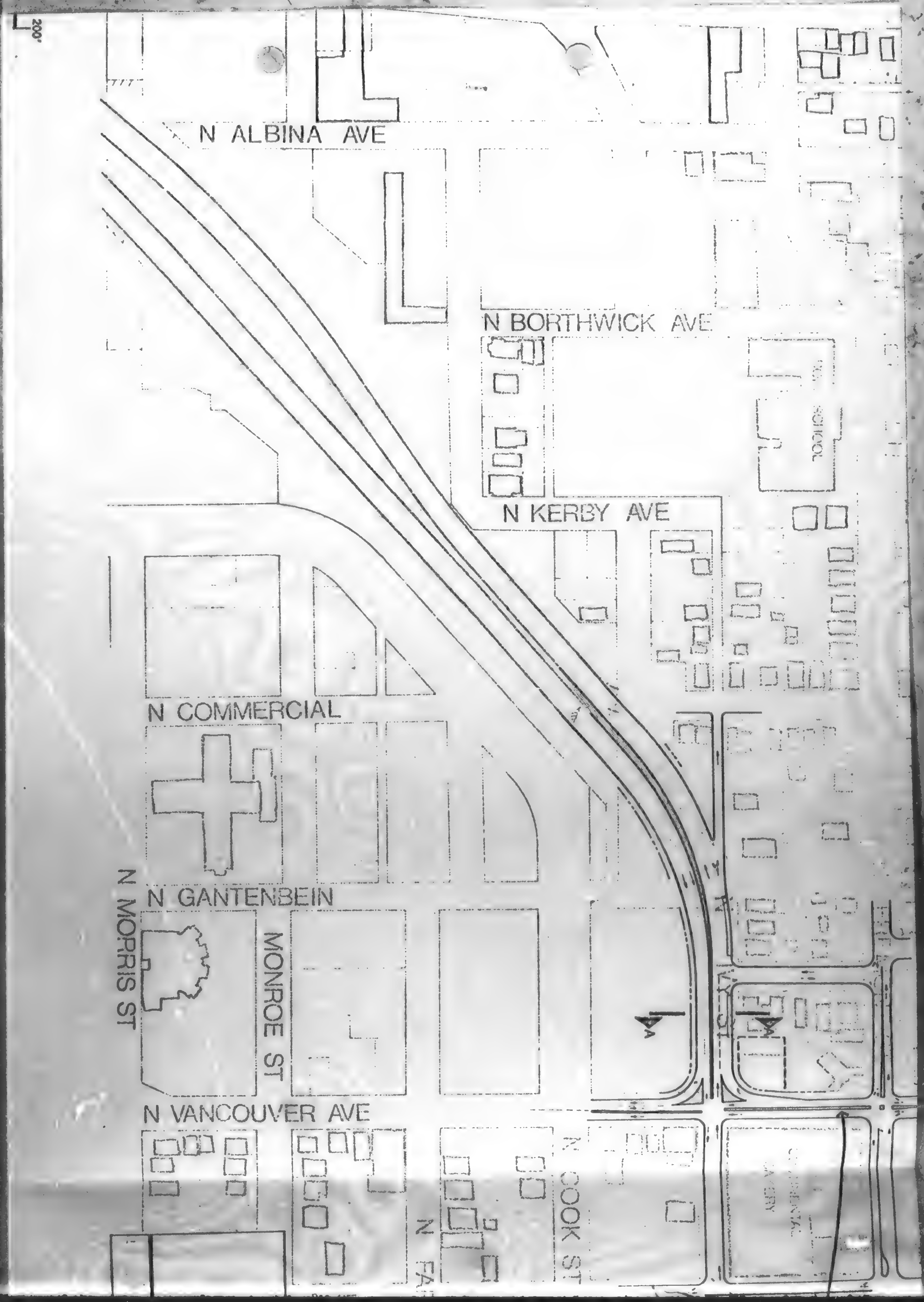

N E FREMONT ST
PREVENTS DIRECT ACCESS BETWEEN FREMONT AND BRIDGE RAMPS.
CONTINENTAL BAKERY
PREVENTS WEST BOUND TRAFFIC ON FREMONT FROM TURNING WEST ON COOK BLVD.
PREVENTS COOK BLVD. TRAFFIC FROM TURNING EAST ON FREMONT.
N E IVY ST
MORNING STAR BAPTIST
PEDESTRIAN OVERPASS
A
B
N E COOK ST
N COOK
N E FARGO ST
N E MONROE ST
N E MORRIS ST
N VANCOUVER AVE
N WILLIAMS AVE
AVE
NEW COOK BLVD – 114' R/O/W
EXISTING COOK ST – 60' R/O/W
WALK & LANDSCAPING
LANDSCAPED MEDIAN
LANDSCAPED BUFFER
2 LANES
1 LANE
EXISTING BUILDING
Section A-A
NEW UNION – 110' R/O/W
EXISTING UNION – 80' R/O/W
LANDSCAPED MEDIAN
3 LANES
2 LANES
RIGHT TURN LANE
WALK
Section B-B

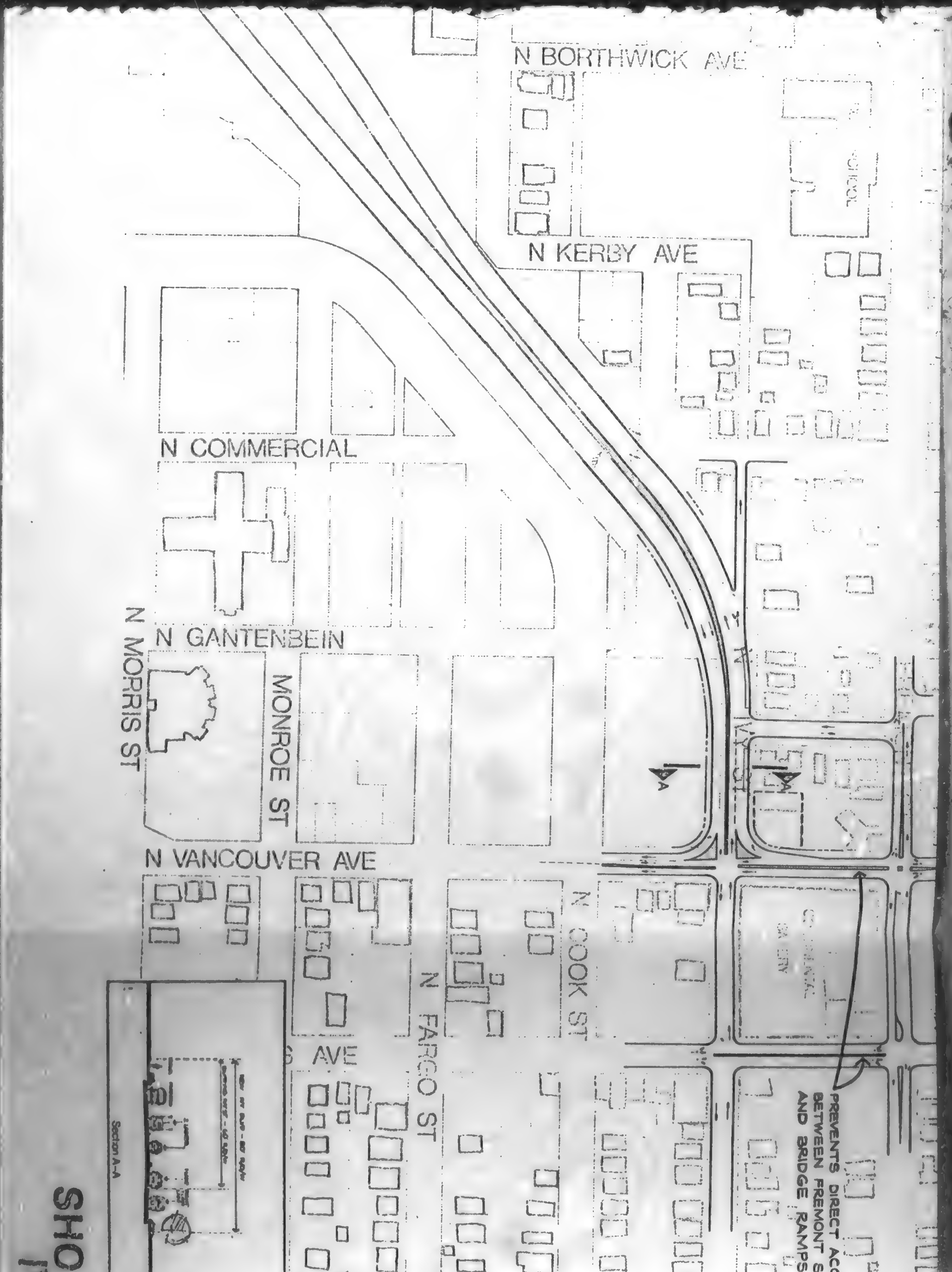
COOK BOULEVARD

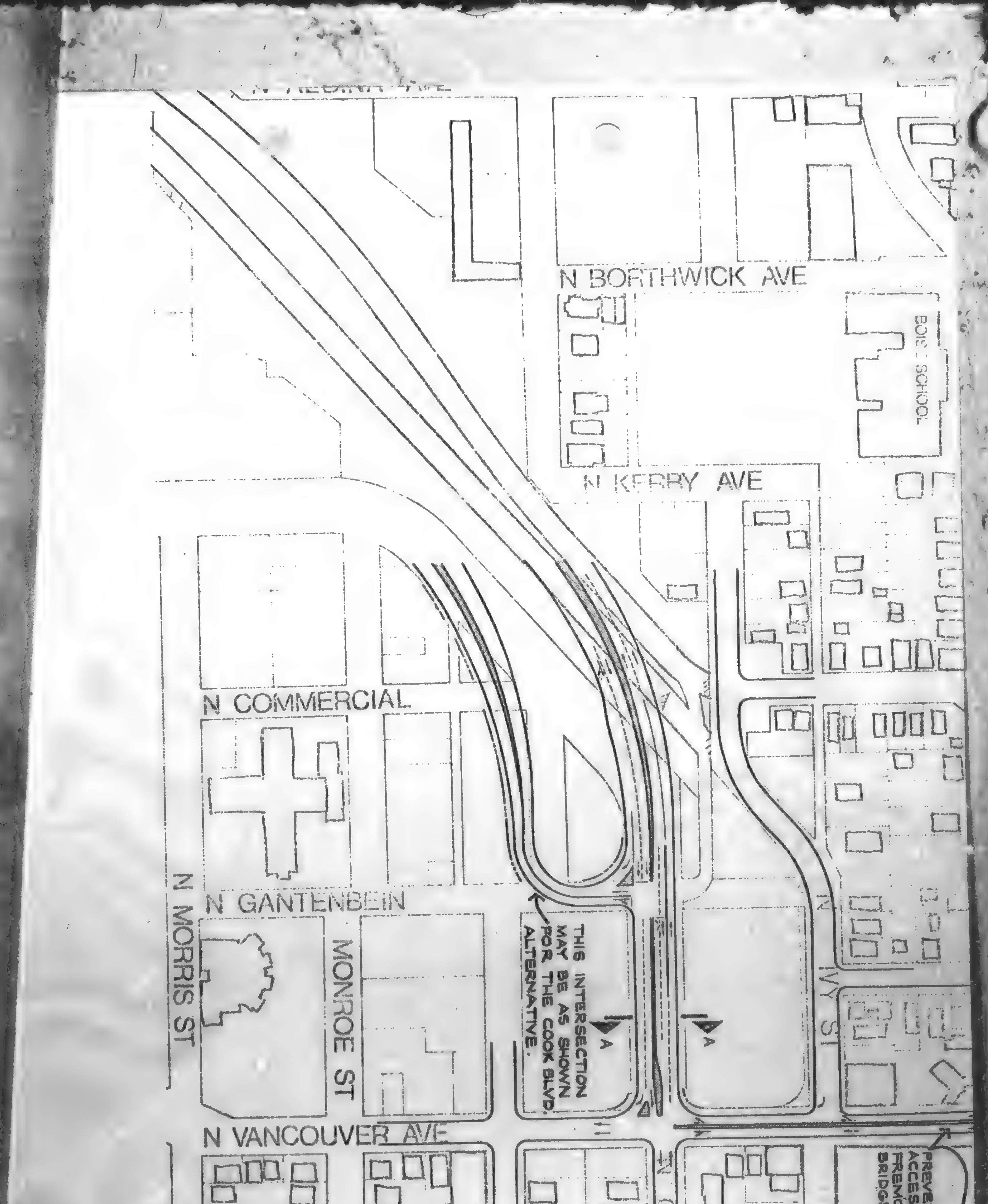

PREVENTS WEST BOUND TRAFFIC ON FREMONT FROM TURNING ONTO IVY
NO ACCESS BETWEEN THE RAMPS AND KERBY BLVD. TO THE SOUTH IS A VARIATION OF THIS ALTERNATIVE.
N VANCOUVER AVE
CONTINENTAL BAKERY
N WILLIAMS AVE
N E MORR
N E MONROE ST
N E FARGO ST
N E COOK ST
N E IVY ST
N E FREMONT ST
PREVENTS TRAFFIC FROM COOK FROM TURNING EAST ON FREMONT
A
A
B
B
AVE
MORNING STAR BAPTIST CHURCH
PREVENTS WEST BOUND TRAFFIC ON FREMONT FROM TURNING ONTO IVY STREET
C
C
Section A-A


N E FREMONT ST
CONTINENTAL BAKERY
PREVENTS WEST BOUND TRAFFIC ON FREMONT FROM TURNING ONTO IVY STREET
PREVENTS COOK STREET TRAFFIC FROM GOING EAST ON FREMONT
N E IVY ST
MORNING STAR BAPTIST CHURCH
PREVENTS TRAFFIC FROM COOK FROM TURNING EAST ON FREMONT
N E COOK ST
A
B
C
N E FARGO ST
N VANCOUVER AVE
N WILLIAMS AVE
AVE
N E MONROE ST
N E MORR
EXISTING BUILDING
WALK
2 LANES
PARKING
Section A-A
Section B-B
Section C-C

COOK - IVY COUPLET


200'
N ALBINA AVE
N BORTHWICK AVE
SCHOOL
N KERBY AVE
N COMMERCIAL
N GANTENBEIN
N MORRIS ST
MONROE ST
N VANCOUVER AVE
N COOK ST
N FA
A
A

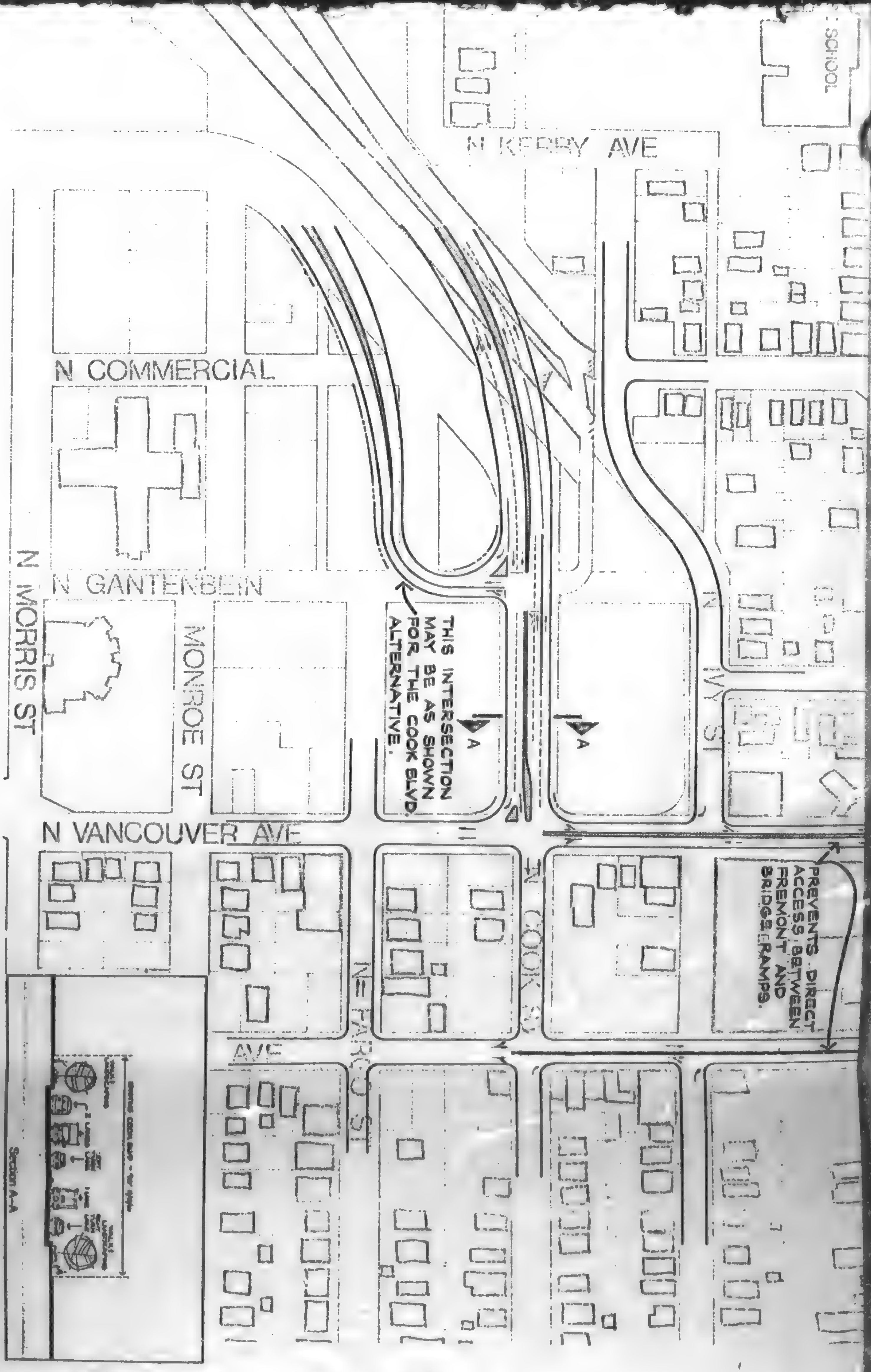

N BORTHWICK AVE
SCHOOL
N KERBY AVE
N COMMERCIAL
N GANTENBEIN
N MORRIS ST
MONROE ST
A
A
N VANCOUVER AVE
N COOK ST
N FARGO ST
S AVE
Section A-A
PREVENTS DIRECT ACCESS
BETWEEN FREMONT STREE
AND BRIDGE RAMPS.
SHOR
IV


N ALBINA AVE
N BORTHWICK AVE
BOISE SCHOOL
N KERBY AVE
N COMMERCIAL
N GANTENBEIN
N MORRIS ST
MONROE ST
A
A
N VANCOUVER AVE
N WILLIAMS AVE
N COOK ST
NE FARGO ST
AVE
Section A-A

THIS INTERSECTION MAY BE AS SHOWN FOR THE COOK BLVD. ALTERNATIVE.

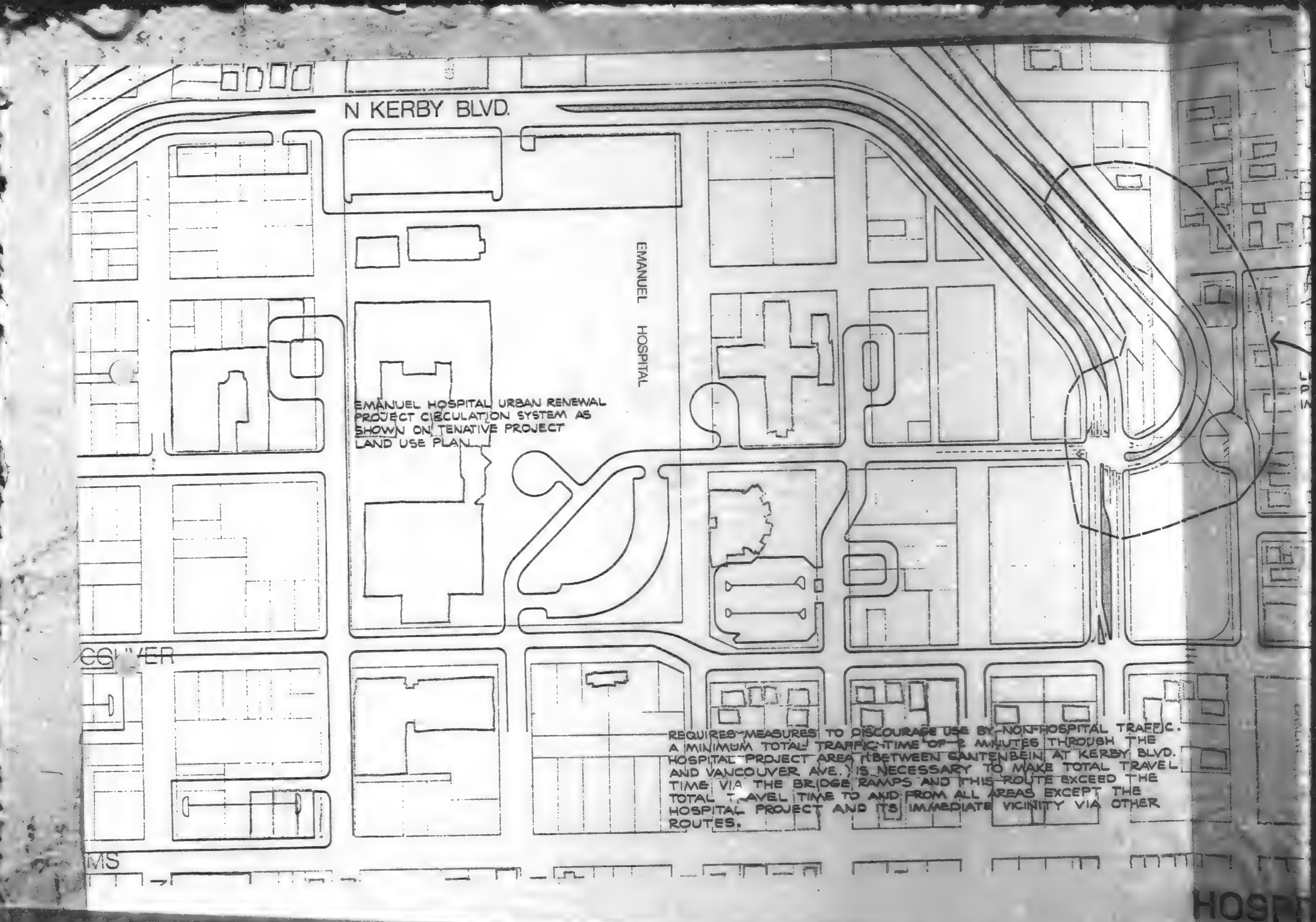
PREVENTS DIRECT ACCESS BETWEEN FREMONT AND BRIDGE RAMPS.

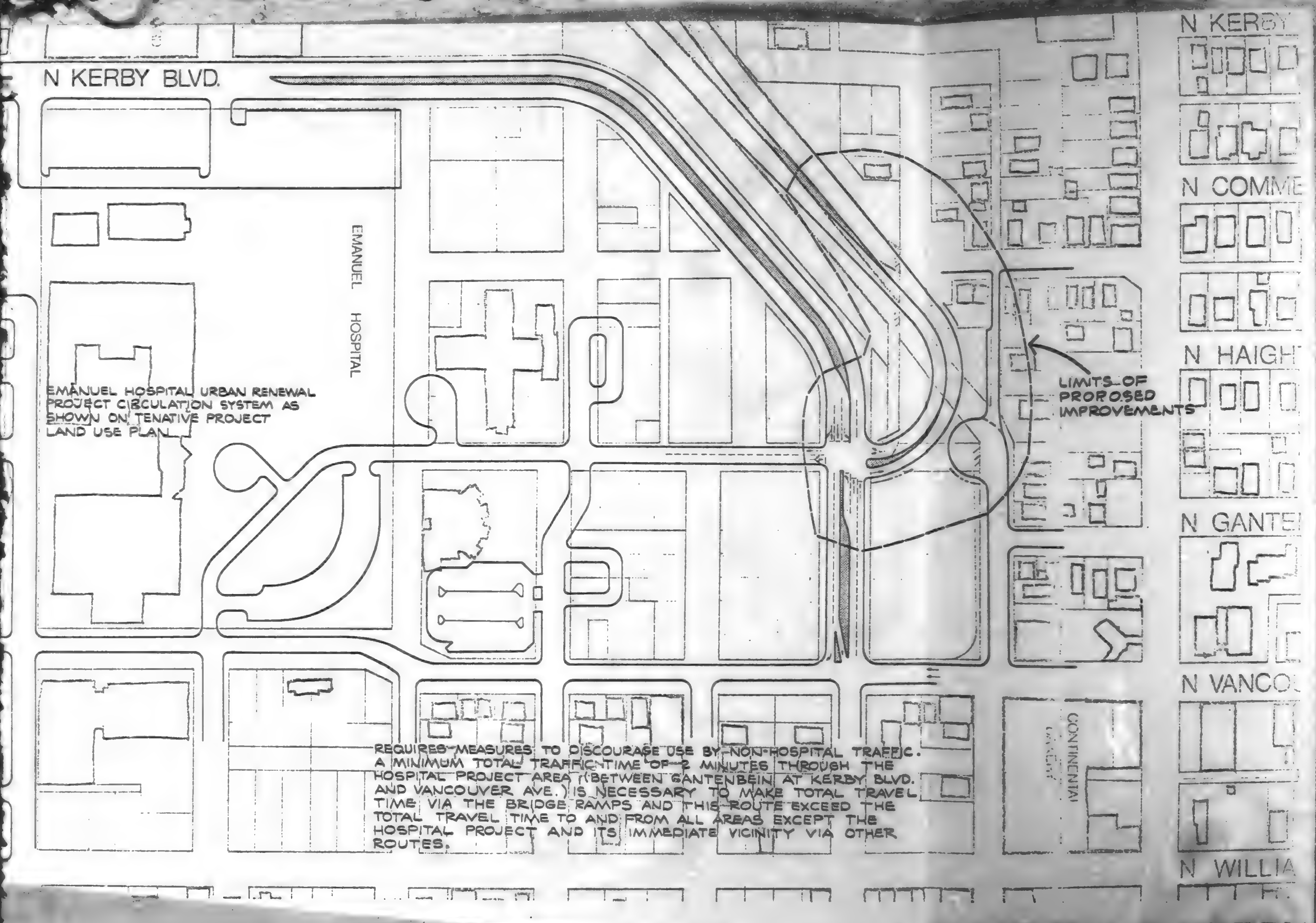
SHORT COOK


SCHOOL
N KERBY AVE
N COMMERCIAL
N GANTENBEIN
N MORRIS ST
MONROE ST
N VANCOUVER AVE
N WILLIAMS ST
N COOK ST
NE FARGO ST
AVE
A
A
Section A-A

THIS INTERSECTION MAY BE AS SHOWN FOR THE COOK BLVD. ALTERNATIVE.

PREVENTS DIRECT ACCESS BETWEEN FREMONT AND BRIDGE RAMPS.


N KERBY BLVD.
EMANUEL HOSPITAL
EMANUEL HOSPITAL URBAN RENEWAL PROJECT CIRCULATION SYSTEM AS SHOWN ON TENATIVE PROJECT LAND USE PLAN.
COUVER
MS
REQUIRES MEASURES TO DISCOURAGE USE BY NON-HOSPITAL TRAFFIC. A MINIMUM TOTAL TRAFFIC TIME OF 2 MINUTES THROUGH THE HOSPITAL PROJECT AREA (BETWEEN CANTENBEIN AT KERBY BLVD. AND VANCOUVER AVE.) IS NECESSARY TO MAKE TOTAL TRAVEL TIME VIA THE BRIDGE RAMPS AND THIS ROUTE EXCEED THE TOTAL TRAVEL TIME TO AND FROM ALL AREAS EXCEPT THE HOSPITAL PROJECT AND ITS IMMEDIATE VICINITY VIA OTHER ROUTES.
HOSP


N KERBY BLVD.
EMANUEL HOSPITAL
CONTINENTAL
N KERBY
N COMME
N HAIGH
N GANTE
N VANCO
N WILLIA

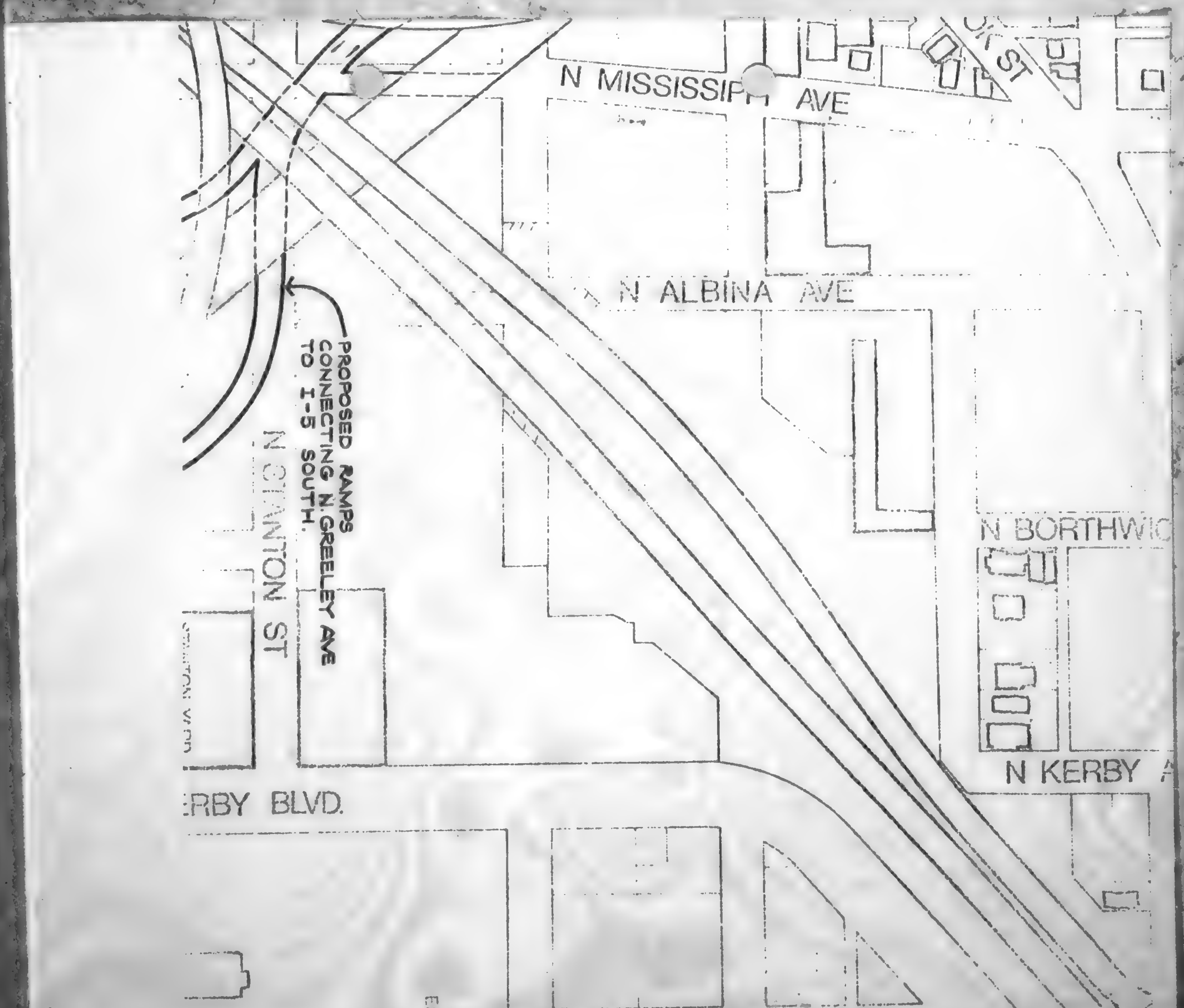
EMANUEL HOSPITAL URBAN RENEWAL PROJECT CIRCULATION SYSTEM AS SHOWN ON TENATIVE PROJECT LAND USE PLAN.

LIMITS OF PROPOSED IMPROVEMENTS

REQUIRES MEASURES TO DISCOURAGE USE BY NON-HOSPITAL TRAFFIC. A MINIMUM TOTAL TRAFFIC TIME OF 2 MINUTES THROUGH THE HOSPITAL PROJECT AREA (BETWEEN GANTENBEIN AT KERBY BLVD. AND VANCOUVER AVE.) IS NECESSARY TO MAKE TOTAL TRAVEL TIME VIA THE BRIDGE RAMPS AND THIS ROUTE EXCEED THE TOTAL TRAVEL TIME TO AND FROM ALL AREAS EXCEPT THE HOSPITAL PROJECT AND ITS IMMEDIATE VICINITY VIA OTHER ROUTES.

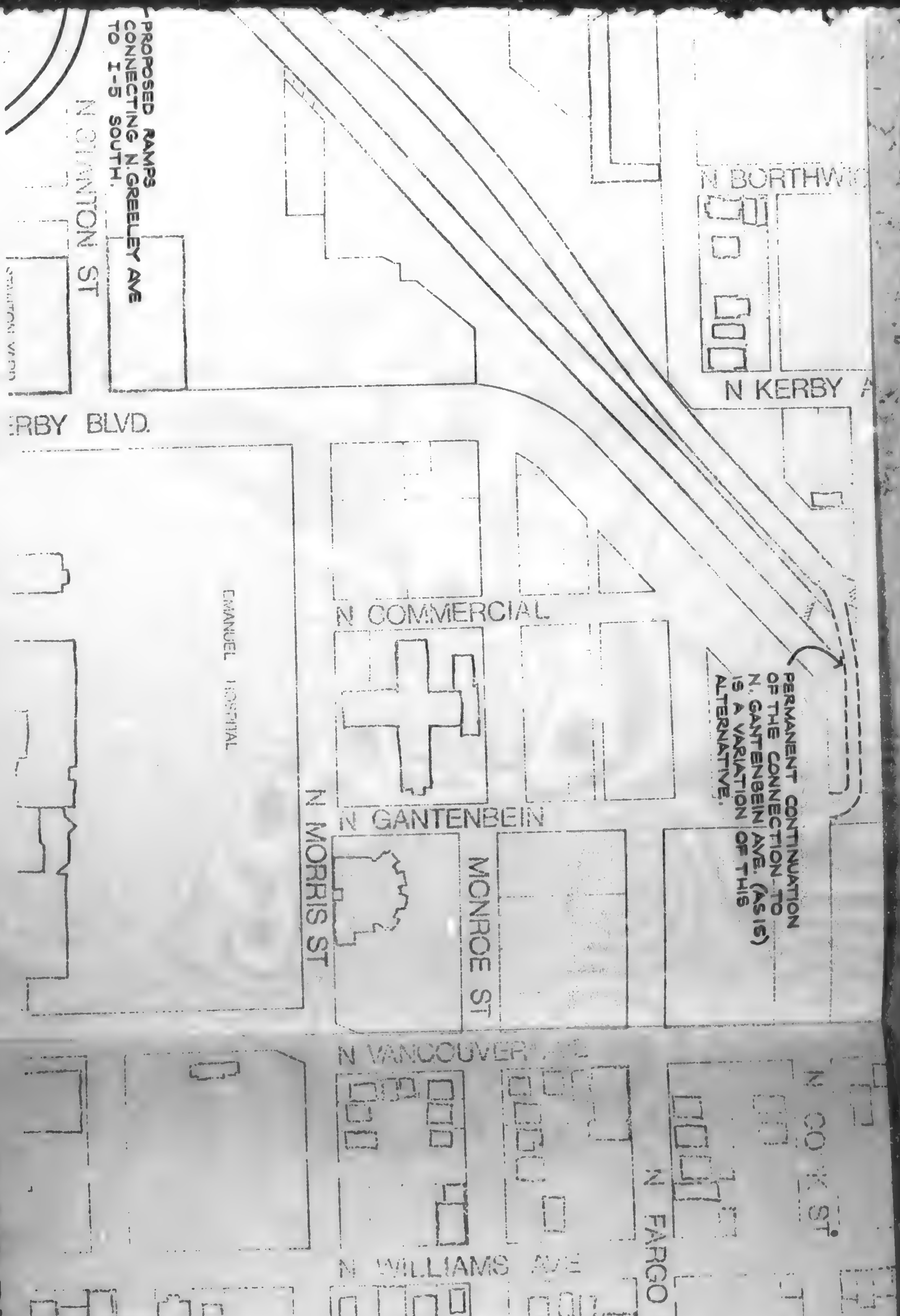
HOSPITAL & KERBY
BLVD SOUT

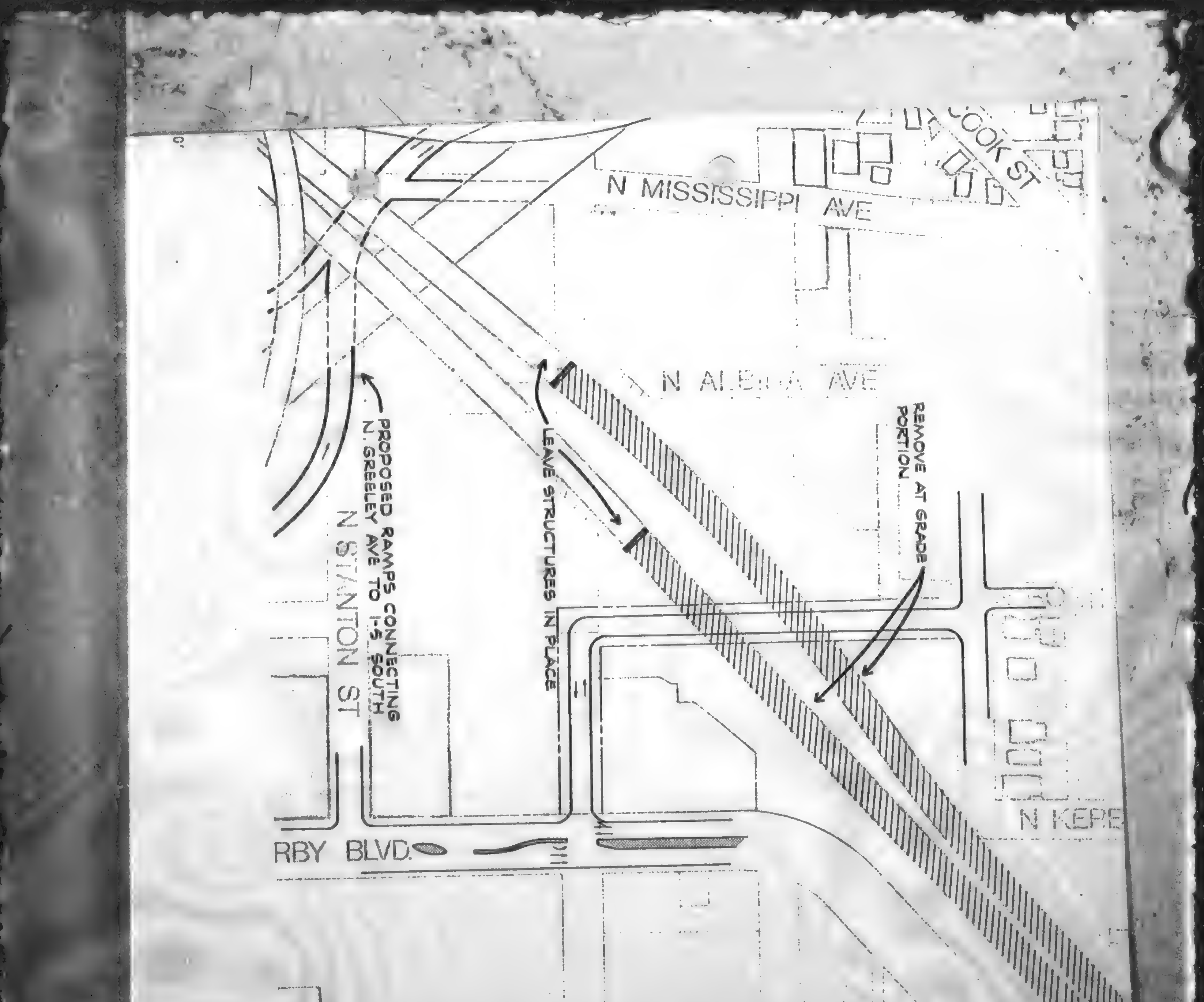
PERMANEN

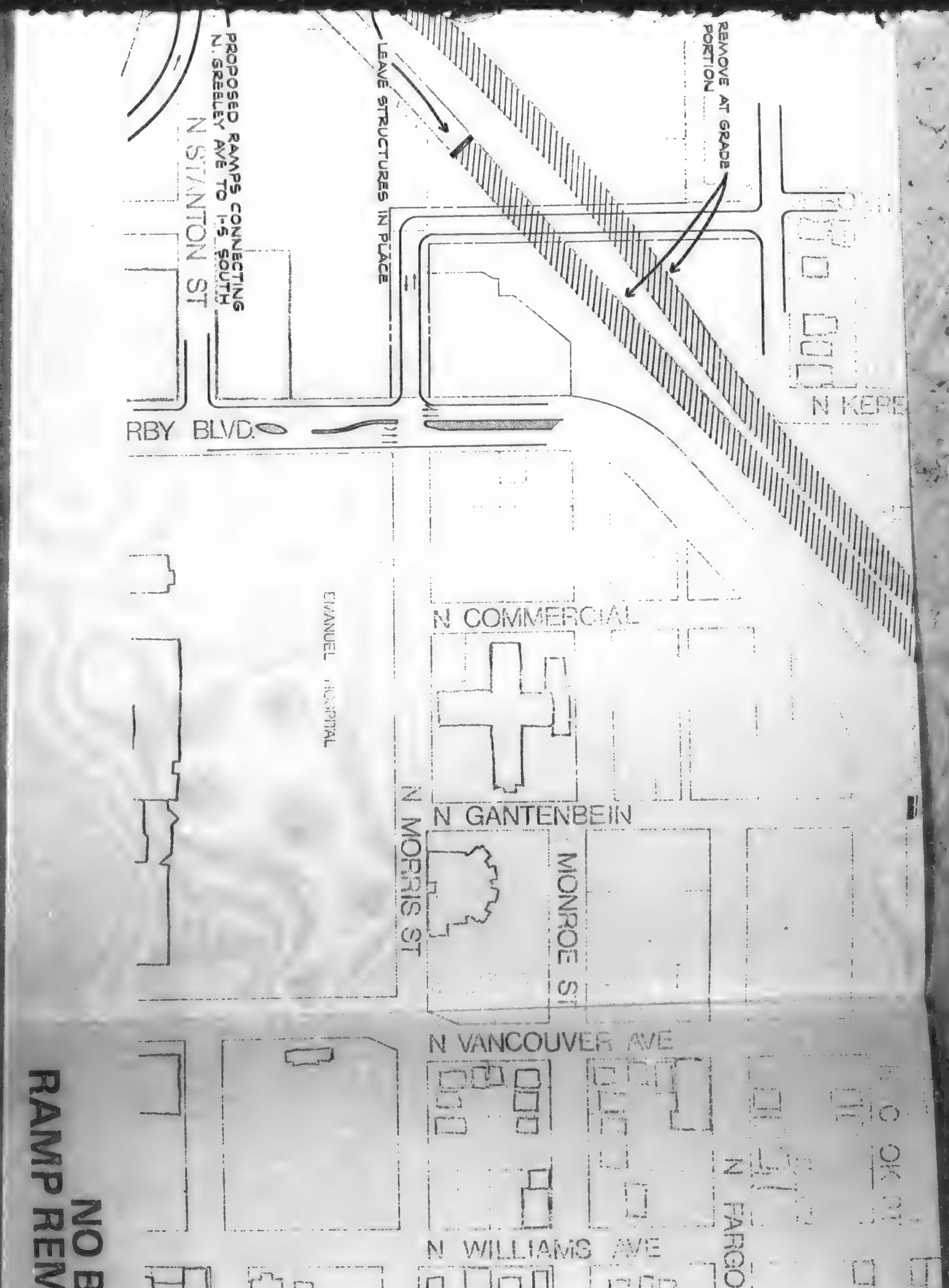


N MISSISSIPPI AVE
CK ST
N ALBINA AVE
PROPOSED RAMPS CONNECTING N.GREELEY AVE TO I-5 SOUTH.
N STANTON ST
STANTON YARD
N BORTHWIC
N KERBY A
ERBY BLVD.
EMANUEL HOSPITAL
N COMMERCIAL
PERMANENT CONTINUATION OF THE CONNECTION TO N. GANTENBEIN AVE. (AS IS) IS A VARIATION OF THIS ALTERNATIVE.
N GANTENBEIN
N MORRIS ST
MONROE ST
N VANCOUVER AVE
N CO

NO BUILD - PERMANENT CLOSURE


PROPOSED RAMPS CONNECTING N.GREELEY AVE TO I-5 SOUTH.
N STANTON ST
N BORTHWIC
N KERBY A
ERBY BLVD.
EMANUEL HOSPITAL
N COMMERCIAL
N GANTENBEIN
N MORRIS ST
MONROE ST
PERMANENT CONTINUATION OF THE CONNECTION TO N. GANTENBEIN AVE. (AS IS) IS A VARIATION OF THIS ALTERNATIVE.
N VANCOUVER AVE
N COOK ST
N FARGO ST
N WILLIAMS AVE


COOK ST
N MISSISSIPPI AVE
N ALBINA AVE
PROPOSED RAMPS CONNECTING N. GREELEY AVE TO I-5 SOUTH
LEAVE STRUCTURES IN PLACE
REMOVE AT GRADE PORTION
N STANTON ST
RBY BLVD.
N KERE
N COMMERCIAL
EMANUEL HOSPITAL
N GANTENBEIN
N MORRIS ST
MONROE S
N VANCOUVER AVE
RA


NO BUILD - RAMP REMOVAL
PROPOSED RAMPS CONNECTING N. GREELEY AVE TO I-5 SOUTH
LEAVE STRUCTURES IN PLACE
REMOVE AT GRADE PORTION
N STANTON ST
RBY BLVD.
N KERB
N COMMERCIAL
EMANUEL HOSPITAL
N GANTENBEIN
N MORRIS ST
MONROE ST
N VANCOUVER AVE
N WILLIAMS AVE
N FARGO ST

2909

FORM 81-734-3030

OREGON STATE HIGHWAY DIVISION FILE: 326-1917

INTER-OFFICE CORRESPONDENCE
Portland, Oregon 97213
December 26, 1975

RECEIVED
STATE HWY ENG
DEC 29 '75
REFER TO
FOR

Info	Inves	R/D	D/R	Sign	Act	File

Max Klotz (m.b.)

FROM: MAX KLOTZ
Metro Planning Engineer

TO: BOB BOTHMAN
Asst. State Highway Engineer

SUBJECT: Fremont Bridge - Union Ave. Connection

NOTED
S. HUNTER

On December 15 a meeting of the Fremont Bridge Access Study Technical Advisory Committee was held.

The purpose of the meeting was to briefly review the nine alternatives developed by the consultant, CH2M. This was the first of two or three meetings that will be held to boil the alternatives down to three or four that will be addressed in the environmental impact statement.

Attached is a series of working papers that describe each of the alternatives. I have also given a set of the evaluation of preliminary alternatives to Dennis Peterson and asked him to review them and give us his recommendations.

The Portland City Council had directed CH2M to develop designs that would not funnel additional traffic into the neighborhood east of Union Avenue. The intent is to pull traffic from the neighborhood and put it onto Union Avenue.

There are some unanswered questions yet with this whole project. We don't know how compatible this is with the city's arterial streets program because the arterial streets program has not yet been developed far enough. This raises the question, then, should the arterial streets program conform to a design that is developed for this connection or should the connection conform to the arterial streets program?

Two of the alternatives covered are no-build alternatives. One leaves everything as it is and permanently closes the ramps. The other no-build alternative would remove all, or portions, of the ramps. If either of these alternatives is chosen, we don't know if any of the cost to construct these ramps would have to be paid back to FHWA.

Another meeting will be called after the first of the year to further discuss the alternatives.

mb

cc: F. B. Klaboe
E. S. Hunter
J. H. Versteeg
L. W. Rulien

Form FHWA 121 (Rev. 5-73)

8909

UNITED STATES GOVERNMENT

Memorandum

DEPARTM[illegible]T OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
Box 300
Salem OR 97308

DATE: October 20, 1975

In reply refer to: 1041DA.6

SUBJECT: Oregon Project M-0800(1)
East Fremont Bridge Connections

FROM : G. L. Green, Division Administrator

TO : Mr. F. B. Klaboe, Administrator & State Highway Engineer

Correspondence between Mr. Bothman and CH_2M Hill, regarding alternatives to be considered, have been forwarded to FHWA under Mr. Bothman's October 3 letter to Mr. Christianson. The proposed issues were also discussed by telephone.

The proposed alternative of an exclusive connection to the Emanuel Hospital, while being unusual, cannot be eliminated when compared to a "No-build" option which must be considered. It would seem that some use is better than no use at all. It would probably be difficult to police the parking area to avoid through trips unless it were constructed as a "dead end" cul-de-sac; however, this is an operations detail to be studied.

Regarding the existing ramp removal under the "No-build" it would seem difficult to justify the expenditure of public funds to remove or dismantle these ramps only for esthetic reasons. The at-grade portion could probably be removed if a higher and better use for the land is proposed. The cost of such removal would not be financed with Federal-aid Highway funds.

Mr. Bothman's analysis of Interstate payback is essentially correct. A final determination would be made based on facts available at the time.

This analysis is somewhat different than the initial response by telephone. Please convey our apology to Mr. Bothman.

G. L. Green

a/4BK

cc:
OSHD (Metro, Bothman)
OSHD (Hunter)

RECEIVED
STATE HWY ENGR
OCT 21 '75
REFER TO
[illegible] - [illegible]
FOR

Info	Inves	R/D	D/R	Sign	Act	File
✓						

w/enc - 10/24/75

RECEIVED
OCT 24 1975
Office of
Assistant State Highway Engineer

NOTED
R. L. SCHROEDE

8909

OREGON STATE HIGHWAY DIVISION

Form A-191—(7-65)
SP*52423-734

Request for Outside Billing

(Or Advice of Cash Transaction)

Address invoice to: City of Portland
400 SW 6th Avenue, Room 411
Portland, Oregon 97204
Attention of Mr. John M. Lang, State Highway Coordinator

Request No. (assigned by staff engineer or head of division) CC 1514

Date July 25, 1975

Payer's Order No. (if any)

Department Order No. (if any) (Number of "Order to Render Service")

Description and Authority: (Describe the service rendered, stating kind of service, location, etc. Also refer to agreements, letters and orders by which payer authorized the service.)

Urban System Project M-0800(1)
Consultant Study
E. Fremont Bridge Connection to Union Avenue, FAU 0800
City of Portland

Itemized Statement: Advance Deposit $40,400.00

Quantity	Unit	Description	Unit Price	Amount
		Partial transfer of advance deposit for preliminary engineering on subject project.		
		Amount to be transferred		$36,400.00
		To be retained		$ 4,000.00

If payer has made payment for this service, indicate the amount of payment. $

If payer has made a deposit with the Department to guarantee payment, indicate the amount of the deposit. $40,400.00

Is this a partial or final request for billing? Partial

If there have been any previous requests for billing in connection with this same service, indicate the total amount of all previous requests. $

Give the number of the last previous request in connection with this same service.

Credit distribution: 326-1917-299

Submitted by: Gary E. Zehner
Gary E. Zehner, Urban Program Engineer

Approved:
Division Engineer

Approved:
Department Head or Staff Engineer

Instructions: The original and duplicate copies shall be forwarded through the division engineer to the staff engineer or division head. Staff engineer or division head will forward original copy to the Accounting Division. Additional copies may be prepared for and retained by the division office and other field offices concerned. If the request is to be accompanied by a payment, an additional copy shall be submitted for the use of the Accounting Division.

8909

7-15-75

Budget Bureau No. 41-R20

MONTHLY TRANSACTION NO.

DATE SUBMITTED TO W.O.

FORM PR-9 (REV. 4-61)

REQUEST FOR APPROVAL OF INDIVIDUAL PROJECT PROGRAM CHANGE (PPM 21-1 AND 22-1)

CARD	REPORT NUMBER	PROJECT LOCATION (45 typewriter spaces)	ADT		FUTURE	YEAR	REGION	STATE NAME
2	(19) (20)	21 City St. E. Fremont Br. Connection to Union Ave. 65	ADT	14,000	(66) 22,000 (70)	(71) 95 (72)	(74) 10 (75)	Oregon

CARD	CHARACTER OF PROPOSED WORK (35 spaces)	NATL. FOREST	FH ROUTE NO	SUPV AGCY	DA CLASSIF.	DA AREA	EMERG. YR.	PL AUTH YR	PREFIX LETTER(S)	NUMBER-A
3	28 Preliminary Engineering 62	(63) (65)	(66) (68)	69	70	71	72 73	74 75	14 M- 23	7 0800(1

FOR MISCELLANEOUS FUNDS ONLY — PROJECT NUMBER

CARD 4

CLASS OF FEDERAL FUNDS [1]: Urban System

COUNTY NAME: Multnomah

NAME OF URBAN AREA (17-31): Portland

F.A. SYSTEM: Urban System

RTE NO.: U

FEDERAL AID: 0800

STATE (32): Cit

CARD	LINE NO.	CHNG CODE	PRO-JECT COUNT	CL	WORK TYPE	STEP	STATUS	ITEM NUMBER	PROJECT NUMBER	TERMINI	MILES	PROJECT COST TOTAL COST	PROJECT COST FEDERAL FUNDS	PROJECT COST STATE FUNDS	
5															
1	(1of8)	10	41	42	43 - 46	53					(54) (58)	(59) (66)	(67) (76)		
5					PE Topics ROW CONST		ITEM AS NOW PRO-GRAMED Stage 2	21	M-2029(1)	City Street E. Fremont Bridge Connection to Union Ave.	0.4	367,300	286,500	40,400(City) 40,400	Pre all
										PROJECT TOTAL	0.4	367,300	286,500	80,800	
5					PE Topics ROW CONST		RE-QUESTED REVISION Stage 2	21	M-0800(1)	City Street E. Fremont Bridge Connection to Union Ave.	0.4	367,300 (16) (23)	286,500 (24) (33)	40,400(City) 40,400	Pre all
										PROJECT TOTAL	0.4	367,300	286,500	80,800	

CARD		
1	A form PR-1 or PR-9 has been submitted within the last 7 days. Yes ☐	PROJECT WITHDRAWN YES ☐
1	COLUMN 14 ⟶ CODE 11	CODE 2

REASON FOR CHANGE: To change the project number and federal aid route number t present approved urban system route.

NOTE: Projects splitting into two or more projects. Prepare a form PR-1 for all new projects resulting from such action.

DATE OF INITIAL APPROVAL: February 20, 1975

OTHER: March 14, 1975

PROGRAM REVISION REQUESTED	RECOMMENDED	A
DATE July 15, 1975	DATE	DATE
SIGNATURE	SIGNATURE	SIGNATURE
Project Management Engineer	TITLE	TITLE

[1] If revision includes transfer from one class of project to another, or covers joint financing, show both classes of funds involved.

PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE AFTER 7-1-61

FORM PR-9
(REV. 4-61)

Budget Bureau No. 41-R2068; Approval Expires February 28, 1966

U.S. DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS

REQUEST FOR APPROVAL OF INDIVIDUAL PROJECT PROGRAM CHANGE
(PPM 21-1 AND 22-1)

JECT LOCATION (45 typewriter spaces) ty St. E. Fremont Br. Connection to Union Ave.	ADT	14,000	FUTURE 22,000	YEAR 95	REGION 10	STATE NAME Oregon	STATE CODE 41	APPN. CODE W36	ITEM NO. 21

WORK (35 spaces): eering

NATL. FOREST:

FOR MISCELLANEOUS FUNDS ONLY: FM ROUTE NO / SUPV AGCY / DA CLASSIF. / DA AREA / EMERG. YR. / PL AUTH YR

PROJECT NUMBER: PREFIX LETTER(S) M- | ~~NUMBER-AGR. NO.~~ 0800(1)

I PROJECTS ONLY: POST MI. / DESIG.

Urban System

COUNTY NAME: Multnomah — CODE 051

Portland

F.A. SYSTEM: Urban System

RTE NO.: U — FEDERAL AID 0800 — STATE City St. — U.S. - -

	STEP	STATUS	ITEM NUMBER	PROJECT NUMBER	TERMINI	MILES	PROJECT COST: TOTAL COST	FEDERAL FUNDS	STATE FUNDS	CHARACTER OF PROPOSED WORK
cs T		ITEM AS NOW PRO-GRAMED Stage 2	21	M-2029(1)	City Street E. Fremont Bridge Connection to Union Ave.	0.4	367,300	286,500	40,400(City) 40,400	Preliminary Engineering all phases.
					PROJECT TOTAL	0.4	367,300	286,500	80,800	
cs T		RE-QUESTED REVISION Stage 2	21	M-0800(1)	City Street E. Fremont Bridge Connection to Union Ave.	0.4	367,300	286,500	40,400(City) 40,400	Preliminary Engineering all phases.
					PROJECT TOTAL	0.4	367,300	286,500	80,800	

en submitted Yes ☐ CODE 11

PROJECT WITHDRAWN YES ☐ CODE 2

or more projects. Prepare a form PR-1 for all n such action.

REASON FOR CHANGE: To change the project number and federal aid route number to correspond with the present approved urban system route.

PROGRAM REVISION REQUESTED	RECOMMENDED	APPROVED
DATE July 15, 1975	DATE	DATE
SIGNATURE	SIGNATURE	SIGNATURE
Project Management Engineer	TITLE	TITLE

class of project to another, or covers joint financing, show both classes of funds involved.

ARE OBSOLETE AFTER 7-1-61

USCOMM-DC 40000-P61

8909

Form FHWA 121 (Rev. 5-73)

UNITED STATES GOVERNMENT

Memorandum

RECEIVED STATE HWY ENGR
APR 3 '75
REFER TO
FOR
Inves
R-D
D/R
Sign
A-t
File

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
Box 300
Salem OR 97308

DATE: April 1, 1975

In reply refer to: 1041DA.6

SUBJECT: Oregon M-2029(1)
Fremont Bridge-Union Avenue Connection
Project Environmental Assessment

FROM : G. L. Green, Division Engineer

TO : Mr. F. B. Klaboe, Administrator & State Highway Engineer
Salem, Oregon

The assessment submitted by Mr. Rulien on March 26, 1975 has been reviewed. While this is generally a good assessment, it lends confusion as to its purpose. We find the project identification, purpose and origin describing the current consultant study when, in fact, the assessment should have been used as a basis for selecting a consultant in the first place. The study in itself is not a Category 2 (major-significant) project.

In recognition of the intent, however, this will confirm prior concurrence in the category of project and type of environmental document. Specific comments on the assessment are as follows:

> Under "G", Brief Environmental Setting (Cultural) - mention has been made of churches, child service center, etc. It is suggested that mention should be made here regarding the Emanuel Hospital Complex since it is probably the most significant cultural feature in the area.
>
> Under "H", Preliminary Assessment of Impacts - the entire section is a description of what will be studied under the current consultant project. No "Preliminary Assessment of Environmental Impacts" can be found.

Due to the late timing in relation to the stage of development of this project we are not suggesting that a new assessment be made. It is suggested, however, that your files and the City Engineer's files be documented so as to make future assessments more in line with their intended purpose.

William H. Kappus
for G. L. Green

Attachment

cc: OSHD (G Potter)

8909

Robert W. Straub
//////////

March 6, 1975

Mr. Robert E. Rector
State Highway Coordinator
City of Portland
400 S.W. Sixth Avenue
Portland, OR 97204

Dear Mr. Rector:

Re: Preliminary Engineering Authorization
FAU System Project M-2029(1)
E. Fremont Bridge Connection

The City of Portland is hereby authorized to proceed with preliminary engineering for this project in accordance with the project agreement.

Please reference your cost records to Survey Prefix 326-1917-901 and Project Number M-2029(1).

Please caution all City personnel who will be working on this project to keep clear records of their time and expenses. Failure to do so may result in unnecessary disputes and nonparticipation of Federal and State funds.

Very truly yours,

F. B. Klaboe, Administrator
and State Highway Engineer

bc: G. M. Baldwin
A. E. Johnson
R. L. Schroeder
E. S. Hunter
L. W. Rulien
V. E. Wolfe
V. E. Skoog
R. N. Bothman
E. L. Hardt
Ted Spence

8909

March 4, 1975

CH2M/HILL, Inc.
200 S.W. Market Street
Portland, OR 97201

Attention Mr. Bradford Blandin

Gentlemen:

Your firm is hereby authorized to proceed with the preliminary engineering study of alternate long-range solutions for traffic problems in the area between the Ivy Street ramps of the Fremont Bridge and N.E. Union Avenue in accordance with the project agreement.

Please reference your cost records to Federal Aid Project No. M-2029(1) and survey prefix 326-1917-004.

In accordance with the project agreement, all billings should be submitted to the City of Portland. We have assigned Mr. R. N. Bothman as the State's liaison engineer. Mr. Bothman's address is 3821 N.E. Glisan, Portland, OR 97213, telephone 238-8226.

Very truly yours,

L. W. Rulien
Project Management Engineer

RU:ljt
cc: Robert E. Baxter, Portland

F. B. Klaboe
bc: E. S. Hunter
V. E. Skoog
R. N. Bothman
E. L. Hardt
County/City Unit

8909

Form FHWA 121 (Rev. 5-73)

UNITED STATES GOVERNMENT

Memorandum

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
Box 300
Salem, OR 97308

DATE: February 27, 1975

In reply refer to: 1041DE

SUBJECT: Oregon Project M-2029 (1)
Fremont Bridge - Union Avenue Connection
City-State Agreement

FROM : G. L. Green, Division Engineer

MISC. CONTRACTS and AGREEMENTS No. 5202

TO : Mr. F. B. Klaboe, Administrator & State Highway Engineer
Salem, Oregon

We are returning herewith a signed copy of the City-State agreement for the subject project which we have formally approved.

✓ We wish to offer a word of caution in the administration of this agreement, however. Although it is stated under "Things To Be Done by City" that all work will be conducted in accordance with Federal-aid regulations and requirements, the prime responsibility for compliance remains with the State. It would seem essential, therefore, that a strong liaison be developed with the City to monitor the compliance and to keep the City advised of the latest Federal-aid requirements.

G. L. Green

Attachment

cc: County-City Unit (OSHD)

RECEIVED
STATE HWY ENGR
MAR 3 '75
REFER TO
Hunter
FOR

Info	Inves	R/D	D/R	Sgn	Act	File
					✓	

cy aej

NOTED
E. S. HUNTER

cc Rubin
Bothman
3-4-75

RECEIVED
MAR 3 1975
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

8909

Form FHWA 121 (Rev. 5-73)

UNITED STATES GOVERNMENT

Memorandum

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
Box 300
Salem OR 97308

DATE: February 25, 1975

In reply refer to: 1041EC.1

SUBJECT: Oregon Project M-2029(1)
Fremont Bridge-Union Avenue Connection Section
Approval of Consultant Agreement-CH_2M/Hill

FROM : G. L. Green, Division Engineer

TO : Mr. F. B. Klaboe, Administrator & State Highway Engineer
Salem, Oregon

MISC. CONTRACTS and AGREEMENTS No. 5203

The consultant agreement between the City of Port[illegible] the State, and the consulting firm Cornell, Howland, Hayes, Merryfield and Hill is formally approved as submitted with Mr. Rulien's February 12, 1975 letter effective February 20, 1975. You are authorized, also effective that date, to proceed with work under that agreement.

G. L. Green

NOTED
A. E. JOHNSON

cc:
OSHD (Rulien)
OSHD (Holmes)

NOTED
E. S. HUNTER
3-3-75
cc letter
Rulien
& Bothman

RECEIVED
STATE HWY ENGR.
FEB 26 '75
REFER TO
Hunter
FOR
Info Inves R/D D/R Sign [✓ Act] File

RECEIVED
FEB 26 1975
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

8909

FAU
Portland

THE CITY OF
PORTLAND
OREGON

OFFICE OF
CITY AUDITOR
GEORGE YERKOVICH
CITY AUDITOR

1220 S.W. FIFTH AVE.
PORTLAND, OR. 97204

February 24, 1975

Oregon State Highway Department
Department of Transportation
County-City Unit ✓
Highway Building
Salem, Oregon 97310

Gentlemen:

Enclosed is City of Portland Warrant No. 92501 in the amount of $40,400.00 covering payment as indicated on attached Remittance Advice.

Yours truly,

GEORGE YERKOVICH

Auditor of the City of Portland
By: Charles J Spear
Chief Deputy

CJS:brs
Encl.
Certified Mail
Return Receipt Requested

RECEIVED
OSHD FINANCE BRANCH
Check # 92501 Amt $40,400.00
By J. K. Date 2-25-75
For Consultant Study
East Fremont Br. Connection

Hopkins ✓
Herwell ✓
Holmes
Prange
Unrein
2

RECEIVED
FEB 25 1975
COUNTY
CITY
UNIT

Requires Reply ☐
Requires Approval ☐
Receiver Keep ☐
Do not File ☐
Return To
Bring Up / /
Other

fau

TRANSACTION NUMBER 2-80

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

* TRANSMITTAL AND REQUEST FOR INITIAL PROGRAM APPROVAL OF PROJECTS

(PPM 21-1)

STATE HIGHWAY DEPARTMENT	OREGON
DATE	2-20-75
BY (Signature)	L.W.RULIEN'S FEBRUARY 12, 1975 LETTER
TITLE	PROJECT MANAGEMENT ENGINEER

CLASS OF FEDERAL FUNDS ☐ FAI ☐ FAP ☐ FAU ☐ FAS ☒ OTHERS URBAN SYSTEM

STAGE 1 * ITEM NOS. ______ THRU ______

STAGE 2 ITEM NOS. 21 THRU ______

ITEM NO.	PROJECT NOS.	LENGTH (Miles)	TOTAL ESTIMATED COST	FEDERAL FUNDS	OTHER IDENTIFICATION AND/OR REMARKS (State) LOCATION	WORK
21	M-2029(1)	0.4	367,300	286,500	FREMONT BRIDGE - UNION AVENUE CONNECTION (PORTLAND) MULTNOMAH COUNTY-STATE OF OREGON	PRELIMINARY ENGINEERING.

Hopkins
Harwell
Holmes
Prange
Unrein
2

RECEIVED
FEB 24 1975
COUNTY
CITY
UNIT

Requires Reply ☐
Requires Approval ☐
Receiver Keep ☐
Do not File ☐
Return To
Bring Up /
Other

REMARKS (Division)

AS REQUESTED IN MR. RULIEN'S FEBRUARY 12, 1975 LETTER YOU ARE AUTHORIZED TO PROCEED WITH ALL PHASES OF PRELIMINARY ENGINEERING BY STATE, CITY OF PORTLAND AND THE CONSULTANT ENGINEER NECESSARY TO OBTAIN LOCATION/DESIGN APPROVAL.

RECOMMENDED DATE	RECOMMENDED SIGNATURE AND TITLE	APPROVED DATE	APPROVED SIGNATURE AND TITLE
		2-20-75	G. L. GREEN, DIVISION ENGINEER

* Program approval and any authorization to proceed with a Stage 1 project shall not constitute any commitment of Federal funds nor shall it be construed as creating in any manner, any obligation on the part of the Federal Government to provide Federal funds for the undertaking.

FORM PR-48
(Rev. 8-71)

GPO 912-690

CONSULT (90 A) = 327,300
CITY-STATE (901) 40,000

Budget Bureau No. 41-R2

FEDERAL-AID PROGRAM DATA

(PPM 21-1)

FORM PR-1 (REV. 4-61)

MONTHLY TRANSACTION NO. 2-80

DATE SUBMITTED TO R.O. FEB 20 1975

2-12-75

CARD 2	REPORT NUMBER 1	PROJECT LOCATION (45 typewriter spaces) City Street E. Fremont Br. Connection to Union Ave.	ADT	PRESENT 14,000	FUTURE 22,000 YEAR 95	REGION 10	STATE NAME Oregon
CARD 3	CHARACTER OF PROPOSED WORK (35 typewriter spaces) Preliminary Engineering	NATL. FOREST	[illegible]	EMERG. YR. A-6	PL. AUTH YR	PROJECT NUMBER PREFIX LETTER(S) M-	NUMBER 2029
CARD 4	CLASS OF FEDERAL FUNDS Urban System 326-1917			COUNTY NAME Multnomah			
	NAME OF URBAN AREA Portland 027			ROUTE NO. U	FEDERAL-AID 2029	STATE City Street	

ESTIMATED PROJECT COST BY PHASES

CARD	LINE NO.	CHANGE CODE	PROJECT CODE	CLASS	WORK TYPE	STEP	TERMINI (Full description)	MILES	TOTAL ESTIMATED COST	FEDERAL FUNDS	STATE FUNDS	OTHER FUNDS
5	10			1	**PE** Topics	3	City Street E. Fremont Bridge Connection to Union Ave.	0.4	367,300	286,500	40,400	40,400(c
5					**ROW**							
5					**CONST** (CODE)		"Fremont Bridge - Union Ave. Connection (Portland) Section"					
							PROJECT TOTALS	0.4	367,300	286,500	40,400	40,400(c

CARD 1 CODE 1 PREPARED BY

REMARKS

RECEIVED
FEB 24 1975
COUNTY
CITY
UNIT

Hopkins
Harwell ✓
Holmes
Prange
Unrein 2

Requires Reply ☐
Requires Approval ☐
Receiver Keep ☐
Do not File ☐
Return To
Bring Up / /
Other

1 14 PROGRAM APPROVAL DATES
FEB 20 1975

FHWA OREGON DIVISION

CONSULT (90 A) = 327,300
CITY-STATE (901) 40,000

Budget Bureau No. 41-R2067; Approval Expires February 28, 1966

U.S. DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS

2-80

EB 20 1975

FORM PR-1
(REV. 4-61)

2-12-75

FEDERAL-AID PROGRAM DATA
(PPM 21-1)

JECT LOCATION (45 typewriter spaces) ty Street E. Fremont Br. Connection to Union Ave.	ADT	PRESENT 14,000	FUTURE 22,000	YEAR 95	REGION 10	STATE NAME Oregon	STATE CODE 41	APPN CODE W36

ITEM NO. 21

WORK (35 typewriter spaces) Engineering	NATL. FOREST	FA ROUTE NO.	[illegible]	FC CLASSIF.	[illegible]	EMERG. YR. A-6	FL. AUTH YR	PROJECT NUMBER: PREFIX LETTER(S) M- · NUMBER 2029 · SEQ. NO. (1)

I. Projects Only: POST MI. | DESIG.

Urban System 326-1917

Portland 027

COUNTY NAME Multnomah · CODE 051

ROUTE NO. U · FEDERAL-AID 2029 · STATE City Street · U.S.

PROGRAM STAGE ☐ 1 OR ☒ 2

ESTIMATED PROJECT COST BY PHASES

WORK TYPE	STEP	TERMINI (Full description)	MILES	TOTAL ESTIMATED COST	FEDERAL FUNDS	STATE FUNDS	OTHER FUNDS	CHARACTER OF PROPOSED WORK (Full description)
E pics	3	City Street E. Fremont Bridge Connection to Union Ave.	0.4	367,300	286,500	40,400	40,400(city)	Preliminary Engineering All phases.
OW								(Future construction to alleviate traffic congestion between the Ivy Street ramps of the Fremont bridge and Union Ave.)
ONST CODE)		"Fremont Bridge - Union Ave. Connection (Portland) Section"						ROW - 70' min; Access Control - partial; Parking Restrictions-Variable.
		PROJECT TOTALS	0.4	367,300	286,500	40,400	40,400(city)	

RECEIVED
FEB 24 1975
COUNTY
CITY
UNIT

Hopkins
Harwell ✓
Holmes
Prange
Unrein 4
2

Requires Reply ☐
Requires Approval ☐
Receiver Keep ☐
Do not File ☐
Return To
Bring Up / /
Other

ROVAL DATES

1975

ON DIVISION

REMARKS

-over-

USCOMM DUSC 0MH-DC 48008-P01

FREMONT BRIDGE-UNION AVE. CONNECTION (PORTLAND) SECTION

PROJECT NO. M-2029(1)

Existing Facilities:

Ivy Street: 2 lanes, variable 30'-36' C-C
Cook Street: 2 lanes, 30' C-C

Project Data: The work under this project consists of all phases of preliminary engineering necessary for the future construction of a connection from the E. Fremont Bridge to Union Avenue to alleviate traffic congestion.

Note: The major portion of the work will be accomplished by the consulting engineering firm of CH2M-Hill Inc. with the remaining work being accomplished by City of Portland and State personnel.

System Action, Airports, Railroads, Water Development, Historical and Recreational Areas: None Involved.

FHPM 7-7-5 Requirements: Opportunity for public hearings will be offered and held if requested.

IM 50-1-70 Requirements: State and District 2 Clearinghouse A-95 letters of approval dated October 15, 1974 and October 11, 1974 respectively.

FHPM 7-7-2 Requirements: an appropriate environmental statement will be submitted under separate action.

Note: This project is in Congressional District No. 3.

8909

2-26-75

TRANSACTION NUMBER 2-30

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

TRANSMITTAL AND REQUEST FOR INITIAL PROGRAM APPROVAL OF PROJECTS

(PPM 21-1)

STATE HIGHWAY DEPARTMENT: OREGON

DATE: 2-20-75

BY (Signature): L.W.RULIEN'S FEBRUARY 12, 1975 LETTER

TITLE: PROJECT MANAGEMENT ENGINEER

CLASS OF FEDERAL FUNDS: ☐ FAI ☐ FAP ☐ FAU ☐ FAS ☒ OTHERS URBAN SYSTEM

STAGE 1* ITEM NOS. ______ THRU ______

STAGE 2 ITEM NOS. 21 THRU ______

ITEM NO.	PROJECT NOS.	LENGTH (Miles)	TOTAL ESTIMATED COST	FEDERAL FUNDS	OTHER IDENTIFICATION AND/OR REMARKS (State) LOCATION	WORK
21	M-2029(1)	0.4	367,300	286,500	FREMONT BRIDGE - UNION AVENUE CONNECTION (PORTLAND) MULTNOMAH COUNTY-STATE OF OREGON	PRELIMINARY ENGINEERING

NOTED
E. S. HUNTER

RECEIVED
STATE HWY ENGR
FEB 24 '75
REFER TO
Hunter
FOR
Info | Inves | R/D | D/R | Sign | Act | File

REMARKS (Division)

AS REQUESTED IN MR. RULIEN'S FEBRUARY 12, 1975 LETTER YOU ARE AUTHORIZED TO PROCEED WITH ALL PHASES OF PRELIMINARY ENGINEERING BY STATE, CITY OF PORTLAND AND THE CONSULTANT ENGINEER NECESSARY TO OBTAIN LOCATION/DESIGN APPROVAL.

~~L.W. Rulien~~
ORIGINAL TO
L.W. Rulien
2-24-75

RECEIVED
FEB 24 1975
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

RECOMMENDED		APPROVED	
DATE	SIGNATURE AND TITLE	DATE 2-20-75	SIGNATURE AND TITLE G. L. GREEN, DIVISION ENGINEER

*Program approval and any authorization to proceed with a Stage 1 project shall not constitute any commitment of Federal funds nor shall it be construed as creating in any manner, any obligation on the part of the Federal Government to provide Federal funds for the undertaking.

FORM PR-48
(Rev. 8-71)

GPO 915-690

8909

Robert W. Straub
XXXXXXXXXX

February 12, 1975

TO G. L. Green, Division Engineer
Federal Highway Administration

FROM
L. W. Rulien
Project Management Engineer

SUBJECT Program Data Submission
Project No. M-2029(1)

We are submitting program data for one Urban System preliminary engineering project, Item No. 21, Project No. M-2029(1), "Fremont Bridge-Union Ave. Connection (Portland) Section, "which we desire to have included in the Federal-Aid Urban System Highway Program.

This project has been originated by local officials and concurred in by the Oregon Transportation Commission and the State Highway Division.

Enclosed is one copy each of State and District 2 Clearinghouse A-95 letters of approval dated October 15, 1974 and October 11, 1974 respectively.

We are also enclosing for your approval two conformed copies of the agreement between the consultant engineering firm of CH2M-Hill Inc. and the City of Portland, and also two conformed copies of the agreement between the City of Portland and the State Highway Division providing for certain portions of preliminary engineering to be accomplished by City of Portland engineering forces with such work being eligible for federal participation. Advance copies of the agreements were submitted on December 11, 1974 and found satisfactory per FHWA memo of January 16, 1975.

We further request, concurrent with approval of the program, authorization to proceed with preliminary engineering by the State, City of Portland, and the consultant engineer necessary to obtain location/design approval. FHWA memorandum of August 11, 1972 concurred that the City of Portland was adequately staffed and capable of performing preliminary engineering work.

Encl.

CL:wm

Budget Bureau No. 41-R20

FORM PR-1
(REV. 4-61)

FEDERAL-AID PROGRAM DATA
(PPM 21-1)

MONTHLY TRANSACTION NO.	
DATE SUBMITTED TO R.O.	2-12-75

CARD 2	REPORT NUMBER (18) (20)	PROJECT LOCATION (45 typewriter spaces) 21 65	ADT	PRESENT	FUTURE (66) (70)	YEAR (71) (72)	REGION	STATE NAME
	1	City Street E. Fremont Br. Connection to Union Ave.		14,000	22,000	95	10	Oregon

CARD 3	CHARACTER OF PROPOSED WORK (35 typewriter spaces) 28 62	NATL. FOREST (63) (65)	[illegible]	[illegible]	[illegible]	[illegible]	EMERG. YR. (72) (73)	PL. AUTH YR (74) (75)	PROJECT NUMBER PREFIX LETTER(S) 14 20	NUMBER 7
	Preliminary Engineering								M-	2029

CARD 4					
	CLASS OF FEDERAL FUNDS: Urban System	COUNTY NAME: Multnomah			
	NAME OF URBAN AREA 17-31: Portland	ROUTE NO. U	FEDERAL-AID 2029 (32)	STATE City Street (36) (37)	U.S.

CARD 5	LINE NO.	CHANGE CODE	PROJECT CODE	CLASS	WORK TYPE	WORK STEP	TERMINI (Full description)	MILES	TOTAL ESTIMATED COST	FEDERAL FUNDS	STATE FUNDS	OTHER FUNDS
1	(14-15)	(16	41	42	43 46	53		(54) (58)	(59) (66)	(67) (70)		
5					**PE** Topics		City Street E. Fremont Bridge Connection to Union Ave.		367,300	286,500	40,400	40,400(cit
5					**ROW**							
5					**CONST** (CODE)		"Fremont Bridge - Union Ave. Connection (Portland) Section"					

CARD 1	CODE 1	PREPARED BY	PROJECT TOTALS		367,300	286,500	40,400	40,400(cit
1	14	PROGRAM APPROVAL DATES			(16) (23)	(24) (33)	REMARKS	

Budget Bureau No. 41-R2067; Approval Expires February 28, 1966

FORM PR-1
(REV. 4-61)

U.S. DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS

FEDERAL-AID PROGRAM DATA

(PPM 21-1)

2-12-75

JECT LOCATION (45 typewriter spaces)		PRESENT	FUTURE	YEAR	REGION	STATE NAME	STATE CODE	APPN CODE	ITEM NO.
ity Street E. Fremont Br. Connection to Union Ave.	**ADT**	14,000	22,000	95	10	Oregon	41	W36	21

D WORK (35 typewriter	NATL. FOREST	[illegible]	[illegible]	[illegible]	[illegible]	EMERG. YR.	PL. AUTH YR	PROJECT NUMBER PREFIX LETTER (2)	NUMBER	SEQ. NO.	I. Projects Only POST MI.	DESIG.
Engineering								M-	2029	(1)		

S Urban System

Portland

COUNTY NAME			CODE
Multnomah			051
ROUTE NO. U	FEDERAL-AID 2029	STATE City Street	U.S.

PROGRAM STAGE ☐ 1 OR ☒ 2

WORK TYPE	STEP	TERMINI (Full description)	MILES	TOTAL ESTIMATED COST	FEDERAL FUNDS	STATE FUNDS	OTHER FUNDS	CHARACTER OF PROPOSED WORK (Full description)
E opics		City Street E. Fremont Bridge Connection to Union Ave.		367,300	286,500	40,400	40,400(city)	Preliminary Engineering All phases.
ROW								(Future construction to alleviate traffic congestion between the Ivy Street ramps of the Fremont bridge and Union Ave.)
CONST (CODE)		"Fremont Bridge - Union Ave. Connection (Portland) Section"						ROW - 70' min; Access Control - partial; Parking Restrictions - Variable.
BY		PROJECT TOTALS		367,300	286,500	40,400	40,400(city)	

PPROVAL DATES

REMARKS

-over-

FREMONT BRIDGE-UNION AVE, CONNECTION (PORTLAND) SECTION

PROJECT NO. M-2029(1)

Existing Facilities:

Ivy Street: 2 lanes, variable 30'-36' C-C
Cook Street: 2 lanes, 30' C-C

Project Data: The work under this project consists of all phases of preliminary engineering necessary for the future construction of a connection from the E. Fremont Bridge to Union Avenue to alleviate traffic congestion.

Note: The major portion of the work will be accomplished by the consulting engineering firm of CH2M-Hill Inc. with the remaining work being accomplished by City of Portland and State personnel.

System Action, Airports, Railroads, Water Development, Historical and Recreational Areas: None Involved.

FHPM 7-7-5 Requirements: Opportunity for public hearings will be offered and held if requested.

IM 50-1-70 Requirements: State and District 2 Clearinghouse A-95 letters of approval dated October 15, 1974 and October 11, 1974 respectively.

FHPM 7-7-2 Requirements: an appropriate environmental statement will be submitted under separate action.

Note: This project is in Congressional District No. 3.

8909

February 11, 1975

City of Portland
City Hall
Portland, OR 97204

Attention: Charles J. Spear
Chief Deputy Auditor

MISC. CONTRACTS and
AGREEMENTS No. 5202

Gentlemen:

As requested in your letter of January 31, we are enclosing two copies of a fully executed Urban System Project Agreement relating to preliminary engineering in conjunction with a consultant study of alternate long-range solutions for traffic problems in the area between the Ivy Street ramps of the Fremont Bridge and N. E. Union Avenue.

We are retaining a fully executed copy of this agreement for the Transportation Commission's files.

Very truly yours,

C. W. Head
COMMISSION SERVICES

Encl.

cc Don Harwell
Attn: Dick Unrein

DU:scr:CWH:fkn

County-City retained a copy of agreement

File

THE CITY OF
PORTLAND
OREGON

OFFICE OF
CITY AUDITOR
GEORGE YERKOVICH
CITY AUDITOR

1220 S.W. FIFTH AVE.
PORTLAND, OR. 97204

January 31, 1975

Hopkins H
Harwell
2 Holmes ✓
Prenge
3 Unrein RU

RECEIVED
FEB 5 - 1975
COUNTY
CITY
UNIT

Requires Reply ☐
Requires Approval ☐
Receiver Keep ☐
Do not File ☐
Return To
Bring Up / /
Other

Mr. Cecil Head, Commission Services
Oregon State Highway Commission
Department of Transportation
P. O. Box 30
Salem, Oregon 97310

Dear Mr. Head:

Please find enclosed herewith quadruplicate copies of agreement relating to preliminary engineering to be performed in conjunction with a preliminary engineering consultant study of alternate long-range solutions for traffic problems in the area between the Ivy Street ramps of the Fremont Bridge and N. E. Union Avenue, as authorized by Ordinance No. 139376.

Will you kindly have the proper persons sign all four copies of the agreement and return the original and one copy to the Auditor of the City of Portland. If it is necessary that you have more than two copies, please make photo copies as we need two copies for our files.

We are in receipt of a letter dated January 16, 1975 from Richard Unrein, Urban Engineer, County-City Unit, requesting that the City forward $40,400 (11%) as an advance and as required in paragraph "2", General Provisions. After our copies have been received in this office, we will then put your invoice in line for payment.

Yours very truly,

GEORGE YERKOVICH

Auditor of the City of Portland
By: Charles J. Spear
Chief Deputy Auditor

RECEIVED
FEB 4 1975
COMMISSION AND STAFF SERVICES
DEPARTMENT OF TRANSPORTATION

MS:dlh
Encls.

NOTED
C. W. HEAD

8909

February 11, 1975

City of Portland
City Hall
Portland, OR 97204

Attention: Charles J. Spear
Chief Deputy Auditor

MISC. CONTRACTS and
AGREEMENTS No. 5203

Gentlemen:

As requested in your letter of February 3, 1975, we are enclosing three copies of a fully executed agreement with the City of Portland, CH2M-Hill, Inc., and the Highway Division. This agreement concerns a preliminary engineering consultant study of alternate long-range solutions for traffic problems in the area between the Ivy Street ramps of the Fremont Bridge and N. E. Union Avenue.

It is our understanding that you will transmit a copy of this agreement to the consultant. We have retained a fully executed copy for the Transportation Commission's files.

Very truly yours,

C. W. Head
COMMISSION SERVICES

Att.

DU:CWH:fkn

cc Don Harwell
Attn: Dick Unrien

NOTE: County-City retained a copy of agreement

THE CITY OF
PORTLAND
OREGON

OFFICE OF
CITY AUDITOR
GEORGE YERKOVICH
CITY AUDITOR

1220 S.W. FIFTH AVE.
PORTLAND, OR. 97204

F Ah,

February 3, 1975

Mr. Cecil Head, Commission Services
Department of Transportation
Oregon State Highway Division
P. O. Box 30
Salem, Oregon 97310

Dear Mr. Head:

Please find enclosed herewith nine copies of agreement between the State, City of Portland and Cornell, Howland, Hayes & Merryfield-Hill, Inc. relating to a preliminary engineering consultant study of alternate long-range solutions for traffic problems in the area between the Ivy Street ramps of the Fremont Bridge and N. E. Union Avenue, authorized by Ordinance No. 139377.

Will you kindly have the proper persons sign all nine copies of the agreement and return three fully executed copies to the Auditor of the City of Portland so that we may keep two copies for our files and transmit one copy to CH2M-Hill, Inc.

Yours very truly,

GEORGE YERKOVICH

Auditor of the City of Portland

harles J Spear

puty Auditor

2-11-75

Dick Unrein of County-City said that Jack Sollis said that this agreement did not need approval by General Services.

Fran

☐
oval ☐
☐
☐

RECEIVED
FEB 5 1975
COMMISSION AND STAFF SERVICES
DEPARTMENT OF TRANSPORTATION

F Ah,

THE CITY OF
PORTLAND
OREGON

OFFICE OF
CITY AUDITOR
GEORGE YERKOVICH
CITY AUDITOR

1220 S.W. FIFTH AVE.
PORTLAND, OR. 97204

February 3, 1975

Mr. Cecil Head, Commission Services
Department of Transportation
Oregon State Highway Division
P. O. Box 30
Salem, Oregon 97310

Dear Mr. Head:

Please find enclosed herewith nine copies of agreement between the State, City of Portland and Cornell, Howland, Hayes & Merryfield-Hill, Inc. relating to a preliminary engineering consultant study of alternate long-range solutions for traffic problems in the area between the Ivy Street ramps of the Fremont Bridge and N. E. Union Avenue, authorized by Ordinance No. 139377.

Will you kindly have the proper persons sign all nine copies of the agreement and return three fully executed copies to the Auditor of the City of Portland so that we may keep two copies for our files and transmit one copy to CH2M-Hill, Inc.

Yours very truly,

GEORGE YERKOVICH

Auditor of the City of Portland
By: Charles J. Spear

Chief Deputy Auditor

gms
MS:dlh
Encls.

Hopkins
Harwell
Holmes ✓
Prange
Unrein

RECEIVED
FEB 5 - 1975
COUNTY
CITY
UNIT

Requires Reply ☐
Requires Approval ☐
Receiver Keep ☐
Do not File ☐
Return To ______
Bring Up ___/___/___
Other ______

NOTED
C. W. HEAD

RECEIVED
FEB 5 1975
COMMISSION AND STAFF SERVICES
DEPARTMENT OF TRANSPORTATION

8909

OREGON STATE HIGHWAY DIVISION

INTER-OFFICE CORRESPONDENCE

SALEM, OREGON

February 7, 1975

TO: Mr. D. E. Swan
Project Management Section
Federal Aid Unit

RE: Urban System Project
Programing Request

FROM: Richard Unrein
Urban Engineer
County-City Unit

CITY: Portland SECTION: East Fremont Bridge Connection, FAU 2029

*PROPOSED WORK: Consultant preliminary engineering study to determine alternate long-range solutions for traffic problems in the area between the Ivy Street ramps of the Fremont Bridge and N. E. Union Avenue. State and City engineering services is in support of consultant study.

COSTS:

	TOTAL	FEDERAL	STATE	CITY
Consultant	$327,300	$255,300	$36,000	$36,000
State	10,000	7,800	1,100	1,100
City	30,000	23,400	3,300	3,300
Total	$367,300	~~$3[illegible],500~~	$40,400	$40,000 4

$286,500

EXISTING FACILITIES: Ivy Street--two lanes, 30'-36', curb-curb.
Cook Street--two lanes, 30', curb-curb.

PROJECT NO.: M-2029(-).

✓ ADDITIONAL RIGHT-OF-WAY: Yes.

SYSTEM ACTION: None required. Urban System approved 11/16/71.

RAILROADS: None.

AIRPORTS: None.

WATER DEVELOPMENTS: None.

HISTORIC AND RECREATION AREAS: None.

RELOCATION ASSISTANCE PAYMENTS: Yes.

ROUTE DATA: FAU 2029

STATE CLEARINGHOUSE APPROVAL: 10/16/74.

DISTRICT 2 CLEARINGHOUSE APPROVAL: 10/15/74.

HEARING: Yes.

ACCESS CONTROL: Limited by City Ordinance.

PARKING RESTRICTIONS: Variable.

ADT:	Present (1975)	Future (1995)
	14,000	22,000

NOTE: The City of Portland determined the need to hire a consultant, went through a consultant selection procedure to select the firm of CH2M-Hill, Inc., evaluated the proposed payment to the consultant, and determined the fee to be reasonable. On January 16, 1975 FHWA reviewed the consultant agreement and found it to be satisfactory.

*See attached project agreement.

RU:scr

Attachment

☑ ENGR. ☐ ASST. ☑ OE ☐ AE ☒ UE
☑ UPE ☑ CE ☐ RE ☐ RPE ☐

8909

January 16, 1975

Mr. Robert E. Rector
State Highway Coordinator
City of Portland
400 S. W. Sixth Avenue
Portland, Oregon 97204

Re: Advance Deposit
Consultant Study
East Fremont Bridge Connection

Dear Mr. Rector:

We hereby request the City of Portland's advance deposit in the amount of $48,400 (11 percent) for the subject project as covered under the GENERAL PROVISIONS of the project agreements.

Very truly yours,

Richard Unruh
Urban Engineer
County-City Unit

RU:ser

bc: G. M. Baldwin
R. N. Bothman, Metro
Ted Spence

☑ ENGR. ☐ ASST. ☐ OE ☐ AE ■ UE
☒ UPE ☐ CE ☐ RE ☐ RPE ☐

8909

Form FHWA 121 (Rev. 5-73)

UNITED STATES GOVERNMENT

Memorandum

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
Box 300
Salem OR 97308

DATE: January 16, 1975

In reply refer to: 104JEC.2

SUBJECT: Oregon Project M-2029(-)
Fremont Bridge-Union Avenue Section
Consultant Agreement

FROM : G. L. Green, Division Engineer

TO : Mr. F. B. Klaboe, Administrator & State Highway Engineer
Salem, Oregon

We have reviewed the proposed agreements between the city of Portland on CH_2M & Hill and between the State and the City that would provide for the environmental study of this section and find them satisfactory.

/G. L. Green

cc:
OSHD (M.Holmes)

RECEIVED
STATE HWY ENGR
JAN 17 '75
REFER TO Schroeder
FOR

Info	Inves	R/D	D/R	Sign	Act	File
					✓	

Copy To Rulien - TAA
Potter
1-21-75

RECEIVED
JAN 20 1975
Office of Assistant State [illegible]

NOTED
R. L. SCHROEDER

NOTED
A. E. JOHNS

FORM 81-734-3030

EN

FILED DEC 17 '74

R TO

FOR

OREGON STATE HIGHWAY DIVISION

INTER-OFFICE CORRESPONDENCE

Salem, Oregon

December 16, 1974

A D Olson

FROM: A. D. Olson
Preliminary Design Engineer

TO: E. S. Hunter
Assistant State Highway Engineer

SUBJECT: Emanual Hospital
Temporary Connection
East Fremont Interchange
Stadium Freeway
Multnomah County

The letter form agreement dated December 5 has been reviewed and would appear to cover the necessary construction and removal of the requested facility, however, I would suggest that the last sentence in the opening paragraph be revised to something similar to: "While its use could not readily be restricted to just that traffic, effort should be made to discourage development of other local useage."

I am advised that the plan as originally submitted is still basically what they propose. The ramp width of 16 feet seems undesirably narrow considering the curvature and length. A minimum of 20 feet wide would be more appropriate from a safety and driveability standpoint.

The agreement and the file from General Files is attached.

12-16-74

Fred

This letter agreement has been reviewed by design and myself. We feel that it is workable and see no reason not to proceed if the City feels it is worth the $ to the hospital.

Ed

OK [illegible].

ADO:ve
Attachment

cys to Bothman 12-18-74

RECEIVED
DEC 16 1974
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

8909

FORM 81-734-3030

OREGON STATE HIGHWAY DIVISION

INTER-OFFICE CORRESPONDENCE

FILE: ENV 2-1

November 29, 1974

Salem, Oregon 97310

FROM: Newt Andrus
Research Coordinator

SUBJECT: Fremont Bridge-Union Avenue
Consultant Agreement

TO: Gary A. Potter
Manager
Environmental Section

I find the draft agreement quite complete and adequate with the following suggestions for the "Narrative Description of the Work Program".

1. p.8, last paragraph reference to PPM's should include 90-4 (Action Plan) 90-7 (Noise).
2. p.9, Phase II same comment as above.
3. p.9, Phase III it is not mandatory that the report follow the implied outline of PPM 90-1.
4. p.11, C.2., new DEQ regulations require traffic predictions for 1st, 10th and 20th years after completion of project construction.
5. p.17 G, predictive method should utilize either of the FHWA certified models (117 or TSC).
6. p.18, J., may want to furnish a 63 dBA contour because of DEQ proposals.
7. p.19, H, same comment as 4 above.
8. p.19, I, may need to do more here including particulates. I will have Rich Wood review this for specifics.

NA:ss

cc: George Ramjoue'

Schroeder
This requires renegotiation
Rick has already gone up
we need to move this
Larry ([illegible])

RECEIVED
DEC 2 1974
Office of
Assistant State Highway Engineer

NOTED
R. L. SCHROEDER

RECEIVED
DEC 4 1974
Office of
Assistant State Highway Engineer

RECEIVED
DEC 5 1974
PROJECT MANAGEMENT SECTION

8909

CH2M HILL
ENGINEERS PLANNERS ECONOMISTS

CORNELL, HOWLAND, HAYES & MERRYFIELD
200 S.W. Market, 12th Floor, Portland, Oregon 97201
Telephone: (503) 224-9190, TWX: 910-464-4720, Cable: CH2MHILL

Portland Regional Office

12 November 1974

P597.14

Mr. H. F. Cox
County/City Engineer
Oregon State Highway Division
405 Highway Building
Salem, Oregon 97310

Dear Mr. Cox:

Enclosed are three copies of the latest Work Program for FAU Project 2029 (Fremont Bridge-Union Avenue Connection) dated 1 November 1974. This Work Program is a revised version of our 27 March 1974 submittal that was reviewed by the various participating agencies and the appointed Citizens Contact Committee.

$327,300

The revisions are in response to: (1) a request by your office for a short narrative description of the work and; (2) cost increases due to delays in the start of the project. The narrative description of the work is on page 1 of the Work Program and revisions to project costs are in Attachment A (Derivation of Fee), Pages A-1 through A-16; all other sections are unchanged.

The Derivation of Fee revisions reflect our projected costs to do the work over the term of the study. The adjustments were developed according to the proportion of work to be done in three semiannual periods beginning 1 January 1975 and our projected labor cost and nonlabor direct expense increases during each of the periods. The previously submitted 1972 Overhead Expense Detail has been replaced by our actual 1973 overheads as audited by the Federal Defense Contract Audit Agency.

RECEIVED
COUNTY & CITY SECTION
NOV 13 1974
☐ ENGR. ☑ COOR. ☑ OE ☐ AE ■ UE
☑ DPE ☑ CE ☐ [illegible] ☐ DPS ☐

Specific revisions are as follows:

A. CH2M HILL SUMMARY OF COMPENSATION (Page A-1)

1. Total direct salaries estimated as of March 1974 are shown with the added adjustment for starting the work after 1 January 1975. (calculated 10/74).

2. Payroll associated direct and indirect costs are adjusted to 1973 overheads (see page A-5 for Overhead Expense Detail).

3. The subconsultant cost is revised in accordance with Earth Metrics Inc. estimates (see page A-11).

4. The method for derivation of the fixed fee was not changed but the fee has increased along with other costs.

B. CH2M HILL ESTIMATED DIRECT LABOR COST (3/74) (Page A-2)

No change from the March submittal; total direct labor cost adjustments are shown on page A-1, SUMMARY OF COMPENSATION.

C. CH2M HILL OVERHEAD EXPENSE DETAIL (Page A-5)

The 1972 overhead expense detail is replaced by a 1973 schedule of audited overheads.

D. CH2M HILL ESTIMATED NONLABOR DIRECT EXPENSE (10/74) (Page A-7)

The list and extent of nonlabor direct expenses are not changed; costs are adjusted for anticipated 1975 and 1976 increases.

E. CH2M HILL JOB DESCRIPTIONS (Page A-8)

No change from the March submittal; direct salaries remain within the daily salary range of each employee classification.

F. EARTH METRICS INC., SUMMARY OF COMPENSATION (10/74) (Page A-11)

Salaries, nonlabor direct expenses, overheads and fee are adjusted in accordance with Earth Metrics' newly established schedules that follow.

G. EARTH METRICS, INC., ESTIMATED DIRECT LABOR COST (10/74) (Page A-12)

1. Man-days are changed to correspond with new staff responsibilities in the recently incorporated firm.
2. Direct salaries are adjusted for new staff responsibilities and projected 1975 labor costs.

H. EARTH METRICS, INC. OVERHEAD EXPENSE DETAIL (Page A-13)

Planned overhead rates for the period of 1 August 1974 to 1 August 1975 are submitted.

I. EARTH METRICS, INC. ESTIMATED NONLABOR DIRECT EXPENSES (10/74) (Page A-15)

Item E is changed to show additional cost of outside equipment usage.

J. EARTH METRICS, INC. JOB DESCRIPTIONS (Page A-16)

No change from the March submittal; direct salaries remain within the daily salary range of each employee classification.

We have developed detailed support data and calculations for the above adjustments. You may review this information if you feel it necessary.

We are looking forward to beginning the study and hope this revised Work Program fulfills the precontract needs of the City of Portland, FHWA, and the Oregon Department of Transportation. Please contact me or Bill Johnson if you need further clarification of our proposal.

Very truly,

Bradford Blandin

c
cc: Glen Pierce, City of Portland, Office of the City Engineer
W. F. Johnson

Enclosure: 3 copies of the Fremont Bridge to Union Avenue Connection Work Program, 1 November 1974.

8909

OREGON PROJECT NOTIFICATION AND REVIEW SYSTEM

STATE CLEARINGHOUSE

Local Government Relations Division
240 Cottage Street S.E., Salem, Oregon 97310
Bill Kramer, Supervisor Ph: 378-3732

RECEIVED
COUNTY & CITY SECTION
OCT 16 1974
☐ ENGR. ☑ COOR. ☑ OE ☒ AE ■ UE
☑ UPE ☑ CE ☒ RE ☒ RPE ☐

STATE A-95 REVIEW CONCLUSIONS

APPLICANT: Oregon State Highway Division

PROJECT TITLE: East Fremont Bridge Connection to Union Ave.

DATE: October 15, 1974

The state has reviewed your project and reached the following conclusions:

☒ No significant conflict with the plans, policies or programs of state government have been identified and your proposal is endorsed as presented.

☐ Relevant comments of state agencies are attached and should be considered in the final design of your proposal.

☐ Potential conflicts with the plans and programs of the state agency(s) have been satisfactorily resolved. No significant issues remain.

☐ Significant conflicts with the plans, policies or programs of state government have been identified and remain unresolved. The final proposal has been reviewed and the final comments and recommendations of the state are attached.

NOTICE TO FEDERAL AGENCY

The following is the officially assigned State Identifier Number:

7409 2 430

This number should be used on all correspondence and particularly on SF 240 as required by OMB A-98.

A copy of this notification and attachments, if any, must accompany your application to the Federal Agency as required by OMB A-95. Comments of the appropriate local reviewing agencies must also be included.

51
BEN GIFFORD

FAU

CRAG

COLUMBIA REGION ASSOCIATION of GOVERNMENTS

6400 S.W. CANYON COURT
PORTLAND, OREGON 97221

(503) 297-3726

CLACKAMAS COUNTY
Canby
Gladstone
Happy Valley
Lake Oswego
Milwaukie
Oregon City
Sandy
West Linn
Wilsonville

CLARK COUNTY
Camas
Vancouver
Washougal

COLUMBIA COUNTY
Clatskanie
Columbia City
Prescott
Rainier
Scappoose
St. Helens
Vernonia

MULTNOMAH COUNTY
Fairview
Gresham
Portland
Troutdale
Wood Village

WASHINGTON COUNTY
Beaverton
Cornelius
Durham
Forest Grove
Hillsboro
North Plains
Sherwood
Tigard
Tualatin

RECEIVED
STATE HWY ENGR
OCT 30 '74
REFER TO
FOR
Info	Inves	R/D	D/R	Sign	Act	File

Ocotber 11, 1974

H. S. Cox
Oregon State Highway Building
Salem, Oregon 97310

SUBJECT: E. Fremont Bridge Connection to Union Avenue

Gentlemen:

The above-described project application has been reviewed for compliance with CRAG Comprehensive plans and for coordination with the plans and policies of local agencies and jurisdictions. The CRAG Transportation Committee, at their October 11, 1974 meeting reviewed the project and based on their review submitted a recommendation of approval.

Having met the necessary requirements, the Columbia Region Association of Governments recommends approval of the project application by the proper federal funding agency. ✓

Sincerely,

Larry Rice
Larry Rice
Executive Director

LR/caf

cc: G. L. Green, FHWA
✓F. B. Klaboe
V. D. Wolfe
J. B. Boyd
R. E. Royer
J. H. Versteeg
Gary Potter
D. E. Swan
H. S. Cox
W. D. Albright
M. J. Klotz
E. L. Hardt
R. E. Etherington, CRAG
B. L. Gifford

SENT
BEN GIFFORD
9-12-74

RECEIVED
COUNTY & CITY SECTION
OCT 15 1974
☐ ENGR. ☑ COOR. ☑ OE ☑ AE ■ UE
☑ UPE ☑ CE ☑ RE ☐ RPE ☐

OREGON PROJECT NOTIFICATION AND REVIEW SYSTEM

FAU

STATE CLEARINGHOUSE

Local Government Relations Division
240 Cottage Street S.E., Salem, Oregon 97310
Sally Reagan, Coordinator Ph: 378-3732

ACKNOWLEDGEMENT OF NOTICE OF INTENT

APPLICANT: Oregon State Highway Division

PROJECT TITLE: East Fremont Bridge Connection to Union Ave.

DATE: September 25, 1974

PNRS #: 7409 2 430

Your Notice of Intent has been assigned the file title and number that appear above. Use this reference in all future correspondence regarding this project.

Initial 30-day State Clearinghouse review began on the above date. We will respond immediately if reviews are received earlier.

If you have questions or need assistance, contact the State Clearinghouse at the above address and telephone number.

RECEIVED
COUNTY & CITY SECTION
SEP 27 1974
☑ ENGR. ☑ COOR. ☑ OE ☒ AE ■ UE
☑ UPE ☑ CE ☒ RE ☒ RPE ☐

8-71

OREGON STATE
HIGHWAY DIVISION

METROPOLITAN SECTION 5821 NE GLISAN PORTLAND, OREGON 97213

September 20, 1974

BOB RECTOR
City of Portland
420 S.W. Main
Portland, Oregon

SUBJECT: RAMP ONTO FREMONT BRIDGE

I have reviewed the current plans of the City for construction of a temporary ramp onto the Fremont Bridge at Ivy Street from Emmanuel Hospital.

NOTED
H.S. COULTER

The Oregon State Highway Division has the following concerns with the plan in connection with and asking the City to address each design prior to proceeding with the construction of the connection:

1. Any design will lure people onto the bridge if their destination can be reached more easily by doing so, resulting in sizeable increase in traffic on this connection.
2. Access to the hospital would seem more important than access from the hospital.
3. Plan should include provisions for modification of fencing to prevent unnecessary pedestrian traffic onto freeway.
4. The left-turn move for eastbound traffic on North Cook Street appears inappropriate.
5. The 16-foot width on-connection is narrow, particularly when any size vehicle could travel on this connection, reaching Gantenbien from any one of several routes.
6. The curved travel paths of this ramp on-connection would result in much easier movement of vehicles if they had some superelevation.
7. Lack of details on what barricades, delineation, signing and other work items are involved.

I would be happy to further descuss plans by the City for construction of an access to the Fremont Bridge from the Emmanuel Hospital.

R. N. BOTHMAN
Metropolitan Engineer

pq

✓ cc H. S. Coulter

RECEIVED
SEP 24 1974
Office of
Assistant State Highway Engineer

8909

1859

OREGON STATE
HIGHWAY DIVISION

HIGHWAY BUILDING • SALEM, OREGON • 97310

TOM McCALL
GOVERNOR

F. B. KLABOE
Administrator of Highways

September 12, 1974

TO Executive Department
Federal Aid Coordination Unit

Columbia Region Assn. of
Governments
6400 S.W. Canyon Court
Portland, OR 97221

FROM George N. Hopkins
Project Development Engineer

SUBJECT Notice of Intent for FAUS Funds
State Administrative Dist. No. 2
East Fremont Br. Connection to
Union Ave.
FAU 2029
Multnomah County

In accordance with Executive Memorandum 02-270-20, attached are copies of the Notices of Intents for the subject project.

Early programming of this project for advance planning in anticipation of future construction is necessary; therefore, your prompt attention to this proposal will be appreciated.

Allowing time for your review, we estimate the date of filing for federal-aid funds on this project to be October 15, 1974.

BLG:bb
Attachment

cc: G. L. Green, FHWA
F. B. Klaboe
V. D. Wolfe
J. B. Boyd
R. E. Royer
J. H. Versteeg
Gary Potter
D. E. Swan
H. S. Cox
B. L. Gifford
W. D. Albright
M. J. Klotz
E. L. Hardt
R. E. Etherington, CRAG

OREGON PROJECT NOTIFICATION AND REVIEW SYSTEM

NOTIFICATION OF INTENT TO APPLY FOR FEDERAL AID

For Internal Use Only	1-8] PNRS #	9] CARD TYPE:	Page One

02	12] APPLICANT [45 State Highway Division	46] DIVISION [79 Dept. of Transportation
03	12] APPLICANT ADDRESS STREET [45 State Highway Building	46] CITY [60 Salem 76] ZIP [80 97310
04	12] CONTACT PERSON [45 H. S. Cox	46] AREA CODE [48 503 49] PHONE [55 378 56] EXTENSION [59 6514
01	12] PROJECT TITLE [71 East Fremont Br. Connection to Union Ave. District 2	
11	12] PROJECT LOCATION CITY [45 FAU 2029 Portland	46] PROJECT LOCATION COUNTY [79 Multnomah

12] SUMMARY PROJECT DESCRIPTION (ATTACH SUPPORTING DOCUMENTS AS NECESSARY) [71

05 This preliminary engineering project is to study alternate long-range solutions for
06 traffic problems in the area between the Ivy Street ramps of the Fremont Bridge and
07 N.E. Union Avenue.
08 This study will be conducted by the consultant firm of Cornell, Howland, Hayes &
09 Merryfield-Hill. Some portions of the project will be performed by State and City
10 personnel.

12	FEDERAL FUNDS		NON-FEDERAL MATCHING FUNDS		OTHER	TOTAL
	12] (A) Grant [19	20] (B) Other [27	28] (C) State [35	36] (D) Local [43	44] (E) FUNDS [51	52] (F) FUNDS [60
	252,720		35,640	35,640		324,000

13	12] TYPE OF OTHER FEDERAL FUNDS (See 12B) [45	46] TYPE OF OTHER NON-FEDERAL FUNDS (See 12E) [79
14	12] FEDERAL PROGRAM TITLE [71 Title 23 USC Highways	
15	12] FEDERAL AGENCY NAME [45 U.S. Dept. of Transportation	46] FEDERAL SUB-AGENCY NAME [79 Federal Highway Administration

17

(A) TYPE OF APPLICANT: (Check (×) the single most applicable box)

STATE ☒ 12 INTER-STATE ☐ 13 COUNTY ☐ 14 CITY ☐ 15 SCHOOL DISTRICT ☐ 16 SPECIAL DISTRICT ☐ 17 COMMUNITY ACTION ☐ 18 SPONSORED ORGANIZATION ☐ 19 OTHER ☐ 20

(B) TYPE OF ACTION: (Check (×) as many boxes as apply to this action)

NEW GRANT ☒ 21 CONT. GRANT ☐ 22 SUPPL'T GRANT ☐ 23 INCREASE DURATION ☐ 24 DECREASE DURATION ☐ 25 CANCELLATION ☐ 26 INCREASE DOLLARS ☐ 27 DECREASE DOLLARS ☐ 28

(C) IS THERE A COMPREHENSIVE PLAN?

STATE Yes ☒ 29 No ☐ 30 REGIONAL Yes ☐ 31 No ☐ 32 LOCAL Yes ☐ 33 No ☐ 34

(See IV, Page 2)

(D) REVIEW REQUIRED by A-95 Yes ☒ 35 No ☐ 36

(E) ENVIRONMENTAL IMPACT Yes ☐ 37 No ☒ 38

(F) HOUSING RELOCATION REQUIRED Yes ☐ 39 No ☒ 40

(G) ESTIMATED APPLICATION FILING DATE:	41] MONTH [42 October	43] DAY [44 15	45] YEAR [46 1974

ADDITIONAL INFORMATION — ALL APPLICANTS

FEDERAL CATALOG NUMBER (OR PUBLIC LAW NO. AND TITLE) 20.205 Highway Planning & Construction

HAS DISTRICT CLEARINGHOUSE BEEN NOTIFIED? No ☐ Yes ☒ Date: September 12, 1974

HAS FUNDING AGENCY BEEN NOTIFIED? No ☐ Yes ☒ Date: September 12, 1974

IF PROJECT INCLUDES STATE FUNDS (12C), IDENTIFY AGENCY State Highway Division

LIST PERTINENT PLANNING DOCUMENTS OR PROJECT STUDIES (See 17C) Federal-aid Urban System Program

V. EXPLAIN DEVIATIONS (IF ANY) FROM PERTINENT PLAN

(a) Federal Congressional District(s) Number(s) 3
(b) State Representative District(s) Number(s) 8-23
(c) State Senatorial District(s) Number(s) 5-12

STATE AGENCIES ONLY

VIII (a) IS PROGRAM BUDGETED ☐ NON-BUDGETED ☐

(b) STATE SHARE

GENERAL FUND CASH	OTHER FUND CASH	IN KIND
$	$	$

(c) FUNDING METHOD

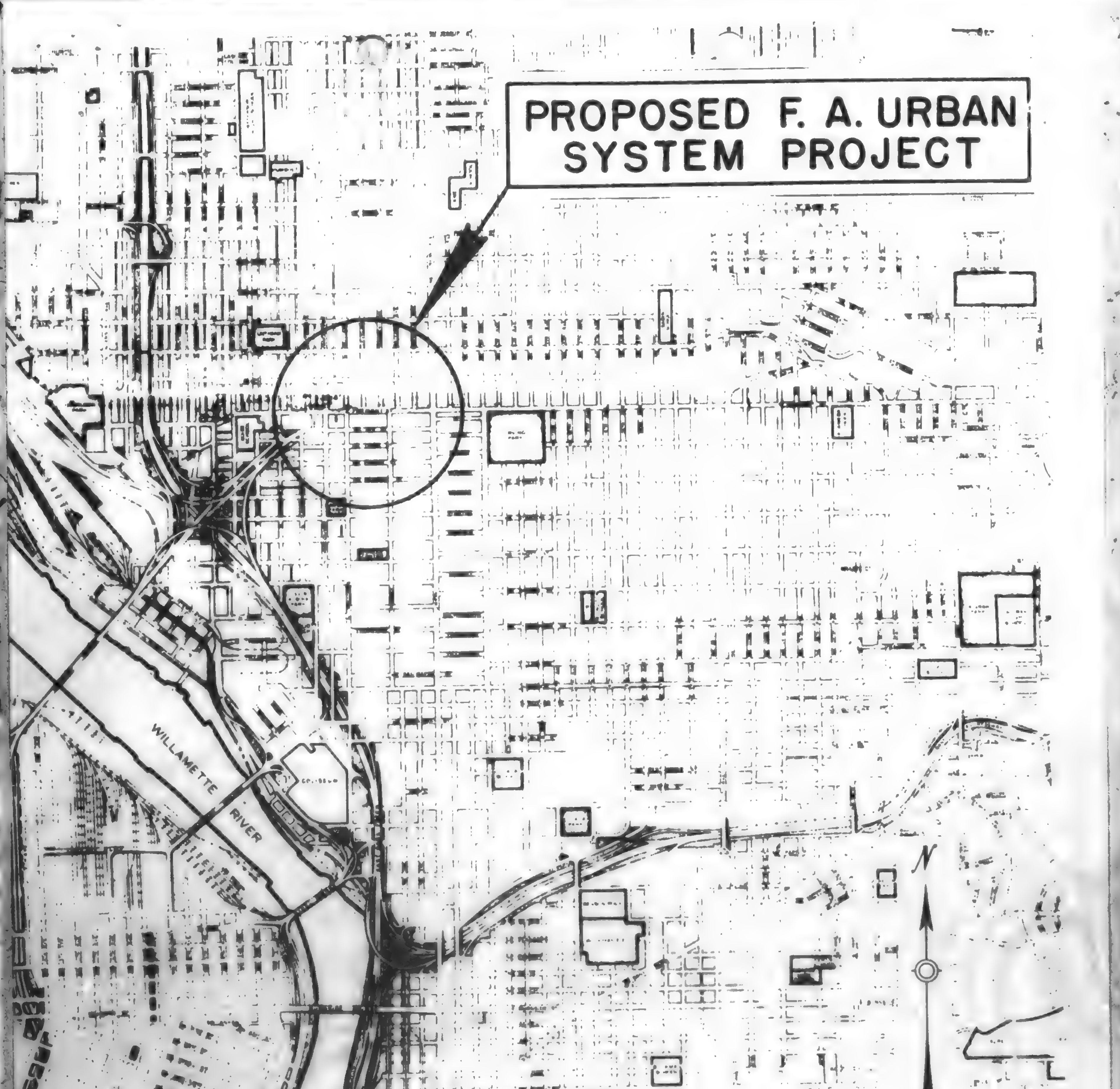
	FEDERAL SHARE		STATE SHARE		TOTAL	
First Year	%	$	%	$	%	$
Second Year	%	$	%	$	%	$
Third Year	%	$	%	$	%	$

(d) WILL PROGRAM REQUIRE HIRING OF NEW STATE EMPLOYEES? No ☐ Yes ☐ Number

(e) Will accounting for this grant be administered by the Executive Dept. Accounting Division? Yes ☐

REMARKS

This Urban System Project is proposed by the city of Portland.


PROPOSED F. A. URBAN SYSTEM PROJECT
WILLAMETTE RIVER
N
PORTLAND, OREGON

8909

FORM E-30

OREGON STATE HIGHWAY DIVISION

INTER-DEPARTMENT CORRESPONDENCE

Salem

DATE	September 9, 1974
TO	R. N. Bothman Metropolitan Engineer
FROM	H. S. Coulter Assistant State Highway Engineer
SUBJECT	East Fremont Interchange

The following concerns are those that probably should be passed on to the City of Portland regarding their proposed access from the Emanual Hospital area to the Fremont Bridge:

1. Any design will lure people onto the bridge if their destination can be reached more easily by doing so, resulting in sizeable increase in traffic on this connection.
2. Access _to_ the hospital would seem more important than access ~~from~~ the hospital.
3. Plan should include provisions for modification of fencing to prevent unnecessary pedestrian traffic onto freeway.
4. The left-turn move for eastbound traffic on North Cook Street appears inappropriate.
5. The 16-foot width on-connection is narrow, particularly when any size vehicle could travel on this connection, reaching Gantenbien from any one of several routes.
6. The curved travel paths of this ramp on-connection would result in much easier movement of vehicles if they had some superelevation.
7. Lack of details on what barricades, delineation, signing and other work items are involved.

I think it appropriate that the correspondence from your office be directed to Bob Rector.

HSC:ia

cc E. S. Hunter
Hal Versteeg

8709

FORM E-30

OREGON STATE HIGHWAY DIVISION

INTER-DEPARTMENT CORRESPONDENCE

Salem, Oregon

DATE September 5, 1974

TO H. S. Coulter, Assistant State Highway Engineer

ADOlson

FROM A. D. Olson, Preliminary Design Engineer

SUBJECT East Fremont Interchange
Stadium Freeway
City of Portland
Multnomah County

We have reviewed the interim connection to the east end of the Fremont Bridge ramps for Emanual Hospital as submitted by the City and have the following comments:

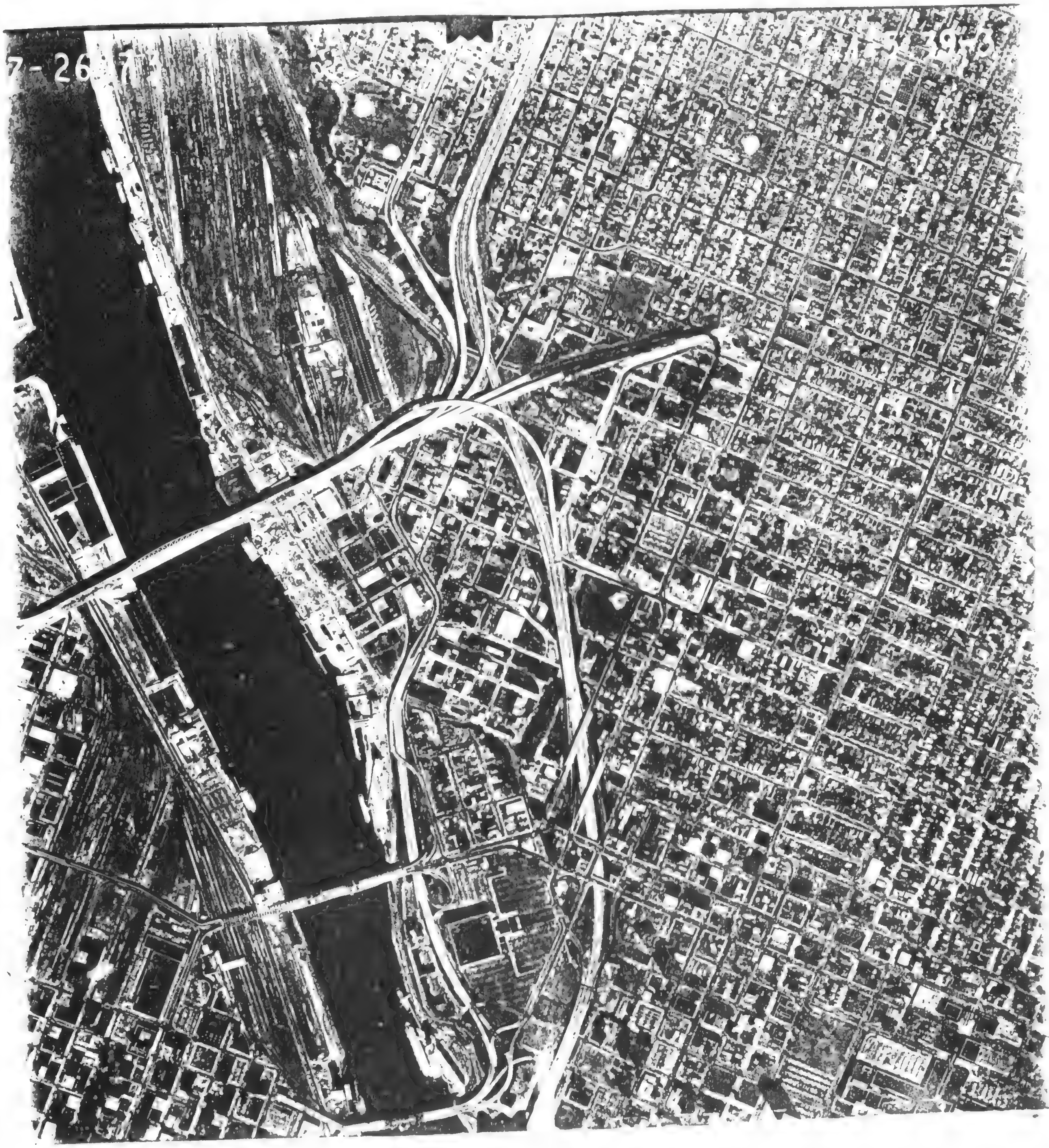
The connection is indicated as 16 feet wide and curbed. This would not allow provision for passing stalled vehicles in case of breakdown and does not even provide recommended width for single lane passenger car useage (with no provision for passing) on the 50 foot radius curve. Width on the curve should be 20 feet between curbs for passenger cars or single unit trucks. On the tangent 17 feet would be recommended if passing is not provided. If the need to pass stalled vehicles is anticipated 26 feet would be required on the curve and 20 feet on tangent. This would be for passenger cars and single unit trucks. Since the connection is only about 200 feet long there may seem to be small chance of need for the added width and no great traffic problem if the ramp is closed, however, the added cost would be negligible and problems of getting to the stalled vehicle would be considerable. It would be our recommendation that a minimum of 20 feet be provided if the connection is built.

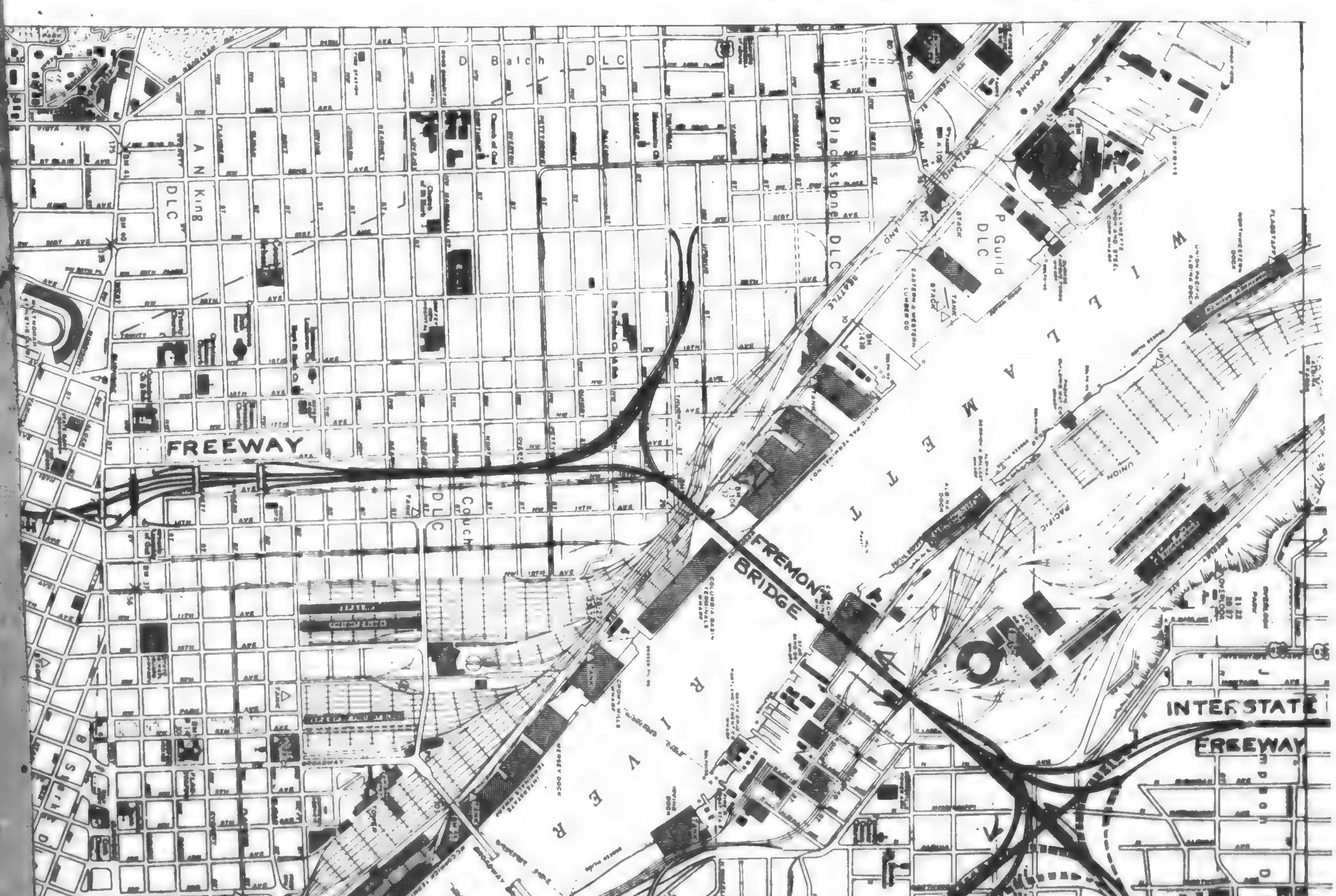
Problems posed by providing the facility may only be theoretical--new traffic entering the traffic stream on the bridge, demands for complimentary move, future elimination of an "existing connection", etc., however, the need for the facility would not seem to justify even these.

Your data is attached, along with a small sketch and an aerial picture of the area.

ADO:we
Attachment
cc: R. N. Bothman

RECEIVED
SEP 5 1974
Office of
Assistant State Highway Engineer


7-26


D Balch DLC
A N King DLC
W Blackstone DLC
P Guild DLC
FREEWAY
Couch DLC
FREMONT BRIDGE
W I L L A M E T T E
R I V E R
INTERSTATE FREEWAY
FREEWAY
Albina
DLC
BANFIELD FREEWAY
W Irving DLC
Irvington

8909

FORM 81-734-3030

OREGON STATE HIGHWAY DIVISION
INTER-OFFICE CORRESPONDENCE
Portland, Ore. 97213
August 23, 1974

RECEIVED
AUG 26 1974
Office of
Assistant State Highway Engineer

FROM: R. N. BOTHMAN
Metropolitan Engineer
Bothman

SUBJECT: East Fremont Bridge

TO: H. S. COULTER
Assistant State Highway Engineer
Operations Branch

8-26-7-
REFER TO
Design for Comments
BY ASST. STATE HWY. ENGR.

Please find preliminary design for interim connection to the East Fremont Bridge ramp.

This design has been prepared by the City engineer in conformance with City Ordinance 137707.

Our position to date has been that we did not favor this connection, however, if the City so desired, we would allow them to make such a connection at their cost.

We have a chance to respond at this point prior to the plan going to the City Council for approval.

I've indicated some of the items in color which need to be considered by the City. We did ask that the guard rail be removed, as indicated in yellow, on the attached sketch. Also, it will be necessary to remove the fence and gate as indicated on the attached plan. Other than those minor changes, I see no problem with this proposal as an engineering plan.

The next issue will be how to proceed, agreement wise, to modify our existing agreement which provides for connection of the east ramp to Ivy Street. My suggestion is that we do this by simple letter-agreement stipulating that the entire cost of the interim connection be borne by the City as well as the responsibilities of the operation of that connection. Secondly, that the City agree to restore all items removed in the process of constructing the inter-solution as such time as a permanent solution is developed.

At the present time planning is proceeding for a permanent connection from the East Fremont Bridge to Union Avenue, however, I imagine that connection is at least two to five years away, if not longer.

This ~~inner~~ interm connection provides access only to the hospital and access only west bound on the bridge. The companion connection to the Hospital for east bound traffic on the bridge is via the Broadway Weidler interchange and Flint Street which has been signed at the present time.

The idea was to provide access to the Hospital with no access to the adjacent neighborhood.

The whole plan is poor, however, the direction the City wants to go.

I ask for any comments you might have of the plan and how to proceed.

This plan provides new access from the hospital rather than to the hospital.

Enclosures

jz

THE CITY OF
PORTLAND
1851
OREGON

DEPARTMENT OF
PUBLIC WORKS
CONNIE McCREADY
COMMISSIONER

OFFICE OF
PUBLIC WORKS
ADMINISTRATOR

400 S.W. SIXTH AVE.
PORTLAND, OR. 97204

August 20, 1974

Robert N. Bothman
Metropolitan Engineer
Oregon State Highway Division
5821 N.E. Glisan Street
Portland, Oregon 97213

Dear Bob:

Please find enclosed a print of our preliminary design for an interim connection to the East-End Fremont Bridge Ramps. We have prepared this design in accordance with the provisions of Ordinance No. 137707, passed by the City Council on January 16, 1974, and in accordance with the needs of Emanuel Hospital.

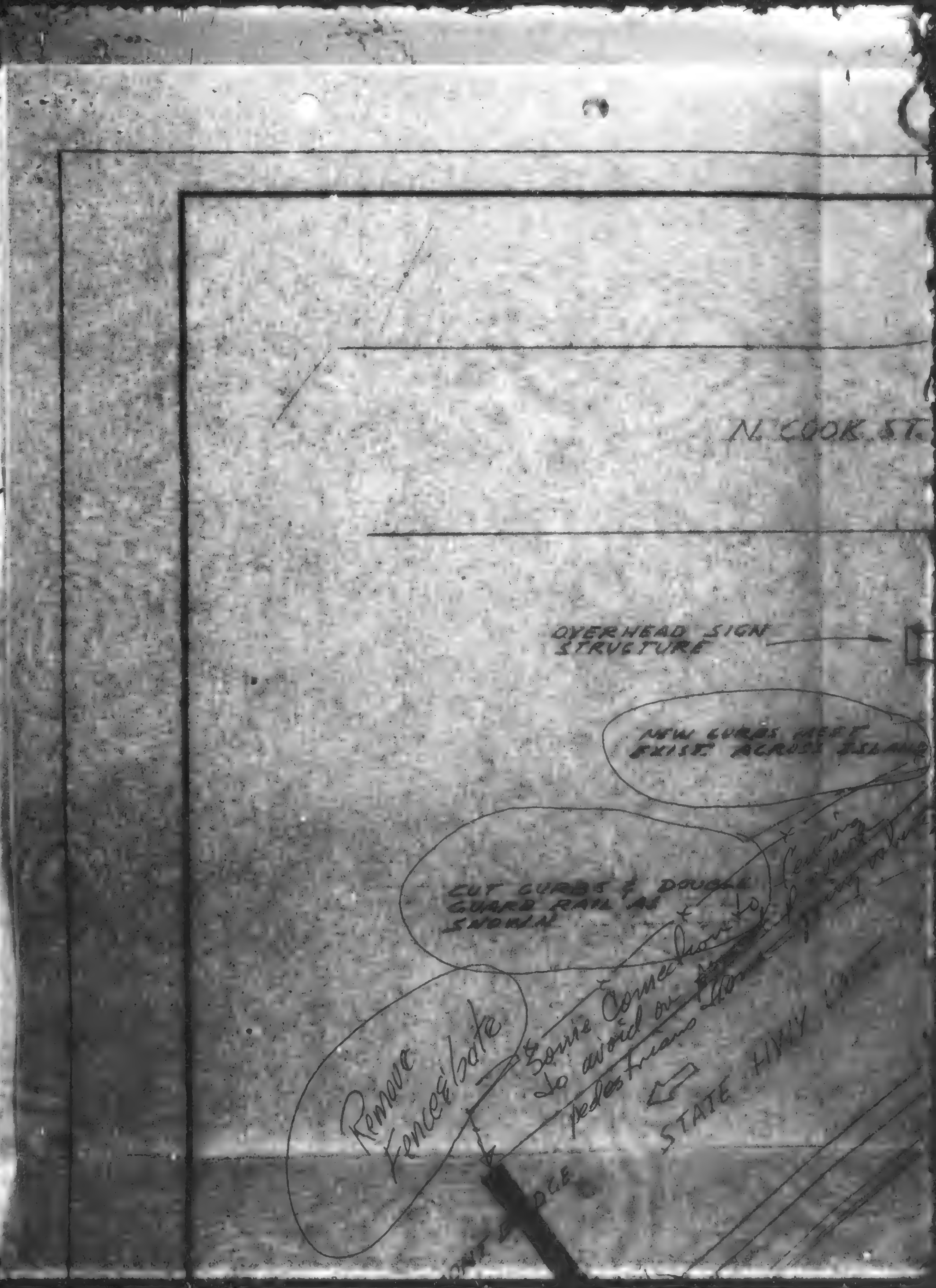
We will send you signed plans for this connection as soon as our design work is completed. It is our understanding that you will then prepare any necessary agreements or letters of understanding between the City and State.

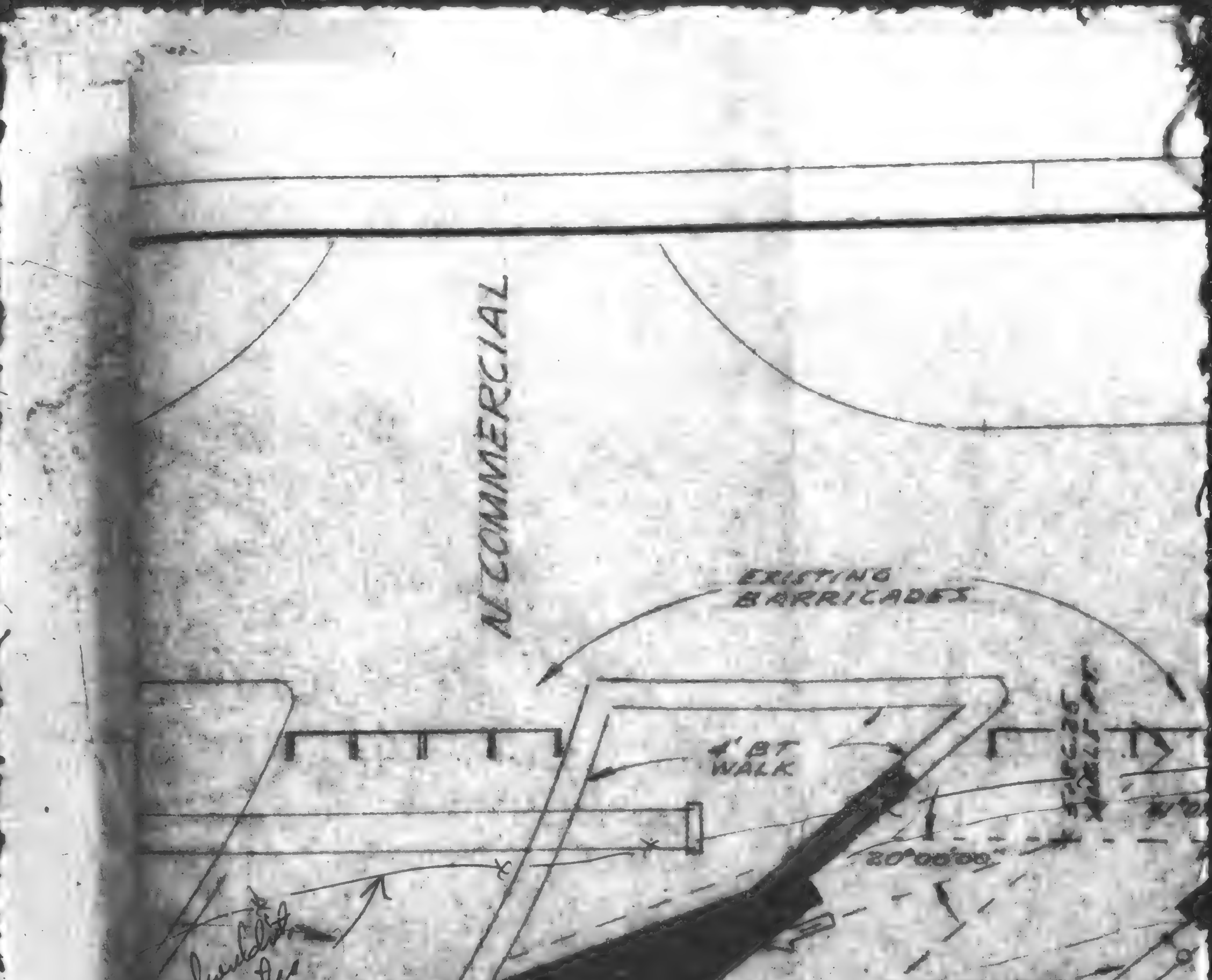
Please feel free to contact Glen Pierce of this office, phone 248-4643, if we can provide any additional information.

Very truly yours,

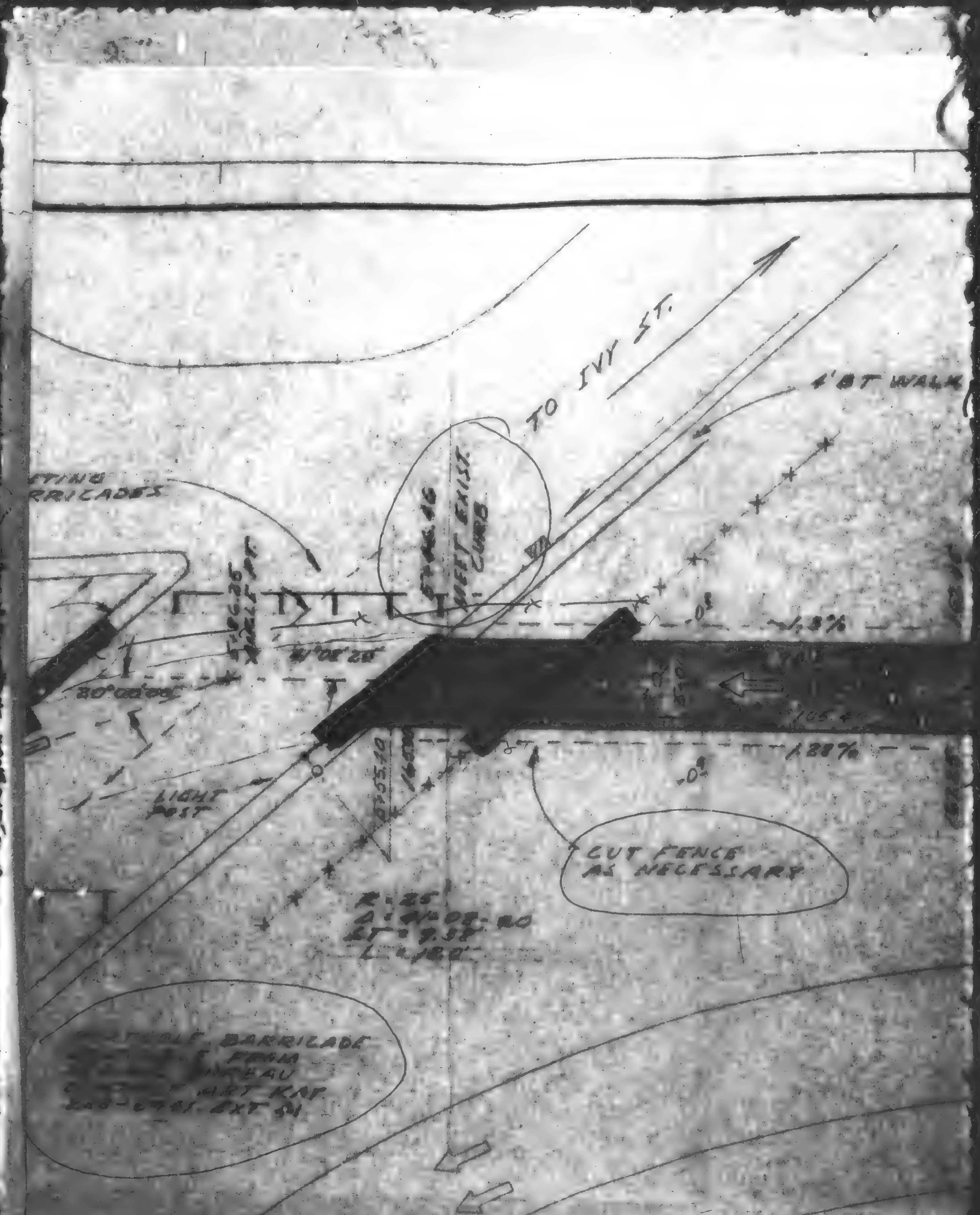
Robert E. Rector
ROBERT E. RECTOR, CHIEF
BUREAU OF STREET AND STRUCTURAL ENGINEERING

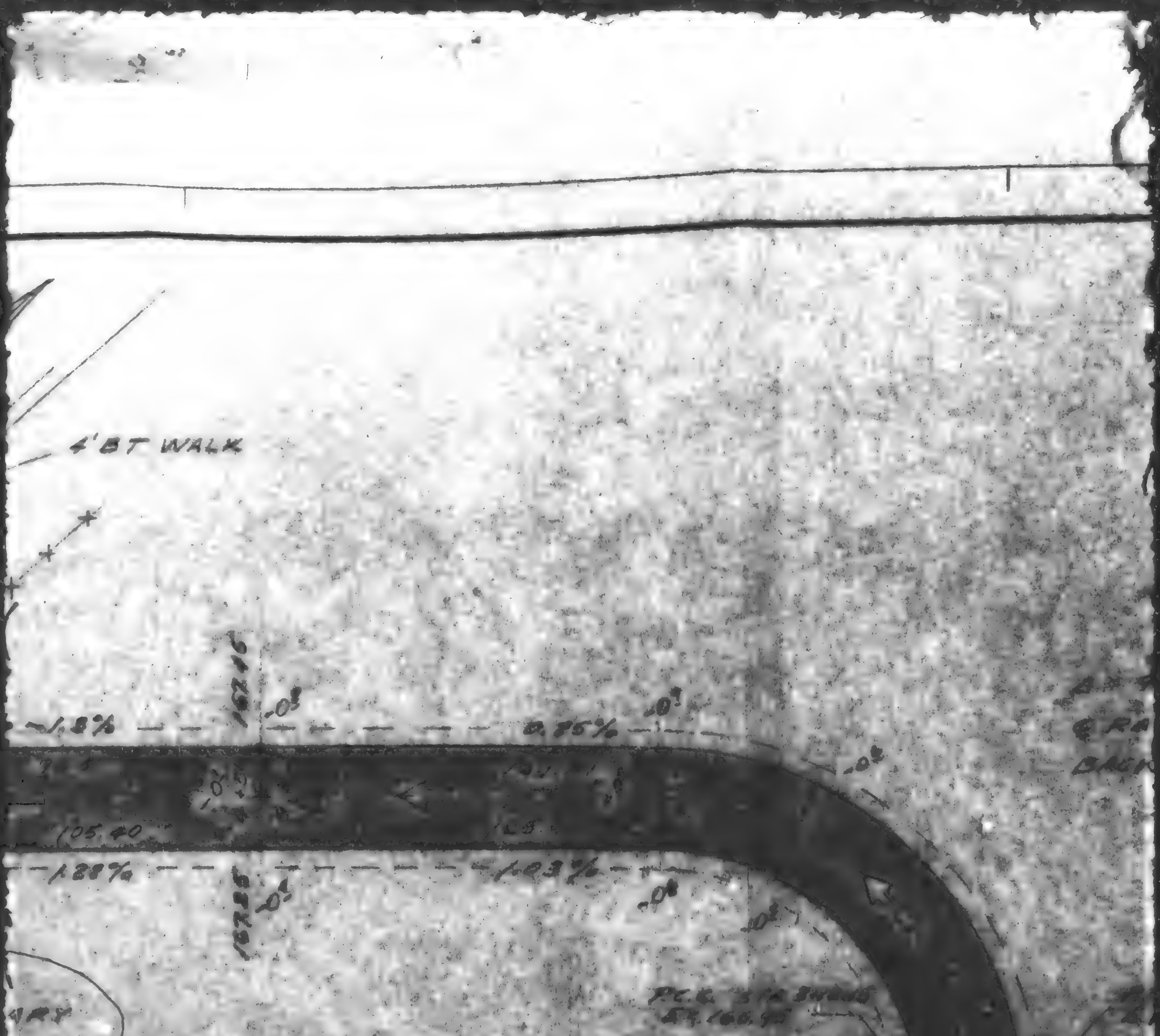
GRP:jr
Encl.


N. COOK ST.
OVERHEAD SIGN STRUCTURE
NEW CURBS MEET EXIST. ACROSS ISLAND
CUT CURBS & DOUBLE GUARD RAIL AS SHOWN
Remove Fence & Gate
Some Connection to Fencing
to avoid or prevent
pedestrians from going over
STATE HWY
DGE

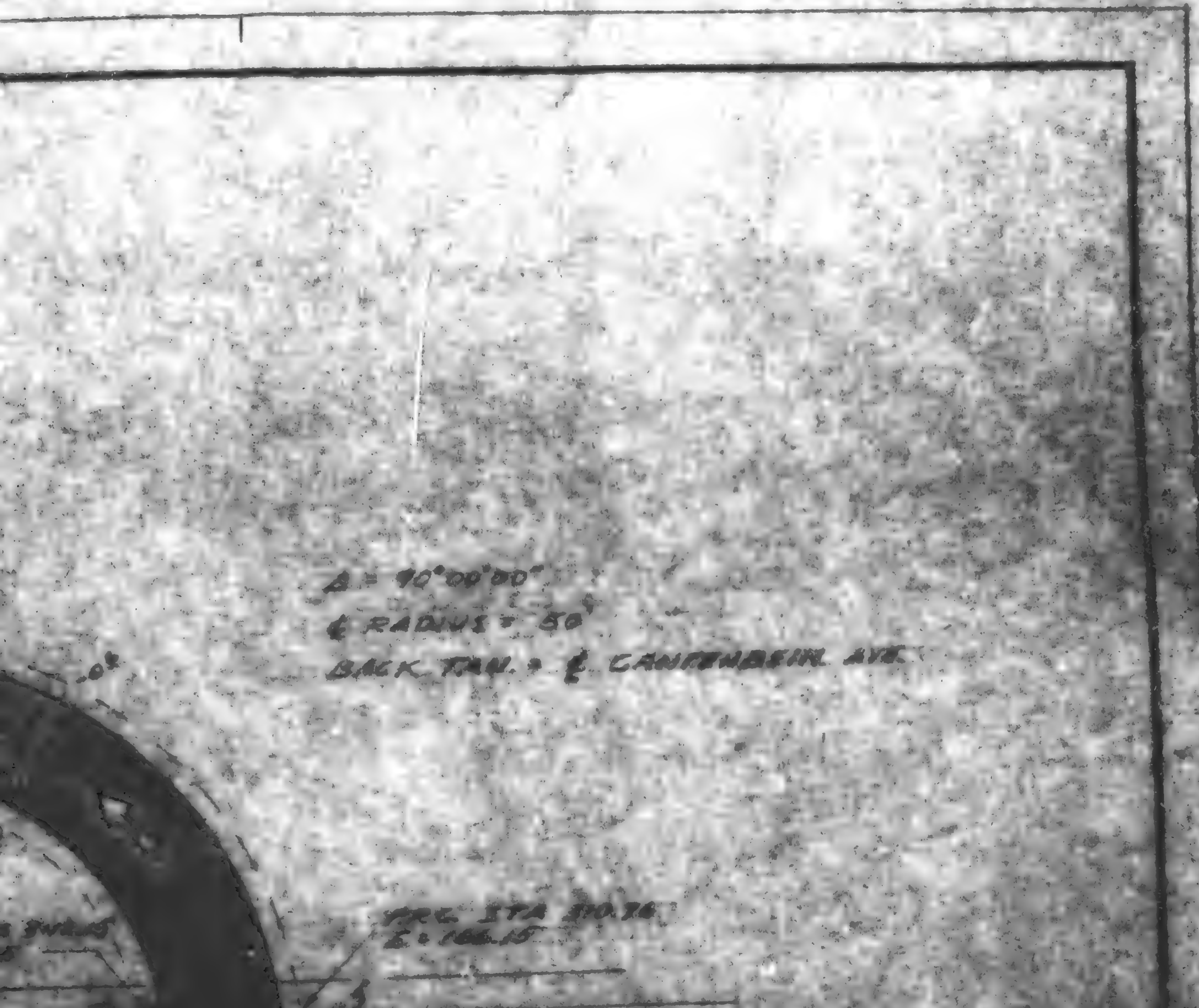


N. COMMERCIAL
EXISTING
BARRICADES
4' BT
WALK
80°00'00"
LIGHT
POST
shoulder
Our idea
R = 2'
Δ = 158-54-10
L = 6.56'
T = 10.7'
PORTABLE BARRIC
AVAILABLE FROM
MAINT. BUREAU
CONTACT ART KAP
288-5441 EXT 41
WY LANE


TO IVY ST.
4' BT WALK
...STING
...RRICADES
MEET EXIST. CURB
LIGHT POST
-0.3
-1.3%
-1.88%
-0.9
105.4
CUT FENCE AS NECESSARY
R=25'
L=12.0'
BARRICADE
FROM
EXT 51
PR

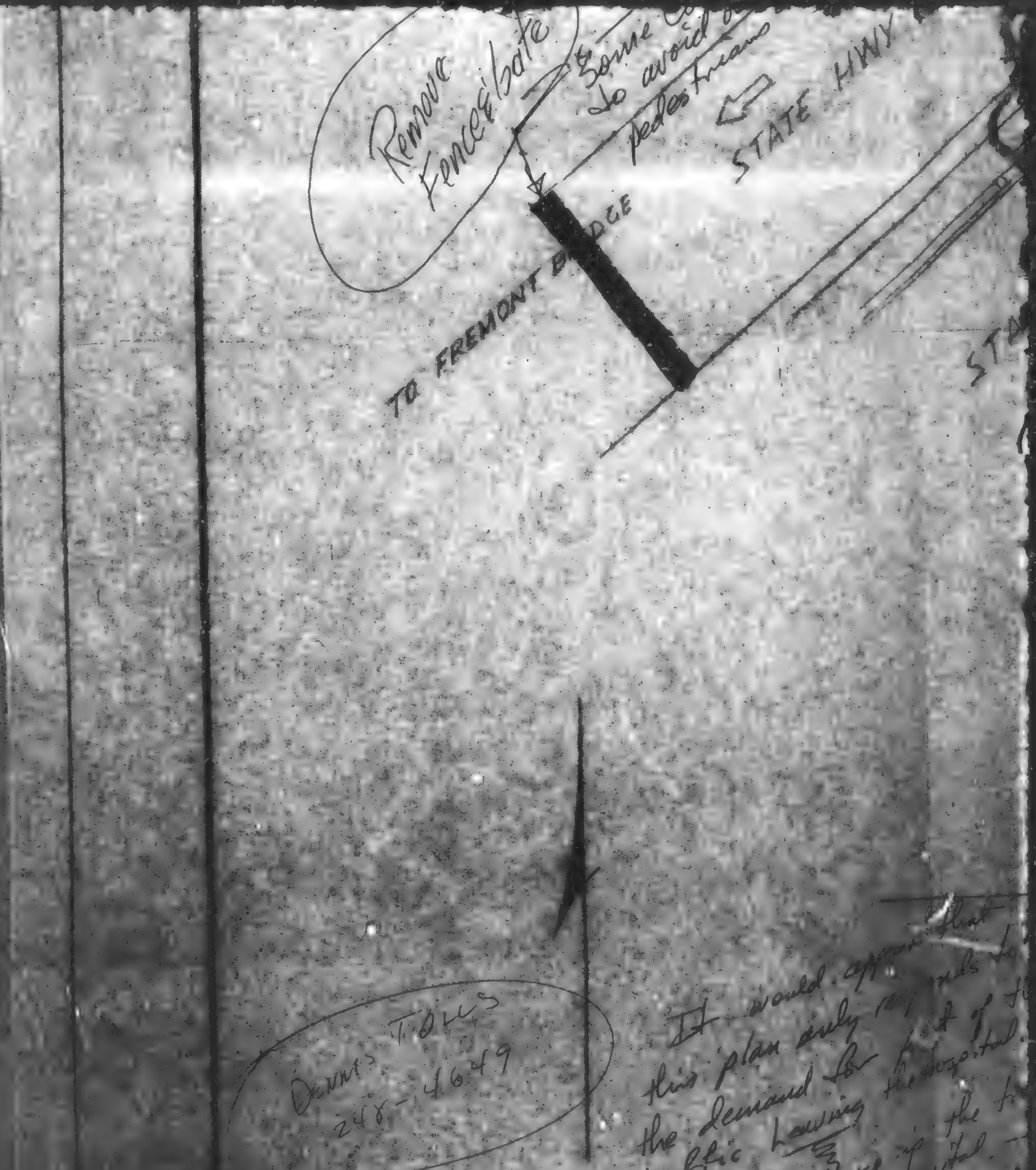

4'BT WALK
167.16
-1.8%
0.75%
105.40
-1.88%
-1.03%
167.25
P.C.C. STA SHOWN
55+166.95
SIDEWALK
TRAFFIC BUREAU TO "LIGHT"
INTERSECTION ALLOWING ONLY
THOSE MOVEMENTS SHOWN
MEET EXIST.
CURBS

PRELIMINARY

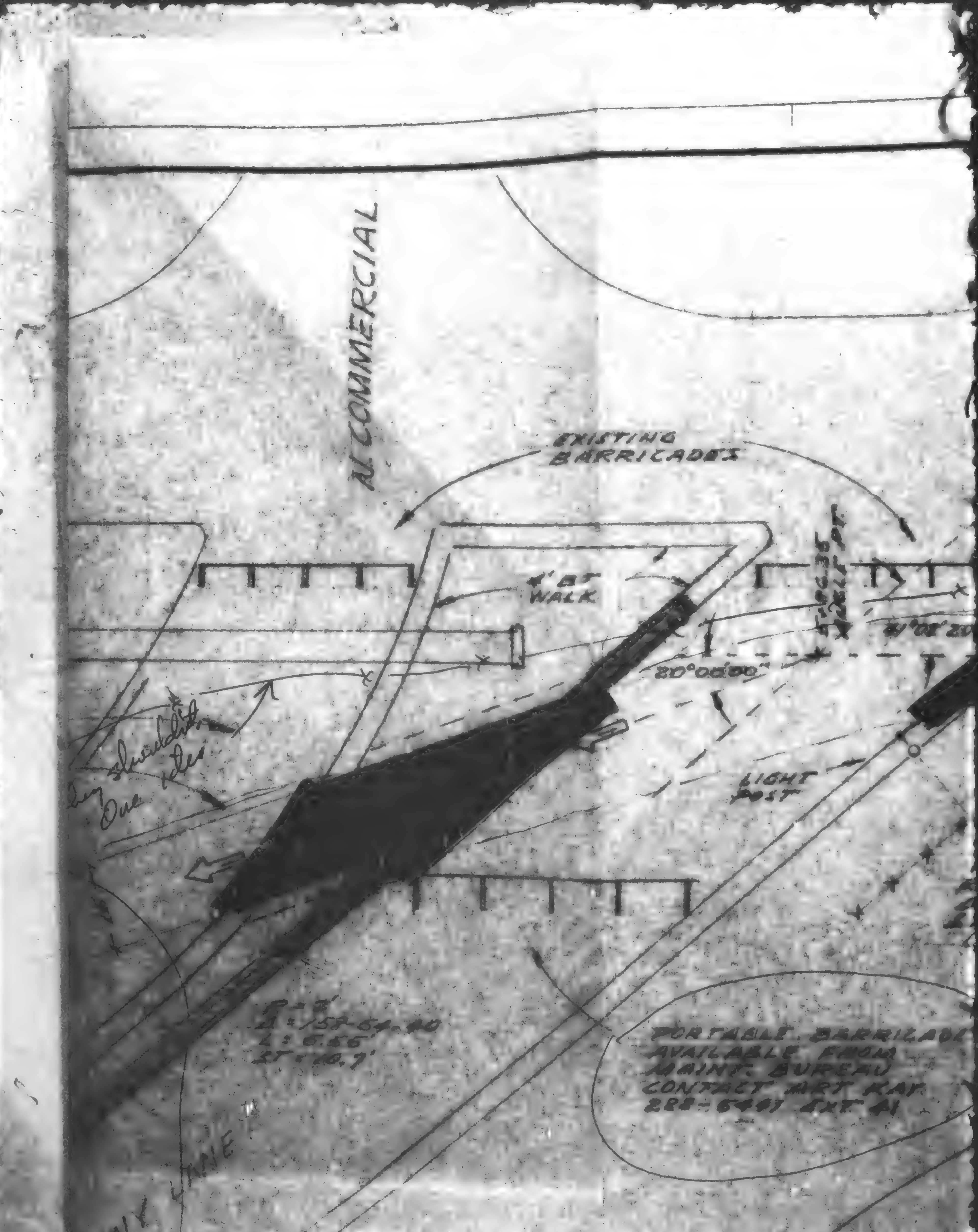


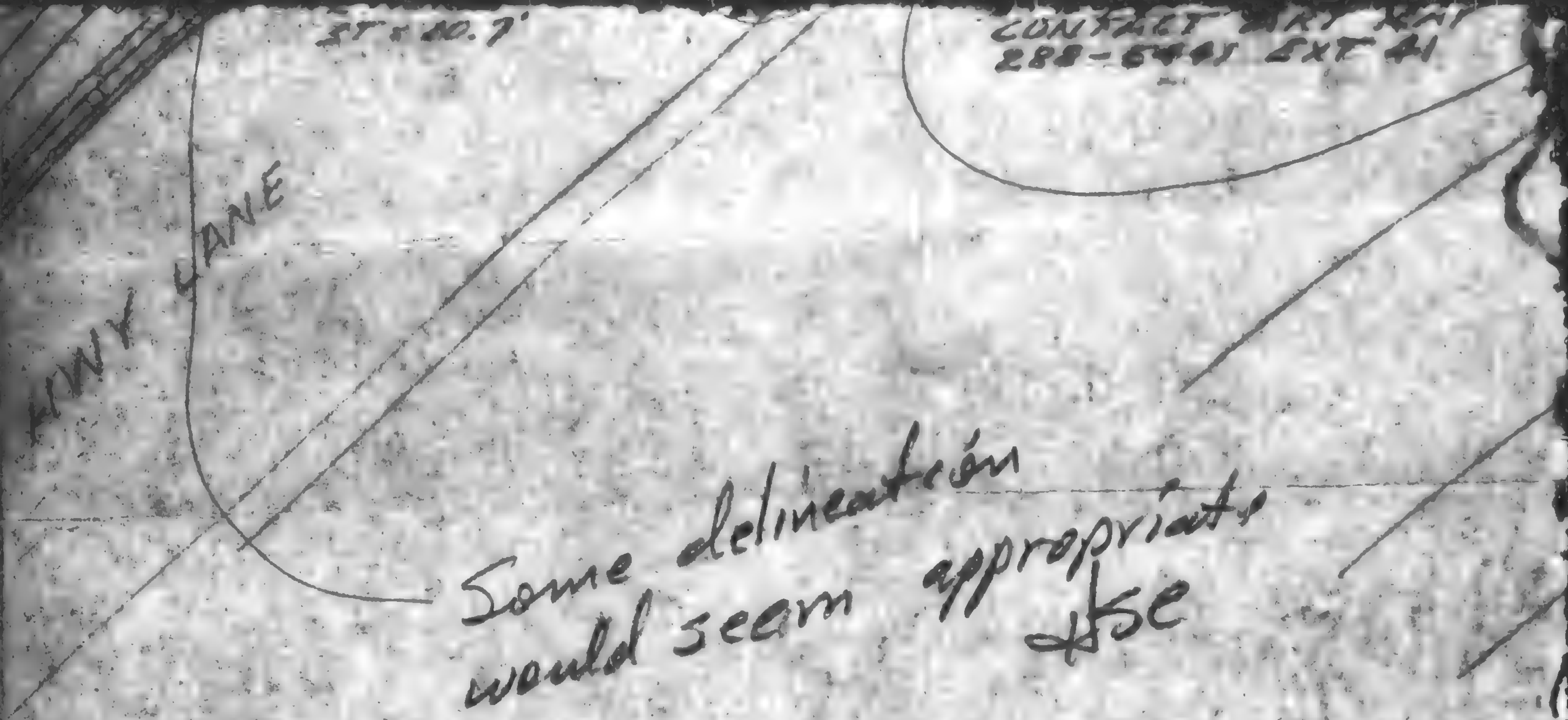
Δ = 90°00'00"
℄ RADIUS = 50'
BACK TAN. = ℄ CANTERBURY AVE.
PRC. STA 310.76
E: 166.15
POLE
NO RIGHT OR LEFT TURNS ALLOWED
N. COOK ST.
EDGE OF EXISTING

Is this more appropriate?
U-turns [illegible] appear [illegible] and still [illegible]
by this.


Remove Fence & Gate
Some
to avoid
pedestrians
STATE HWY
TO FREMONT BRIDGE
STA
N
DENNIS TOLLS
248-4649

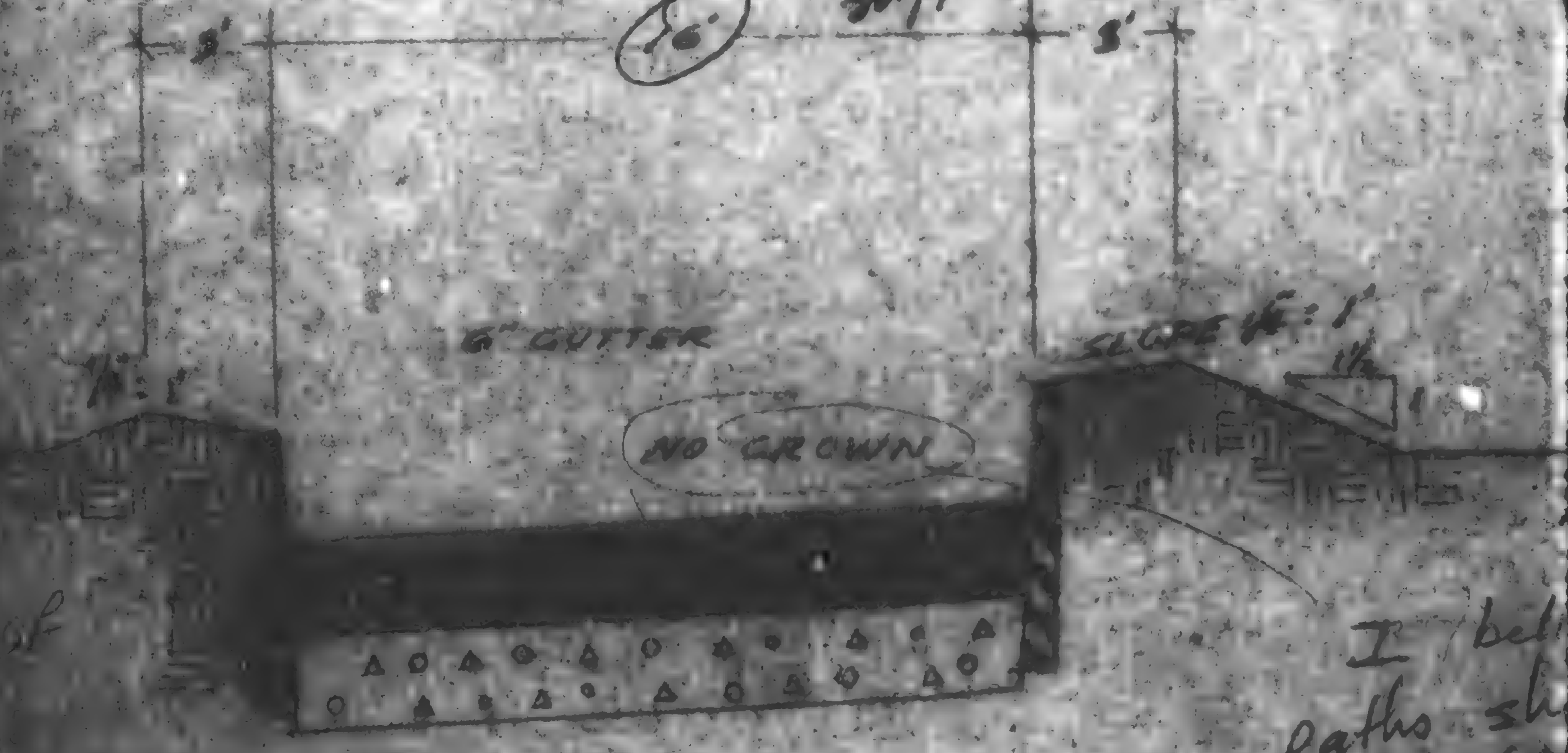
It would appear that
this plan duly responds to
the demand for part of
traffic leaving the hospital.
more importance is the
getting to the hospital
FSC

℄ COMMERCIAL
EXISTING BARRICADES
4' AT WALK
20°00'00"
LIGHT POST
R = 3'
Δ: 158-54-40
L: 6.56'
ST = 10.7'
PORTABLE BARRICADE AVAILABLE FROM MAINT. BUREAU CONTACT ART KAY 288-6491 EXT. 41
HWY. LANE


ST = 20.7'
CONTACT [illegible]
288-6491 EXT 41
HWY LANE

Some delineation
would seem appropriate
HSC

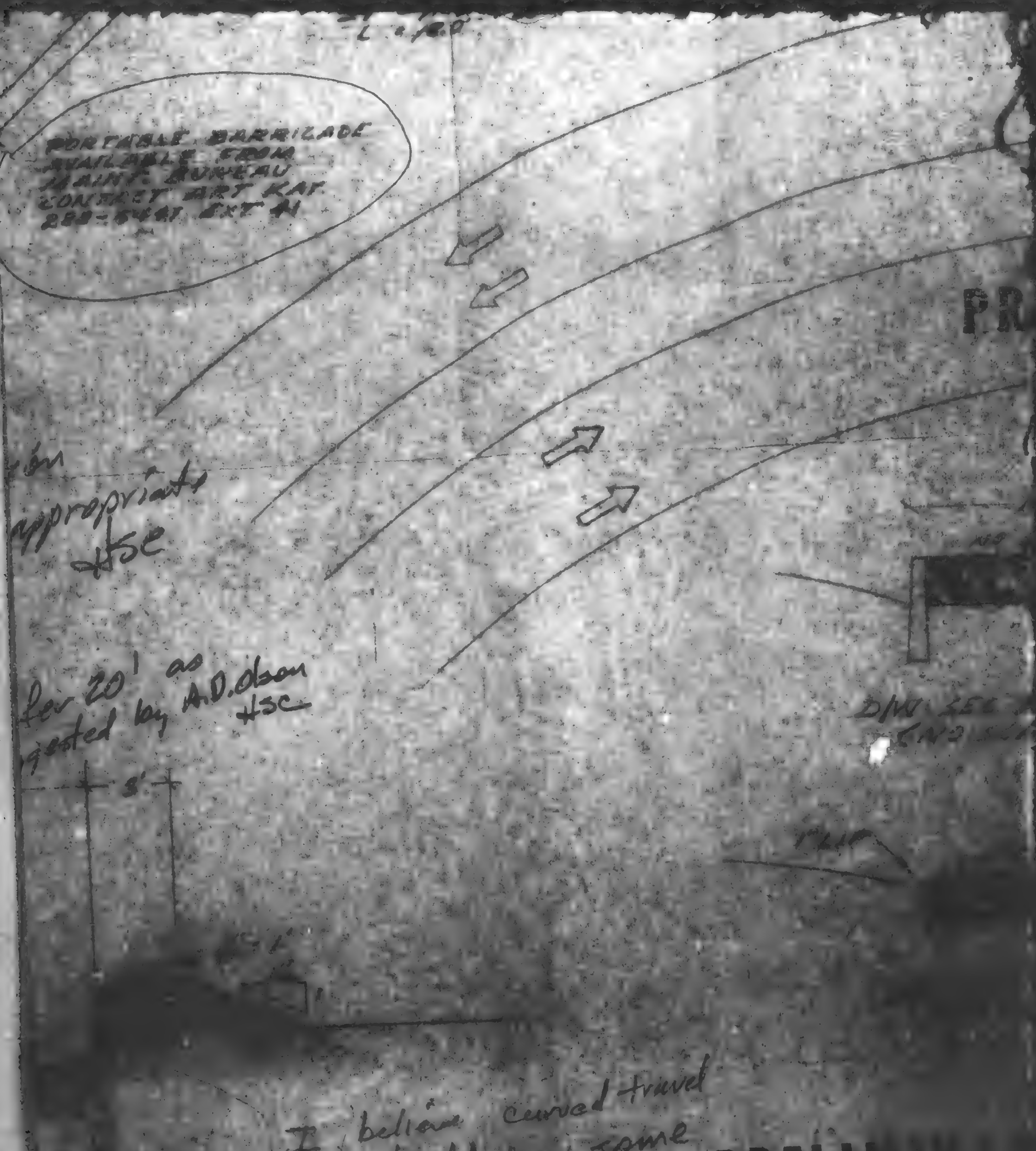
Prefer 20' as
suggested by A.D. Olson
HSC


3'
16'
3'
1½:1
6" GUTTER
SLOPE 1½:1
1½
1
NO CROWN

I bel
paths sh
superelev
easier f

TYPICAL SECTION
(NO SCALE)

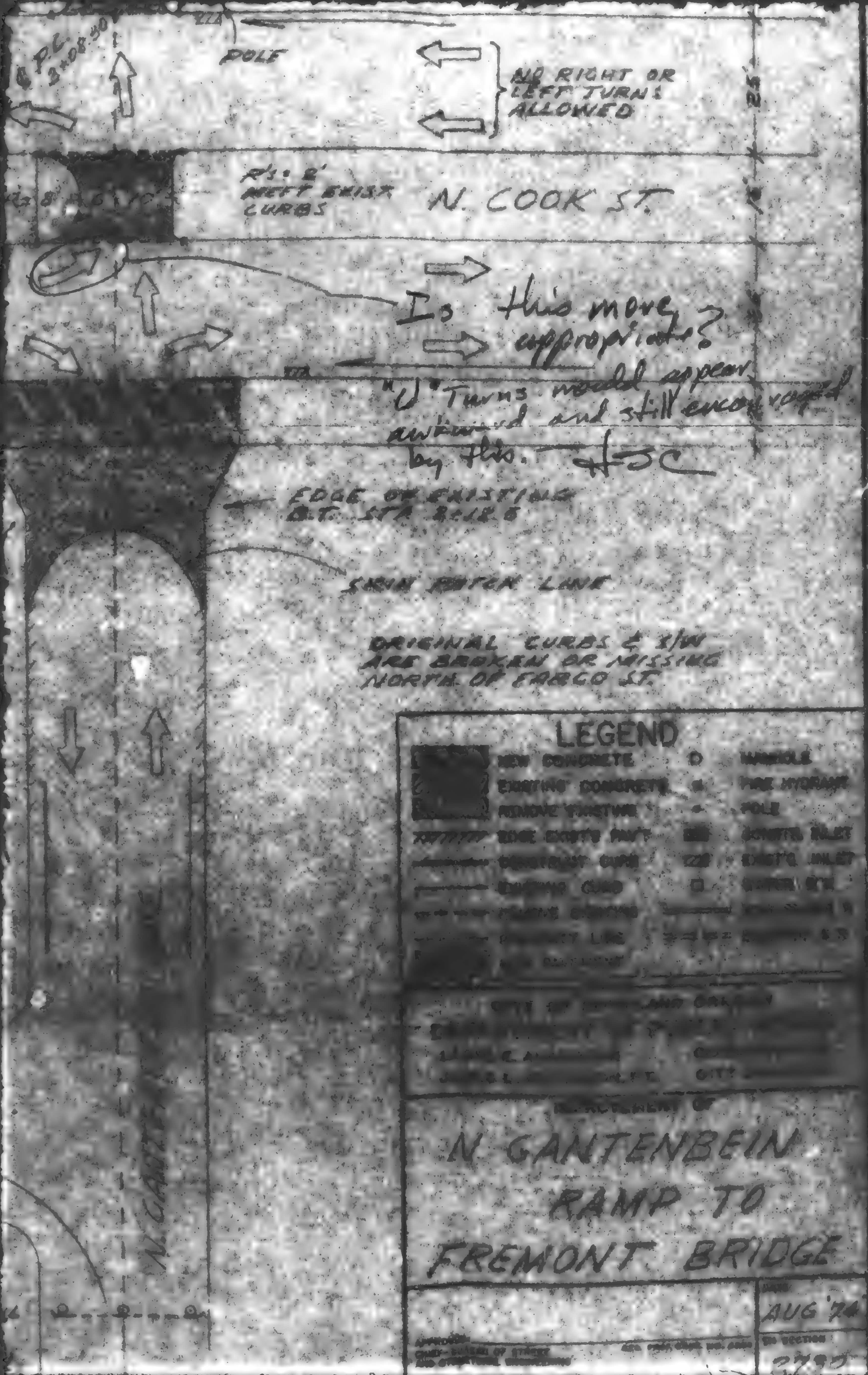
PAVE WITH 2" CLASS "C" A.C. ON
3" CLASS "B" A.C. ON
6" CRUSHED ROCK (1½"-0)


PORTABLE BARRICADE
AVAILABLE FROM
MAINT. BUREAU
CONTACT ART KAF
288-5441 EXT 41
PR
8'
D/W SEC
END SEC
PRELIM
LC ON

ion
appropriate
HSC

fer 20' as
gested by A.D.Olson
HSC

I believe curved travel paths should have some superelevation to permit easier flow of traffic.
HSC



P.C. 3+08.50
POLE
NO RIGHT OR LEFT TURNS ALLOWED
25'
R's = 2'
MEET EXIST. CURBS
N. COOK ST.
EDGE OF EXISTING
B.T. STA 3+12.6
SKIN PATCH LINE
ORIGINAL CURBS & S/W ARE BROKEN OR MISSING NORTH OF FARGO ST.
N. GANTENBEIN
LEGEND
NEW CONCRETE
EXISTING CONCRETE
REMOVE EXISTING
EDGE EXIST'G PAV'T
CONSTRUCT CURB
EXISTING CURB
MANHOLE
FIRE HYDRANT
POLE
EXIST'G INLET
CITY OF PORTLAND OREGON

Is this more appropriate?

"U" Turns would appear awkward and still encouraged by this. HJC

REPLACEMENT OF

N. GANTENBEIN RAMP TO FREMONT BRIDGE

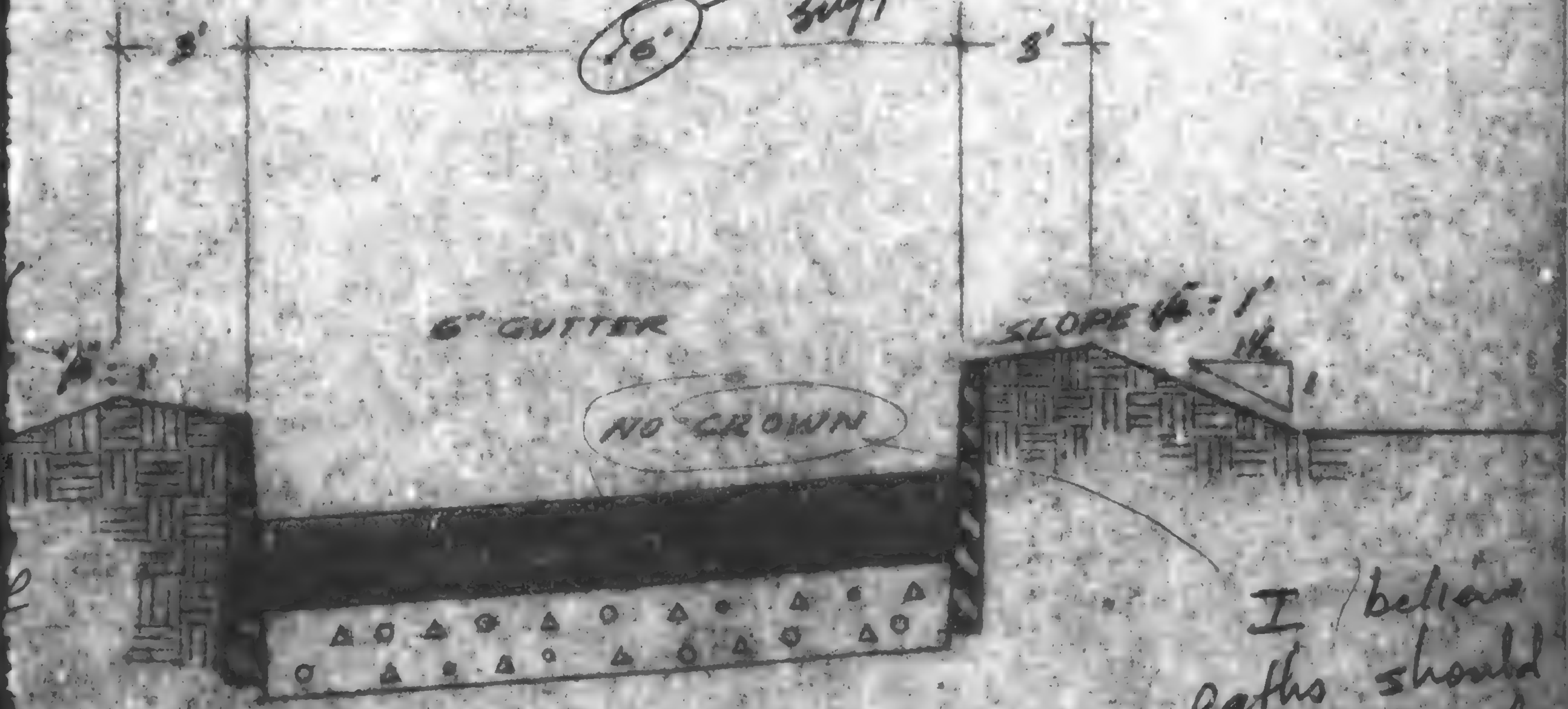
AUG '74

2795

DENNIS TOLLS
248-4649

It would appear that this plan only responds to the demand for part of the traffic Leaving the Hospital. — Of more importance is the traffic getting to the Hospital —
FSC

Some delineation
would seem appropriate
HSC

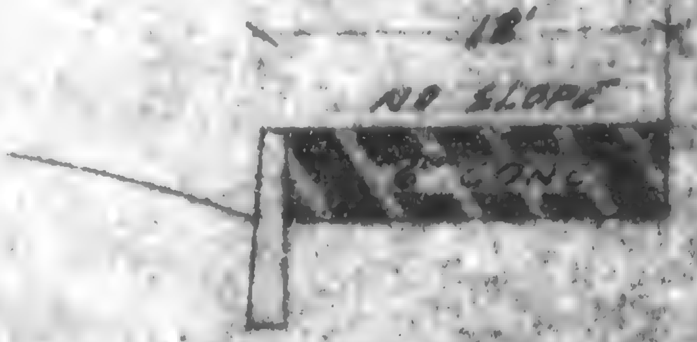

8'
16'
8'
6" GUTTER
NO CROWN
SLOPE 1/4:1
1/4
1
1/4:1

Prefer 20' as
suggested by A.D. Olson
HSC

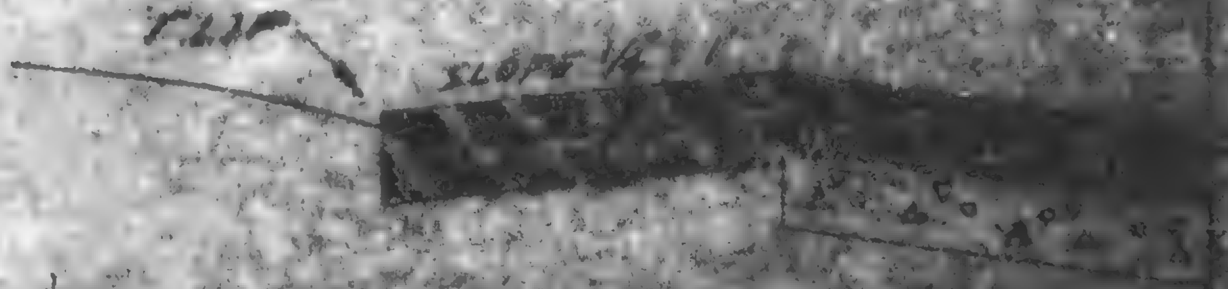
I believe
paths should
superelevatio
easior flow a

TYPICAL SECTION
(NO SCALE)

PAVE WITH 2" CLASS "C" A.C. ON
3" CLASS "B" A.C. ON
6" CRUSHED ROCK (1½"-0)


18'
NO SLOPE
CONC

D/W SEC. AT WING ENDS
(NO SCALE)

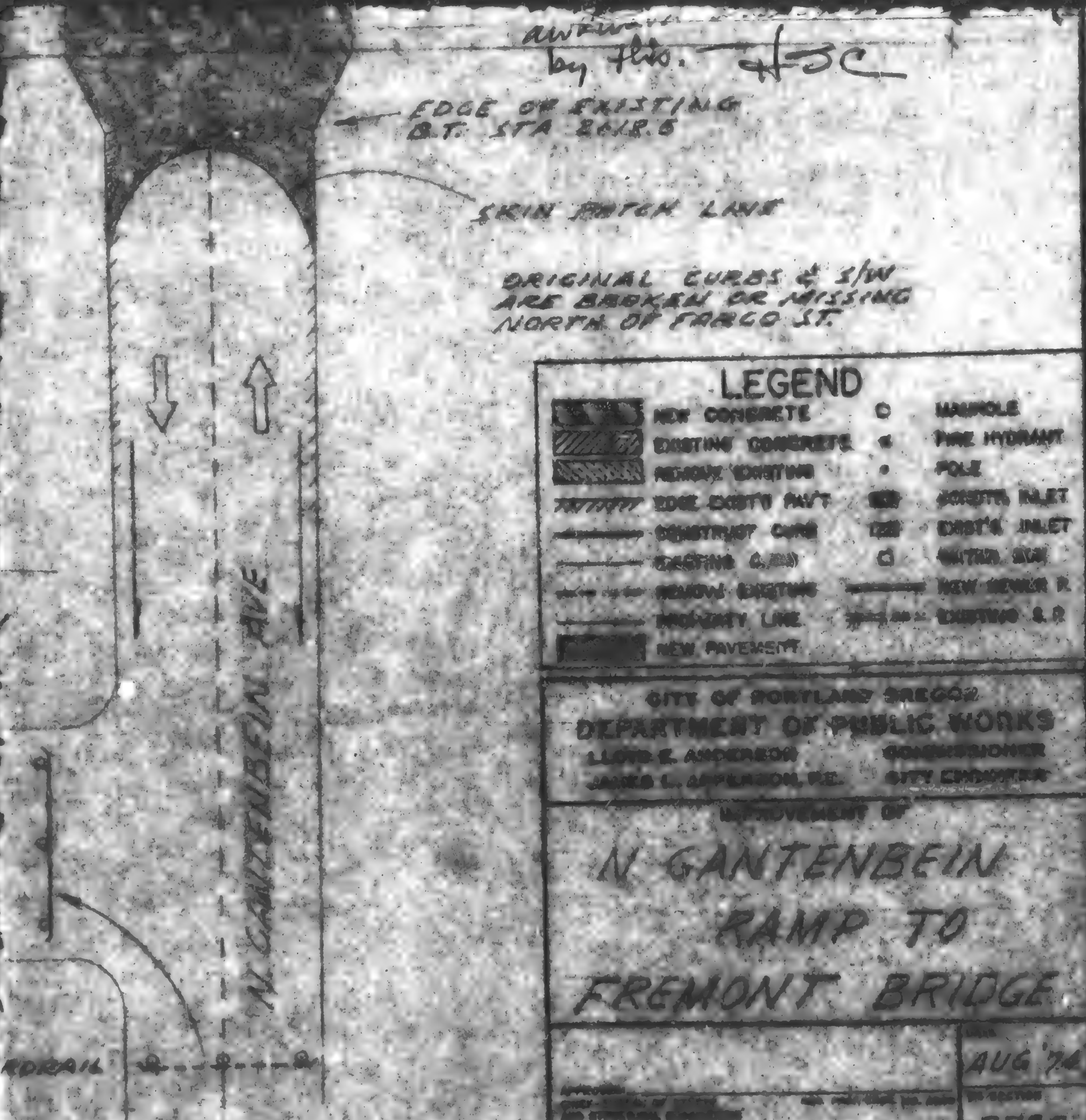

FLIP
SLOPE 1/4"

D/W SEC. THRU THROAT
(NO SCALE)

curved travel
have some
to permit
traffic.—
JSC

PRELIMINARY

N. FA


awkwa
by Flo. HSC
EDGE OF EXISTING
B.T. STA 2618.6
SKIN PATCH LINE
ORIGINAL CURBS & S/W
ARE BROKEN OR MISSING
NORTH OF FARGO ST.
N. GANTENBEIN AVE
RDRAIL

LEGEND

▨	NEW CONCRETE	○	MANHOLE
▨	EXISTING CONCRETE	[illegible]	FIRE HYDRANT
▨	REMOVE EXISTING	●	POLE
	EDGE EXIST'G PAV'T	■	CONSTR. INLET
	CONSTRUCT CURB	☐	EXIST'G INLET
	EXISTING C.[illegible]	○	[illegible]
	REMOVE EXISTING		NEW SEWER P.
	PROPERTY LINE		EXISTING S.P.
■	NEW PAVEMENT		

CITY OF PORTLAND OREGON
DEPARTMENT OF PUBLIC WORKS
LLOYD E. ANDERSON — COMMISSIONER
JAMES L. APPERSON, P.E. — CITY ENGINEER

IMPROVEMENT OF

N. GANTENBEIN RAMP TO FREMONT BRIDGE

DATE AUG '74
1/4 SECTION 2730
JOB NO. 18314
FILE NO.
SHEET NO. 1 OF

APPROVED:
[illegible]

APPROVED:
[illegible] CITY ENGINEER

APPROVED:
CITY ENGINEER

DRAWN BY	SCALE	X-SEC. BOOK
DDT	1" = 20'	890
CHECKED BY		PAGE 68-76

NO.	DATE	DESCRIPTION	DATE	APPR.

REVISIONS

2909

OREGON STATE
HIGHWAY DIVISION

HIGHWAY BUILDING • SALEM, OREGON • 97310

DATE August 22, 1974

AGENDA
AUG 29 1974
4 g.

TO Oregon Transportation ~~State Highway~~ Commission

ORIGINAL SIGNED BY
F. B. KLABOE

FROM F. B. Klaboe
State Highway Engineer

SUBJECT Urban System Project Requests

Presented for your consideration at the August 29 meeting will be four requests for approval of Urban System projects.

Clackamas County is requesting a channelization and traffic signal project on Johnson Creek Blvd. at Bell Avenue in the southeast area of Portland.

The City of Portland is requesting approval of two consultant studies to determine solutions to traffic problems off the east end of the Fremont Bridge and at the intersection of East Burnside-Sandy Boulevard and 12th Avenue.

The fourth project request comes from the City of Salem to four-lane a 0.17 mile segment of Mission Street, S. E.

Urban System funds for these projects are estimated at $683,000 with the State providing approximately $95,500 in match funds and an equal amount being contributed by the involved local units of government.

These projects have been investigated and are eligible for funding under the Federal Aid Urban System program. Each request has been approved by the local Council of Governments. I recommend your approval of the projects and request authority to sign project agreements for and on your behalf.

CWH said not to file t. signal

bc ~~C. W. Head~~ ✓
G. M. Baldwin
A. E. Johnson
E. S. Hunter
R. L. Schroeder
H. S. Coulter
L. W. Rulien
V. E. Skoog
H. S. Cox
R. N. Bothman
E. L. Hardt
C. O. Fredrickson
R. E. Whipps
Gary Sund

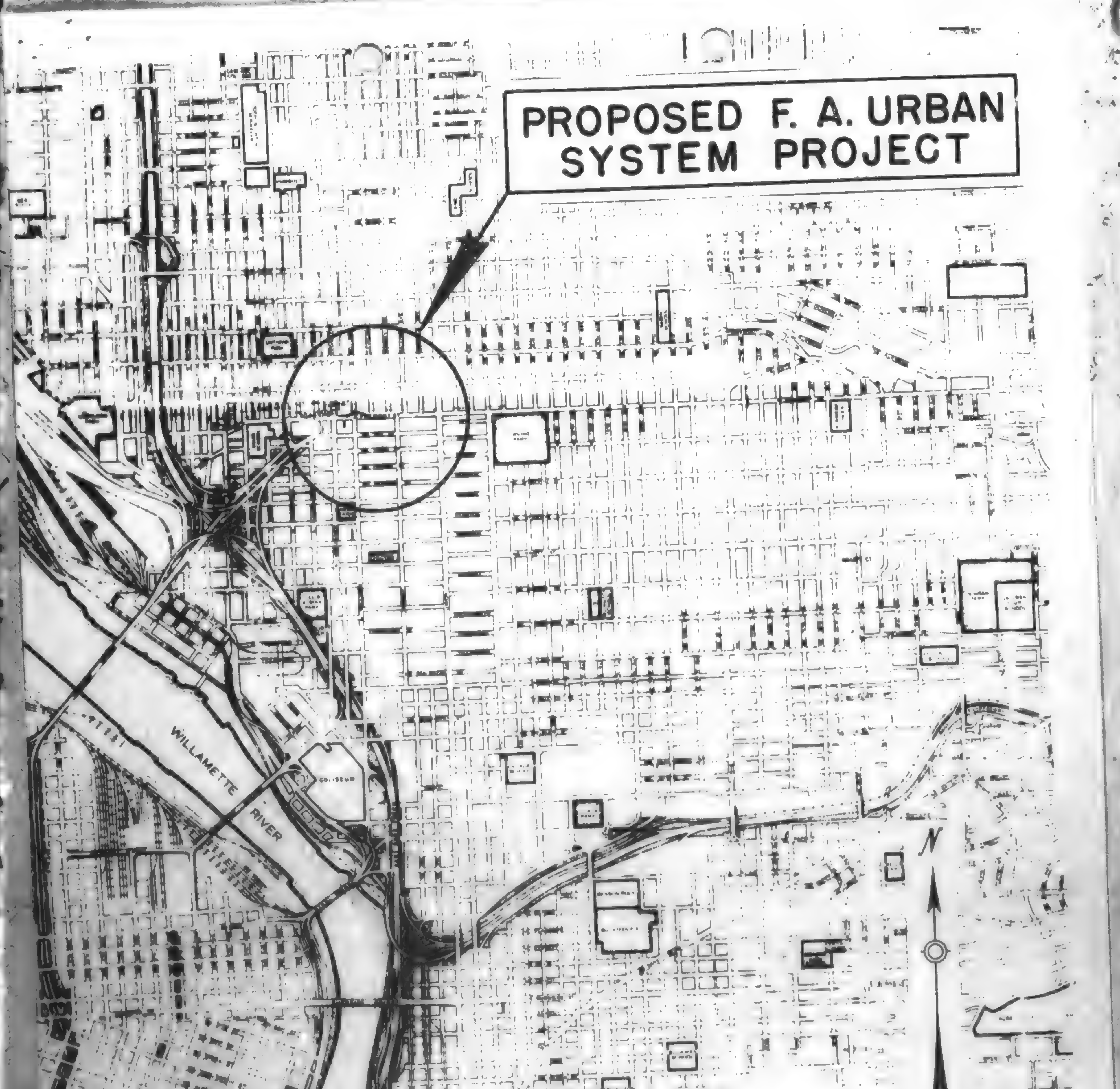
CITY OF PORTLAND
Proposed Urban System Project

Consultant Study
East Fremont Bridge Connection to Union Avenue
FAU 2029
$324,000

Study alternate long-range solutions for traffic problems in the area between the Ivy Street ramps of the Fremont Bridge and N.E. Union Avenue.

This study will be conducted by the consultant firm of Cornell, Howland, Hayes & Merryfield-Hill. Some portions of the project will be performed by State and City personnel.

74-d
8/20/74


PROPOSED F. A. URBAN SYSTEM PROJECT
WILLAMETTE RIVER
COLISEUM
N
PORTLAND, OREGON

J. B. Boyd
Right of Way Engineer

July 8, 1974

C. W. Head
Commission Services

Copy Row 10-1

MISC. CONTRACTS and
AGREEMENTS No. 4996

Attached is a xerox copy of a fully executed agreement with the Portland Development Commission covering an exchange of property to improve the property on North Portland Harbor-Russell Street Section of the Pacific Highway in Multnomah County.

The Transportation Commission on September 19, 1973, approved this agreement and it was transmitted to the Development Commission for signing on November 21, 1973.

Attached is a copy of a letter from Donald E. Stark, Attorney, returning to us a fully executed copy of the agreement. Jack Sollis asked that you prepare the deed as mentioned in the letter and the agreement.

Also attached is an unsigned copy of the agreement if you should need an extra copy.

cc Jack Sollis

Atts.

fhm

WILLIAMS, MONTAGUE, STARK, HIEFIELD & NORVILLE, P.C.
ATTORNEYS AND COUNSELORS AT LAW
BOISE CASCADE BUILDING
PORTLAND, OREGON 97201

TELEPHONE 222-9966

DAVID R. WILLIAMS
MALCOLM J. MONTAGUE
DONALD R. STARK
PRESTON C. HIEFIELD, JR.
OLIVER I. NORVILLE
JAMES E. GRIFFIN
LARRY C. HAMMACK
RICHARD E. ALEXANDER
CARY M. ANDERSON

Sept. 19, 1973 Comm. meeting
Agenda Item I-V

IN REPLY PLEASE REFER TO
FILE NO.

April 12, 1974

Department of Transportation
Highway Building
Salem, Oregon 97310

Attention: Mr. C. W. Head, Commission Services

Dear Mr. Head:

In response to your letter of April 10, 1974, the Emanuel Property Exchange Agreement has not been executed by the Portland Development Commission but we expect formal execution to take place in the immediate future. The reason for the delay is that HUD has required approval of the forms of deed to be used in conveying the parcel to the State of Oregon. These forms have been prepared and have been forwarded to HUD and we expect to obtain their approval in the immediate future. Apparently it was not anticipated that this approval would be needed prior to execution of the Agreements. At any rate, the Development Commission and this office are accelerating their efforts in that regard in order to complete the Agreement as quickly as possible.

I have discussed the status of this matter with your secretary on separate occasions in February and March, 1974. The conversations arose as a result of a phone call to me and it was my understanding that this information had been forwarded to you. If this was not the case, I apologize for not providing you with a written status report.

If you have any further questions concerning this matter, please feel free to contact either myself or Mr. Harold Hand of the Portland Development Commission at your convenience.

Very truly yours,

WILLIAMS, MONTAGUE, STARK,
HIEFIELD & NORVILLE, P.C.

Larry C. Hammack
LARRY C. HAMMACK

LCH:cm
cc: Mr. Harold Hand

RECEIVED
APR 1[illegible] 1974
COMMISSION AND [illegible] SERVICES
DEPARTMENT OF TRANSPORTATION

4/15
Copies to Sollis & Boyd

NOTED
C. W. HEAD

November 21, 1973

Mr. Larry C. Hammack
Attorney at Law
Boise Cascade Building
Portland, Oregon 97201

222-9966

Dear Mr. Hammack:

Attached are two copies of an agreement with the Portland Development Commission concerning an exchange of property to improve the property on North Portland Harbor-Russell Street Section of the Pacific Highway in Multnomah County.

The Transportation Commission on September 19, 1973, approved this agreement.

Would you please have the Portland Development Commission enter the date on page 1 and sign on page 4. When this has been done, please return one copy to this office. The other copy may be retained for their files.

Very truly yours,

C. W. Hund, Manager
ADMINISTRATIVE SERVICES

Shm
Att.

cc J. E. Boyd
Jack Sollis

1/23/74 - Called Hammack
should be receiving
around middle
of Feb.

3-5-74
Called Hammack &
he will check whereabouts.
he called back & is
working on it -

8909 fau

SALEM, OREGON
June 19, 1974

TO: Mr. L. W. Rulien
Project Management Engineer
BUILDING

SUBJECT: Consultant Proposals (2)
FAUS P.E. Projects
City of Portland

FROM: Richard Unrein
Urban Engineer
County & City Unit

Attached are two consultant proposals for Urban System preliminary engineering projects from the City of Portland.

One is a $324,000 project study for providing a Fremont Bridge connection to Union Avenue involving the firm of CH2M Hill.

The other is a $195,000 project study of the Burnside-Sandy - 12th Street intersection involving the firm of Stevens, Thompson & Runyon,

These studies are quite expensive and there is no indication that there will be any funds available to implement the improvements. It also may be difficult to justify the cost of the studies.

It appears that the City of Portland followed an acceptable procedure in the selection of the consultants. The CH2M Hill proposal needs some work in providing a narrative introduction to the study process.

Please review these proposals and indicate the action you desire to be taken.

RU:ljt
Att.

☑ ENGR. ☑ ASST. ☑ DE ☑ AE ■ UE
☑ UPE B CE R RE a RPE ☐

8909

FORM E-30

OREGON STATE HIGHWAY DIVISION

INTER-DEPARTMENT CORRESPONDENCE

Portland, Oregon 97213

RECEIVED
STATE HWY ENGR
JAN 18 '74
REFER TO

FOR

Info	Invst	R/D	D/R	Sign	Art	File

RECEIVED
FEB 1 1974
Office of
Assistant State Highway Engineer

NOTED
A. E. JOHNSON

DATE January 16, 1974

TO MEMO TO THE FILE

ORIGINAL SIGNED BY R. N. BOTHMAN

FROM R. N. BOTHMAN
Metropolitan Engineer

SUBJECT EAST FREMONT CONNECTION

City Council passed their resolution adopting the Flint-Kirby Street interim connection to provide access to and from Emmanuel Hospital, committing the City to institute a design and construction of a permanent connection from the East Fremont Bridge to Union Avenue. The latter is subject to limiting traffic from entering the neighborhood areas east of Union Avenue. The opening of the interim Flint-Kirby connection is subject to a committment from the Emmanuel Hospital that they will proceed with their development plan.

Discussions with the administrator of the hospital and the chairman of the board after the ordinance was passed indicated that they would not consent; therefore, it appears that the bridge will be closed until a final solution is derived from the environmental study and construction of a permanent connection to Union Avenue.

Gary Stout, Planning Director, indicated some agreement was involved with the communities east of Union. One stipulation placed on the consultant study is that no additional traffic be allowed to the neighborhood east of Union which may preclude any permanent solution short of direct ramps to the hospital. There is an alternative to provide for connection only to Vancouver & Williams. This plan could possibly utilize Fremont as a connector from Union only to Vancouver & Williams, thence to the Ivy Street ramp.

The Model Cities area approved of the interim Ivy Street connection, subject to the permanent connection to Union Avenue. This ordinance was also voted on, and failed by a vote of 2-2, Ivancie and Anderson for opening the Ivy Street ramps and Goldschmidt and McCready against (Schwab was out of town). Dissension came from the neighborhoods east of Union as well as various anti-freeway groups (the Oregon Environmental Council and others).

Gary Stout and Don Bergstrom strongly urged the NO-vote on the Ivy Street ramp opening and the YES-vote on the Flint-Kirby Street opening, perhaps swaying McCready who proved to be the decision-maker on the Council for this issue.

I told Stout that the Highway Division would probably not take issue with the failure of an interim solution as long as there was a possibility of a permanent connection to the East Fremont Bridge, which was provided for in the ordinance passed this date.

ar

cc F. B. Klaboe
G. L. Sund

NOTED
F. B. KLABOE

8909

OREGONIAN [illegible]5/74

Hold down interim cost

The Portland City Council is scheduled today to choose for development one of two entrance-exit routes that could be used on opening the Ivy Street ramp at the east end of the Fremont Bridge. So much of the information presented regarding probable traffic counts, effects on neighborhoods, potentialities for regenerating the Union Avenue business district, etc., appear unreliable that the City Council should seize on one immutable fact in reaching a decision: Either choice is an interim move until a permanent solution is reached, probably in four years. Therefore, the city should provide traffic access at the lowest possible cost, until a permanent plan is devised, by selecting the so-called Flint-Kirby option.

This route involves a right turn off the Broadway ramp and a rapid trip to NE Broadway, where one would double back on NE Flint toward Emanuel Hospital, which is the principal organization lobbying for improved access. Indeed, the hospital does need improved traffic flow if it is to proceed with a major new construction program. City projections indicate the Flint-Kirby route will redirect about 4,600 cars, almost all of them serving the hospital and the Boise and Eliot neighborhoods. An additional 1,000-1,500 cars than at present will pass in front of Eliot School; however, only some 80 of 400 students are not bused to this school. Cost of this interim plan would be $78,000, of which only $27,400 would have to come from city general funds.

By contrast, the so-called Ivy Street alternative, which would channel cars on and off the ramp over Vancouver and Williams avenues to Fremont Street, would cost $186,500 to develop, with a local cost of $115,000.

City planners propose to allow a maximum of 6,000 cars a day to use this route each way. Cars, would, in effect, be metered by a traffic light at the foot of the ramp. If many residents from the Irvington neighborhood and areas more to the East used the route, congestion and major delays would follow. This alternative would place an additional 1,100 cars in front of Boise School and 600 cars in front of Alameda School, which have large percentages of children who walk to school. Traffic on Fremont would increase by 4,000 cars a day. A sidelight is that this plan is projected to reduce traffic on Union Avenue, whose businessmen have reportedly favored the Ivy Street alternative because they felt it would increase traffic and business potential for them.

If there had been strong sentiment from Irvington or neighborhoods farther to the East for improved access to the city via the Fremont Bridge, a strong case could have been made for spending local funds to test the possibilities and dangers of the Ivy Street alternative. No such sentiment was evident, even though the ramp discussion has been well publicized over a long period. Therefore, the City Council should not squander public money on the interim solution but should move toward a permanent plan that will improve access to Northeast Portland without turning neighborhood streets into arterials.

NOTED
H. S. COULTER

NOTED
A. E. JOHNSON

RECEIVED
STATE HWY ENGR
JAN 21 '74
REFER TO
FOR
Info Inves R/D D/R Show Act File

8907

FORM E-30

OREGON STATE HIGHWAY DIVISION
INTER-DEPARTMENT CORRESPONDENCE
Portland, Oregon 97213

DATE January 9, 1974

TO MEMO TO THE FILE

ORIGINAL SIGNED BY R.N. BOTHMAN

FROM R. N. BOTHMAN
Metropolitan Engineer

SUBJECT EAST FREMONT CONNECTION TO UNION AVENUE

Met with Don Bergstrom and members of Stanton Yard to review the Flint Street-Kirby Street proposal for a connection to the East Fremont Bridge. This connection would utilize the Fremont Bridge on-ramp from Ivy Street for access from the hospital to the freeway, with a 180° button-hook type connection from Commercial & Cook northerly and westerly to the on-ramp. The access to the hospital would be provided via the Broadway-Weidler ramp from I-5 - thence to Weidler, thence to Flint. An alternative exists which would facilitate closing the bridge entirely, utilizing Williams for southbound traffic with a button-hook at Williams & Broadway to allow traffic onto the freeway.

I advised Bergstrom that the Highway Division would have no particular part of such a connection to the East Fremont Bridge, however would not object to the City providing such a connection which would serve Emmanuel Hospital only.

Bergstrom requested a letter from the Division to him indicating the State's position both on the Flint-Kirby Street proposal and the button-hook proposed from Williams to the northbound on-ramp at Broadway.

ar

cc R. L. Schroeder

RECEIVED
JAN 11 1974
Office of
Assistant State Highway Engineer

NOTED
R. L. SCHROEDER

8709

FORM E-30

OREGON STATE HIGHWAY DIVISION
INTER-DEPARTMENT CORRESPONDENCE
Portland, Oregon 97213

DATE January 7, 1974

TO MEMO TO THE FILE

ORIGINAL SIGNED BY R. N. BOTHMAN ar

FROM R. N. BOTHMAN
Metropolitan Engineer

SUBJECT EAST FREMONT CONNECTION TO UNION AVENUE

City Council considered a report prepared by Planning Bureau, City of Portland, recommending opening of the East Fremont with a temporary connection on Ivy Street to Vancouver and Williams and further for the planning effort to commence which would construct a permanent connection to Union Avenue by 1978.

The Council room was full of residents, mostly from the Irvington and Alameda districts east of Union Avenue, who were solidly against opening the freeway connection which would increase the traffic through those neighborhoods.

Basic issue seemed to be presented whether any facility, wherever located, is to be approved by the Council which would destroy or prove detrimental to a neighborhood. The issue developed that no more facilities be constructed for the auto in the City as opposed to addressing the specific ordinance, that being an interim solution to provide access to the freeway from Williams and Vancouver Agenue.

An alternate was proposed later, causing the Council to delay the question for two weeks, which would utilize the Weidler-Broadway exit connecting to Flint Street for access to the hospital and Kirby and the Ivy Street on-ramp for access from the hospital.

ar

cc R. L. Schroeder
G. L. Sund

RECEIVED
JAN 9 1974
Office of
Assistant State Highway Engineer

NOTED
R. L. SCHROEDER

9707

FORM E-30

O EGON STATE HIGHWAY DI SION
INTER-DEPARTMENT CORRESPONDENCE
Portland, Oregon 97213

DATE January 3, 1974

TO MEMO TO THE FILE

ORIGINAL SIGNED BY R.N. BOTHMAN

FROM R. N. BOTHMAN
Metropolitan Engineer

SUBJECT EAST FREMONT CONNECTION

City Council considered the issue of opening the Ivy Street ramps. The issued seemed to develop into one of "no more freeways and no more facilities for the auto in the City."

Use of the Broadway-Weidler exit and Flint Street was discussed at length. The Irvington neighborhood expressed strong opposition to any ramp opening, proposing that the ramps be closed. The Boyce neighborhood and Model Cities expressed opposition.

The school board expressed opposition to any opening. Mr. Stevens, school board member, stated that the caliber of schools relates to the caliber of the neighborhood; therefore, any deterioration of this borderline neighborhood would be a deterrent to educating the children and should not be allowed.

Proposal for buses only on the ramps was made.

Bergstrom testified that no additional traffic would be generated. His comment was prompted by Anderson.

Small children, abundant in the audience due to the holiday vacation of the Portland Public Schools, testified stating that the Ivy Street ramps would bring 100,000 cars into their neighborhood.

The alameda area submitted 300 petitions against opening, indicating these were collected in a short time and represented 95 percent of those persons covered.

Small businessmen on Union Avenue, who are organizing a Boosters group, recommended opening the Ivy Street ramp.

Property owner at Alberta & Minnesota demanded the ramps be opened to relieve present traffic on Alberta in front of his house.

The Union Avenue Boosters, representing 20 businesses, had voted 18-2 in favor of opening the ramps.

The Council voted to delay the process for two weeks to review the Kirby-Flint Street proposal. The vote was Goldschmidt, McCready, Schwab, Anderson - YES; Ivancie - NO.

ar

cc R. L. Schroeder, G. L. Sund

NOTED
R.L. SCHROEDER

1979 E. Fremont Br. Conn. on 8909
FAU 9910 in Portland
(gr, pave, sign & illum.) #1

8909

FORM E-30

OREGON STATE HIGHWAY DIVISION

INTER-DEPARTMENT CORRESPONDENCE

Portland, Oregon 97213

DATE December 26, 1973

TO MEMO TO THE FILES

RNB/pb

FROM R. N. BOTHMAN
Metropolitan Engineer

SUBJECT East Fremont Resolution
City Council

NOTED
E. S. HUNTER

The City Council considered the East Fremont resolution at their December 19, meeting. Considerable discussion evolved relative to hearing or not hearing testimony relative to the opening of the ramps. The month previously the Council had considered this issue and had voted to open the ramps to auto traffic with limitations to be established during the month of November. The Planning Bureau was directed to return in mid December addressing the controls on traffic with the bridge ramps open.

After considerable discussion, the issue was deferred for two weeks and the Planning Bureau directed to develop additional information.

pb

cc: E. S. Hunter
R. L. Schroeder
Gary L. Sund

RECEIVED
DEC 28 1973
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

8909

FAU

MINUTES

CONSULTING ENGINEERS SELECTION BOARD MEETING OF TUESDAY, DECEMBER 18, 1973

The meeting was called to order at 5:30 PM in Jim Apperson's Office. Those present were:

Paul Norseth, Water Bureau
Joe Niehuser, Sanitary Engineering
Bob Rector, Street & Structural Engineering
Don Bergstrom, Traffic Engineering
LaGrande Marchant, Port of Portland
Cliff Christianson, Federal Highway Administration
Gary Stout, Administrator of Planning & Development
Dennis Wilde, Planner
Jim Apperson, City Engineer

1. It was moved, seconded and unanimously adopted that the minutes of the meeting of December 4, 1973 be approved as written.

2. Jim Apperson stated that he had received calls from some disappointed people as a result of not being selected for projects; however, these people stated that they fully endorsed our procedure and understood the reasons for selecting the consultants ~~contractors~~ that we did.

3. For the benefit of those present who have not attended previous meetings, Jim Apperson explained the selection procedure.

   2029 "Fremont" Project:

4. Funds for preliminary design on the Fremont project must be obligated by July 1, 1974. Content of proposal must be coordinated with all agencies involved. Qualification of consultants is only item to be discussed at tonight's meeting. We have until March or April on the other two projects: Halsey from 70th to 80th and N.W. Front Avenue from Kittridge Bridge to 26th Avenue. These projects are planned to be done inhouse, and no selection of consultants would, therefore, need to be made.

   Statements were returned from six of the ten consultants on the Fremont Project.

   Fremont Project: Long range solution would involve street improvement from Ivy ramps to Union Avenue. Consultant to do preliminary engineering work for the project. Bob Rector explained work consultant would be expected to perform.

5. Sandy Boulevard Project: Looking into transportation and environmental problems in area of east approach to Burnside Bridge to 20th Avenue, passing through Sandy-Burnside intersection. Work would involve: Right-of-way acquisition, signalization, street re-routing, maybe additional approaches to Burnside Bridge, possible interchange work at Sandy intersection. Consultant to perform about the same work as for the Fremont Project.

Selection Procedure: Six resumes on Fremont Project. Used rating system established by Board. Three Bureau Staff Committee members independently rated all six consultants and then tabulated. Bob Rector handed out copies of rating order on both FAU projects. 1113 "Burnside-Sandy" and 2029 "Fremont", and explained Committee's rating analysis.

Mr. Weirson, who is Manager of CH2M, is on the Board of Directors for the Emanuel Hospital. It was suggested that Les Weirson provide a letter stating that he would excuse himself from the Board of Directors when issues related to the Fremont project come up.

Motion was made, seconded, and carried unanimously to accept the Bureau Staff recommendation on the selection of CH2M as the consultant for the Fremont project. A motion was made, seconded and carried unanimously that ST&R be alternate consultant for Fremont project in the event that satisfactory Contract could not be consumated with CH2M.

6. Burnside and Sandy Project:

ST&R proposal was discussed; and it was pointed out that this firm has performed a lot of similar work for the City of Seattle, Washington, and they have been satisfied with their work.

In the preparation of the environmental impact statements, the consultant would be required to make arrangements to provide weekly weview with State Environmental people and Cliff Christianson, Federal Highway Administration. Locally, (Portland Office only) STR is not strong on highway and traffic items, but they do have an excellent background.

Motion was made, seconded and carried unanimously to accept ST&R to perform services on Burnside-Sandy project. Motion was also made, seconded, and carried unanimously to accept CH2M as alternate on this project.

Glen Pierce is Project Manager on both projects. Cliff Christianson felt they could get Assistant Coordinator in Salem to come up and spend some time on one or possibly both of these projects to see if it would benefit on future projects. Jim Apperson suggested that Bob Rector select one of his Supervising Engineers to manage all projects for his office. Cliff Christianson stated that time element for both State and Federal approval could be cut if all pet phrases, key statements, etc. are properly set out. Federal holds State responsible for any of City's mistakes. State representatives were invited to this meeting, but no representative was in attendance. Mr. Christianson will be in touch and discuss matters with State people in the very near future, and get back with City staff. The Federal Staff would not like to train new person each time, but if we had someone on our staff assigned to all projects they feel it would be very helpful to them. Bob Rector, in a few weeks, hopes to have position filled in his organization and he could then assign that new employee and Mr. Pierce to these projects as a team.

Mr. Christianson would like to discuss matter with State people first before we take any action. We should have signed Agreement from the State that they approve of our consulting engineering selection procedures. State would probably want our process statement written down for their files. Mr. Christianson will be in contact with Dick Unrein in the very near future.

Mr. Christianson said he would ask Neal Burckhardt to come down and work with our staff and also offered to help any way they could to cut down on time.

Federal and State people should have regular contact with the consultants, probably even closer contact than we are keeping with them. Our project manager should be encouraged to be present at every meeting they are at. Mr. Christianson stated that he would like to sit in on future meetings dealing with highway matters. He also stated that he felt we should put a lot of pressure on the State to come in and see what we are doing; would save a lot of time if they could get involved. Mr. Christianson left the meeting at this time.

7. Water Bureau Projects:

Item No. 1 - Approval of Engineering Consultant for Washington Park Reservoir No. 4

Plans, specifications and construction were not completed in latter part of August as proposed. Water Bureau contacted soils consultants to see if they should proceed on project or wait. Called Dames and Moore and asked them to make a brief study. Less than $2500 was quoted; bill came in around $3000. Water Bureau contacted Dames and Moore and they then submitted another bill in the amount of $2459, so Water Bureau can now handle payment by requisition. Although Committee was not formed during this agreement, Paul Norseth put information on table for committee approval at this time. Dames and Moore did a lot of background work in making the report for the Water Bureau. A slope indicator was installed to monitor slide movement. Dames and Moore have a remote recorder that prints a tape from responses from underground. Equipment is in San Francisco and they fly it up everytime they make a measurement. They do no have equipment locally because it is very expensive. Proposals could be obtained from other firms, however, Paul Norseth feels consultants would have to do a lot of work researching to get historical background data on the slide movements unless, of course, Dames and Moore would be willing to give them all their compilations. The reservoir was built in 1895 and not put into operation for nearly eight years thereafter because some movements were detected.

There are only three types of instruments available. Shannon & Wilson, Dames & Moore have different instruments; there is no such thing as standardized instruments available anywhere. Items to consider:

1. Perpetual agreement for unknown number of years
2. Locked into one firm for a very long time
3. Slope indicator tubes may have to be replaced some day
4. Manufacture Patent rights are with Dames & Moore
5. Tie up of both professional work and equipment services from one consultant.

It was suggested that maybe we should entertain full proposal from more than one consultant. Motion was made to proceed with repairs on slide at Park Reservoir #4, motion was seconded and carried unanimously. Jim Apperson recommended a projected annual budget proposal for work on this project. It was generally agreed that there was a lack of sufficient information to act on the second part of Item No. 1. Joe Niehuser made suggestion to Paul Norseth to not get locked-in.

Item No. 2 - Selection of Consultant for Bureau of Water Works System Model-Action to Date

Paul Norseth had no recommendations at this time. No proposals to review.

Item No. 3 - Mt. Tabor Reservoir No. 8 Feasibility Study

On February 6th, Water Bureau contacted CH2M to consider review of Reservoir proposal No. 8 in their budget. Proposal: To replace Reservoir at 60th and Division, which needs to be covered or taken out of service. $900,000 in Budget for piping and reservoir.

They felt they should investigate possibility of repairing Reservoir No. 6 and eliminate No. 8.

Water Bureau Alternatives: Revitalize Reservoir No. 2 by covering it; or could construct No. 8; or take funds for No. 8 and use to cover construction of one-half of No. 6 and then abandon No. 2.

There were no reservations about CH2M doing the work. If Board were to act on this project, a special meeting would have to be called to discuss in more detail. Could ask CH2M to come in and make a presentation of their involvement and proposal.

It was decided that if Bob Hyle felt there is any problem about this contract, and if it would be of benefit to them, this item could be deferred from going on the Council Calendar until Board can find out and study details. After a presentation by CH2M Board would be in a position to make recommendation. It would be inappropriate for Board to rate them against somebody else.

It was pointed out that CH2M does have some money already invested in prior work on this project without a contract. They proceeded on their own with assurance by Water Bureau.

Paul Norseth to discuss with Bob Hyle to see which way he prefers to go on this project. If Mr. Hyle would like help from the Board, Board would be happy to give recommendation after review and study. Water Bureau to decide what specific action they want, if any.

Meeting adjourned at 9:00 PM

Next meeting set for 5:00 PM on Tuesday, January 15, 1974 in Jim Apperson's Office.

cc: OSHD (R Unrein)

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

RECEIVED
COUNTY & CITY SECTION
DEC 28 1973
☑ ENGR. ☑ COOR. ☐ GE ☐ AE ☑ UE
☐ UPE ☐ CE ☒ RF ☐ RPE ☐

Portland
FAU
Consult
Contract

INSPECTION REPORT

PLANNING

REGION NO. 10	REPORT ON City Consultant Selection Board Meeting	DIVISION Oregon
DATE OF INSPECTION 12-18-73	INSPECTION MADE BY C. T. Christianson, Area Engineer	PROJECT NO. FAU 2029 FAU 1113
IN COMPANY WITH *See below		

REMARKS

NOTED
R. L. SCHROEDER

*Members of the City Engineer's staff participating in the consultant selection board under the direction of Jim Apperson.

The purpose of this meeting was to review the resumes submitted by various consultants on several projects to be pursued by the City of Portland. A copy of the meeting agenda is attached. My participation in this meeting was limited to the Federal-aid Urban preliminary engineering work covered under Item No. 1 on the agenda. As a result of this meeting a consultant was selected for each of the two projects and a request for a proposal will be prepared on each.

After discussing the relative merits and qualifications of each of the consultants who had submitted resumes on each project, the firm of CH2M/Hill was selected for the FAU 2029(Fremont connection) project and the firm of Stevens, Thompson, & Runyan was selected for the FAU 1113 (Burnside-Sandy project). Following the selection of these consultants I suggested that the City formally submit their consultant selection process to the State Highway Division for formal approval and I presented Mr. Apperson's staff with a copy of the PPM dealing with consultant selection and engagement emphasizing the approval steps necessary, the section dealing with fee and payment setups, and the appendix dealing with appropriate clauses to be included in the contract.

I suggested to Mr. Apperson that the Federal Highway Administration would be willing to provide assistance in the form of training on these projects to one or more members of the City Engineer's staff who could be assigned the responsibility for processing all consultant agreements on highway-related matters. Mr. Apperson was very pleased with the suggestion and indicated that we would be contacted regarding who and when would be involved in this program and that the assistance would be coordinated through the State Highway Division.

It was suggested that both contracts include provisions for preparation of the Environmental Statement in the Portland area or, as an alternative, to have the consultant establish, as a minimum, a weekly review and discussion session with the State environmental people, the City's project manager, and the Federal Highway area engineer. These meetings would be for the purpose of Federal-State coordination and input into the EIS document.

Since time is quite critical in obligating preliminary engineering funds prior to July 1974, the State Highway Division and Federal Highway Administration contacts have pledged full cooperation in compressing the time element involved in establishing a formal agreement with these consultants. The previously

(more)

Sent to Schroeder 12/28/73

suggested training assistance could be most valuable along this line. Such arrangements will not only save time for the City but should reduce the work load associated with these agreements at the State and Federal levels. Mr. Unrein of the City-County Section has been advised of the comments and suggestions made at this meeting and has indicated full cooperation with his section in securing high-quality initial submissions from the City.

The City was encouraged to secure early State involvement regarding the scope and extent of work presented to the consultants when asking for their proposal and cost estimates. I believe the City has a highly satisfactory process by which consultants are being selected and would be willing to recommend approval of this process.

Note: Met with city people again on 1-9-74 re consultant agreements in general, and also discussed requirements for consultant's proposal.

Co-Cty

RECEIVED
DEC 27 1973
Office of
Assistant State Highway Engineer

8909

By 12/19/73

EAST-END FREMONT BRIDGE RAMPS AD HOC COMMITTEE

Final Recommendations

The Ad Hoc Committee has understood its charge to implement the best possible compromise plan to the opening of the east-end Fremont Bridge ramps. The Committee feels it has adequately discharged this task. This is not meant in any way to be an endorsement of the Rose City Freeway or the long range opening of the bridge ramp or proposed long range improvements on Fremont to Union Avenue. The Committee did not have the time nor the opportunity to review these matters.

The Ad Hoc Committee makes the following recommendations for the construction and interim operation of the east-end Fremont Bridge ramps to grade. This recommendation, if adopted and implemented by City Council, is to operate for a period of time not to exceed 4 1/2 years or until November 1, 1978. The approval and implementation of this recommendation includes the adoption, monitoring and enforcement of specific standards for air quality, noise quality, vehicular traffic volumes, vehicular pedestrian accidents, and the provision of a voluntary property acquisition and relocation program for seriously effected residential properties. The recommendations are as follows:

I. Bridge Ramps' Alignment and Traffic Circulation Recommendations

A. The Ad Hoc Committee recommends an Ivy Street alignment for both the on and off ramps to the Fremont Bridge. (See map enclosed). This alignment would provide for one lane each, on and off. Intersection improvements would be made at Ivy and Vancouver and Ivy and Williams. At Ivy and Vancouver, eastbound traffic east of Gantenbein would have a right-hand turn lane. The intersection will be fully signalized with automatic traffic and pedestrian signals. The intersection of north Ivy and Williams also will have full traffic and pedestrian signalization. In addition, a frontage road will be constructed adjacent to the Ivy Street ramps between Gantenbein and Commerical to serve residential properties on the north side of Ivy if the property remains in private ownership.

B. Traffic Circulation Recommendations and Projected Traffic. The bridge ramps will be constricted to one lane each direction where they intersect with north Ivy. Traffic volumes will be restricted to 8,000 vehicles per day in each direction. A maximum of 16,000 vehicles a day will be allowed to ingress and egress the Fremont Bridge. North Ivy, east of Williams to Rodney, will be one way westbound. This is to prohibit

NOTED
R. L. SCHROEDER

eastbound traffic from using Ivy for access to Union Avenue and points east. North Vancouver and north Williams will continue to function as a one-way couplet. Allow right-hand turn only for westbound traffic on Ivy at Williams. The projected traffic volumes, (on the enclosed map) are based on assumptions of traffic distribution prepared by the City Traffic Engineer's Office. Since four intersections, those on north Vancouver at north Fremont and Ivy streets, and north Williams at Fremont and Ivy streets will be operating at capacity during the P.M. peak hours, there is little likelihood that the traffic volumes indicated at these intersections will increase much over the projections estabilisned here. This capacity condition will create some congestion in the immediate area of these intersections. The traffic signals at these intersections will be so timed that traffic will not exceed 8,000 vehicles per day in each direction on the Ivy Street ramps.

C. Traffic monitoring. Traffic to and from the ramps will be monitored on a monthly basis through the use of permanently installed traffic counters on the ramps. In addition, adjacent streets will be monitored semi-annually. These will include: Vancouver and Williams, north and south of Ivy; Fremont, east and west of Union; and Prescott and Knott, east of Union.

By City

D. Traffic Control Measures. The following series of incremental steps may be taken to control traffic flow if the monitoring program indicates that standards or limits are being exceeded.

✓ 1. Signalization. The green time phase on traffic signals at the four key intersections on Fremont at Vancouver and Williams, and Ivy at Vancouver and Williams can be adjusted to control vehicular volumes through these intersections and onto the bridge.

2. If additional traffic control is required, a traffic signal may be located directly on the bridge ramp allowing traffic to be metered on to the bridge.

3. If through traffic begins to use north Ivy Street east of Williams, Ivy will be made one way westbound between Rodney and Williams and one way eastbound between Rodney and Union. The city will rely on complaints from residents on north Ivy before initiating further traffic controls on Ivy Street.

Not Acceptable
① "Safety" $
② President Setting
③ Use $

E. At present, the traffic accident rate at the four key intersections is well below the mean rate (accidents per 1,000,000 vehicles through the intersection) for the city.

The accident rate at these four intersections will be monitored and steps will be taken to reduce these accidents if the rate should exceed the mean rate for the city. Control measures will include additional traffic control including limiting volumes if necessary.

F. Additional traffic recommendations include:

Not Standard Should go as Shown

1. Exit ramp signs on bridge shall read, "Ivy Street" & ~~Emanuel Hospital."~~ "HOSPITAL"

✓ 2. No directional signs shall refer to Fremont Bridge except for informational signs at ramp entrance.

✓ 3. All parking shall be retained on Fremont Street between Mississippi and Union. The only exception to this would be at Fremont and Vancouver to allow for left-hand turn.

II. Air Quality Recommendation

A. Standards

The Ad Hoc Committee recommends the following standards for air quality (Present national ambient air quality standards as established by EPA):

?

Contaminant	Primary Standards	Secondary Standards
Sulfur dioxide	Annual mean 80 ug/m^3 Max. 24-hr.*365 ug/m^3	Max. 3-hr.* 1300 ug/m^3
Particulates	Annual Geo. mean - 75 ug/m^3 Max. 24-hr.* 260 ug/m^3	Annual geo. mean- 60 ug/m^3 Max. 24-hr.* 150 ug/m^3
Photochemical oxidant	Max. 1-hr.* - 160 ug/m^3	None
Hydrocarbons	Max. 3-hr.* - 160 ug/m^3	None
Nitrogen dioxide	Annual mean 100 ug/m^3	None
Carbon monoxide	Max. 8-hr.* 10 mg/m^3 Max. 1-hr.* 40 mg/m^3	None

* not to be exceeded more than once per year.

In addition, the Committee recommends the adoption of the California standard for lead contamination. The lead standard not to be exceeded is 1.5 mg/m^3 averaged over 30 days.

B. Recommendations

?0

Ambient air quality in the vacinity of Ivy Street and Vancouver shall: a) not exceed existing national ambient air quality standards as established by the EPA including the California standard for lead contamination as indicated above, or b) not increase at a rate greater than 1.25 of increased traffic volume up to but not to exceed 100% degradation of existing ambient air quality whichever is the lesser.

C. Monitoring Program

Ambient air Quality. Between December 15 and June 1, 1974, an ambient air quality study shall be performed to establish baseline air quality for the area immediately effected by the east-end bridge ramps. The monitors shall be placed at the following locations:

a) Fremont at Vancouver (low income housing project).

b) Commerical and Cook.

c) North Kerby near Boise School.

d) North side of Fremont and Haight.

e) N. Ivy near Rodney (staff at the Highway Division shall locate the specific sites for the equipment.)

At these locations no less than three each carbon monoxide samplers and high volume filter samplers shall be installed and maintained for a period adequate to establish a baseline ambient air quality. Samples taken prior to the opening of the ramps shall provide a baseline against which to assess the relevant impacts of measurements taken after the ramps are opened.

D. Monitoring Techniques

The samplers both carbon monoxide and high volume filters, shall automatically take a 24 hour sample every 6 days.

E. Staffing and Lab Assistance

?0

[redacted]

program and lab analysis and reporting. Department of Environmental Quality will provide the necessary high volume filter samplers and lab facilities for lead and particulate measurement. The City of Portland will provide a sufficient number of 7-day timers to operate the high volume filters.

F. Air Quality Predictions

The Department of Environmental Quality working with the Oregon State Highway Division will utilize the baseline statistics and traffic volume predictions in a predictive model to estimate air quality in the vacinity of the ramps. If potential problems are identified, detailed monitoring will be conducted to determine if the standards are being exceeded. The full scaled monitoring program will continue after the ramps are open for an adequate period of time to verify the accuracy of the predictions.

?

III. Noise Quality Recommendations

A. Standards and Recommendations

The Ad Hoc Committee recommends that the following standards for noise quality be adopted for the east-end Fremont Bridge ramps. The maximum allowable noise level measured at a noise sensitive property (residential property, hospitals and schools) shall be:

day time	night time
L10 = 65 dBA	L10 = 60 dBA

No 70 dba Standard poor ei to set above extg Nat. Std's

If these noise standards are exceeded, remedial measures shall be taken to bring the noise levels within the acceptable standards.

B. Monitoring System

1. Ambient Noise Levels

The City under the direction of Paul Herman, Coordinator, City/County Noise Abatement Study shall be responsible for determining existing ambient noise levels at noise sensitive properties adjacent to the east-end Fremont Bridge ramps. The location established for the monitoring program are:

a) North Kerby near Boise School.
b) Northeast corner Fremont and Haight.
c) North Ivy near Rodney.
d) Fremont and Vancouver (near the low income housing project).

2. Ongoing Monitoring Program

Within 30 days after the bridge ramps have been opened, noise levels will again be measured at the same locations as established for the ambient noise levels. In addition, quarterly noise measurements will be taken. Additional measurements may be taken upon complaint. The monitoring program shall consist of the following periodic measures:

15 minutes during day time hrs. 7:00 a.m. - 8 p.m.
15 minutes during evening time hrs. 8:00 p.m. - 10:30 p.m.
15 minutes during night time hrs. 10:30 p.m. - 7:00 a.m.

C. Recommended Remedial Measures (to be applied in the event that standards are exceeded)

1. It is considered to be virtually impossible to meet these standards at the existing residential properties located on Ivy Street between Commerical and Williams. It is therefore recommended that on a voluntary basis, the City shall upon request of individual property owners, acquire residential properties on Ivy Street between Commerical and Williams. (See property acquisition recommendation)

2. That a noise deflection wall or earth berm be constructed on the north side of Ivy between Commerical and Gantenbein if noise levels on the north side of Fremont or at Boise School exceed standards. The construction of such a berm is necessary in order to meet noise quality standards at Boise School and at residential properties in the vacinity of Haight and Fremont.

3. In the event that night time noise levels exceed the standards established, truck traffic will be restricted from using the bridge ramps between the hours of 8 p.m. and 7 a.m.

? use
Public Funds
with restricted
use

4. Emanuel Hospital routed emergency vehicles be prohibited from using sirens on the bridge ramps.

D. Definitions.

L10 is a noise level that is not exceeded more than 10% of the time.

"Noise sensitive property" means real property on which outdoor speech communication appropriate for residential use is important or in which people normally sleep, including but not limted to houses, apartments, hospitals and schools.

(dB) decibels - A system for measuring noise based on sound pressure levels.

"ambient noise" - The all encompassing noise associated with any given environment, being a composit of sounds from many sources near and far.

IV. Property Acquisition and Relocation

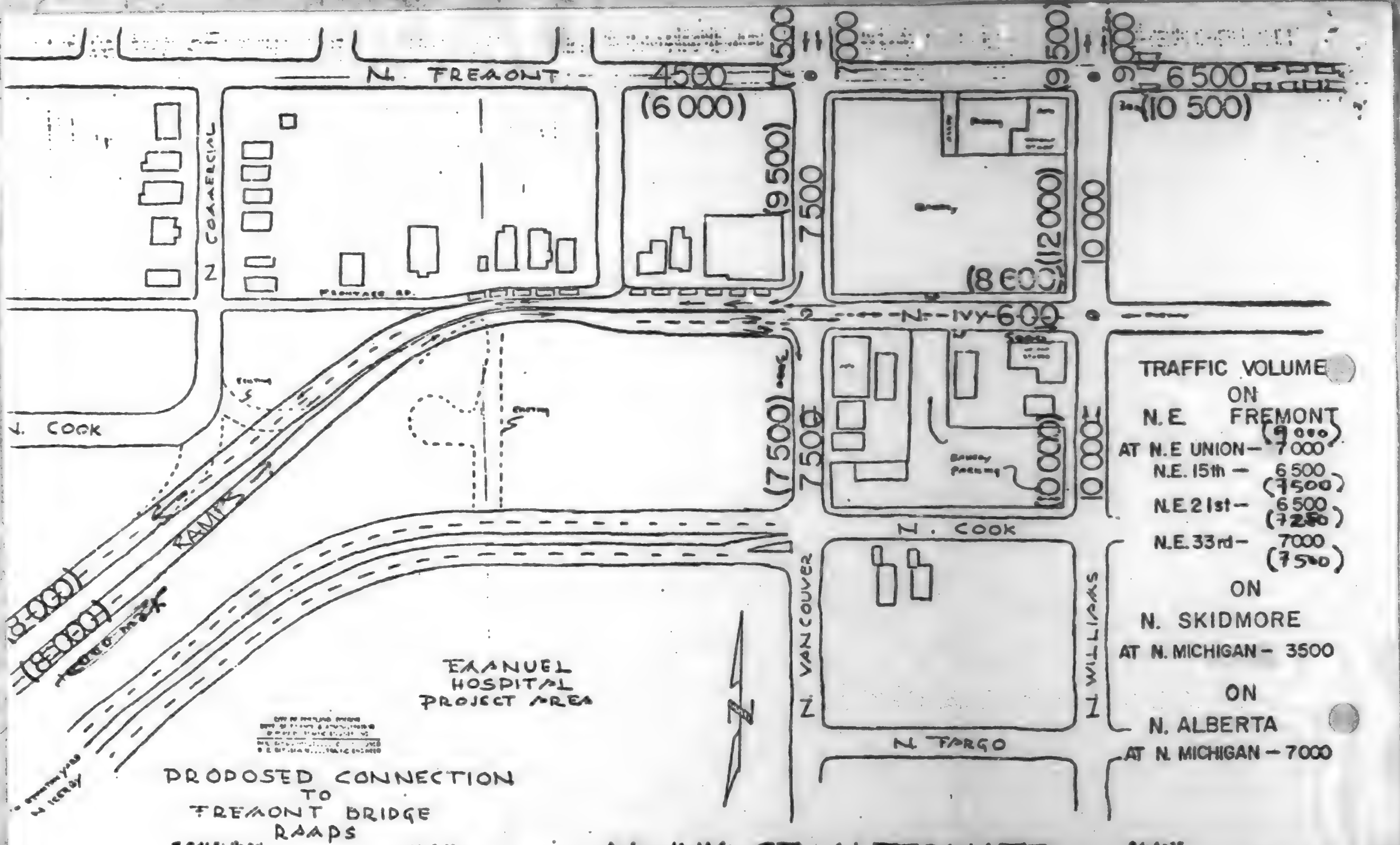
A. Recommendation

?State $ and effect upon future Fed Participation

[redacted] for maximum of nine residential properties located on Ivy Street between Commerical Avenue and Williams Avenue. In order to qualify, each individual property owner would have to make application to the City. Such applications would have to qualify under demonstrated hardship. Hardship for these nine properties would be defined as any residential property upon which the established standards for air quality and/or noise quality would be unavoidably exceeded. [redacted]

B. Relocation Benefits

The City shall provide relocation benefits equal to and in accordance with federal standards for each resident home owner or tenant.


N. FREMONT
4500
(6000)
(9500)
7500
(12000)
(8600)
10 000
7500
(9500)
7000
9500
9100
6500
(10 500)
N. COMMERCIAL
FRONTAGE RD.
N. IVY 600
N. COOK
RAMPS
(8000)
(8000)
(7500)
7500
(10 000)
10 000
N. COOK
N. VANCOUVER
N. WILLIAMS
N. FARGO
EMANUEL
HOSPITAL
PROJECT AREA
N
PROPOSED CONNECTION
TO
FREMONT BRIDGE
RAMPS
10-8-73
TRAFFIC VOLUME
ON
N.E. FREMONT
AT N.E UNION – 7000 (9000)
N.E. 15th – 6500 (7500)
N.E 21st – 6500 (7250)
N.E. 33rd – 7000 (7500)
ON
N. SKIDMORE
AT N. MICHIGAN – 3500
ON
N. ALBERTA
AT N. MICHIGAN – 7000

N. IVY ST ALTERNATE

0 000 = EXISTING VOLUMES As of Nov. 5,6,7

(0 000) = ESTIMATED VOLUMES

MINORITY REPORT TO THE EAST-END FRMONT BRIDGE RAMPS AD HOC COMMITTEE

Final Recommendations

Several members of the Committee, after having carefully weighed the impacts and costs of the various alternatives to the opening of the Fremont Bridge ramps to grade, continue to feel that the ramps should not be opened. In addition, these members feel that the issues of real estate values and neighborhood livability are important enough to warrant further investigation. Since present traffic levels on some residential streets in the area (Knott, Fremont, Skidmore and Prescott) are rapidly approaching very high levels, the following recommendations are included.

Since the purpose of the opening of the ramps is to provide access to Enamuel Hospital and immediately adjacent areas, the following recommendations shall apply to Prescott and Knott Streets, east of Union, and of Fremont Street, east of 7th.

a. Traffic volumes on these streets shall not be allowed to exceed a 10% increase (due to increased bridge traffic) over present traffic volumes (as noted on attached map). If excessive increases are noted at these streets, remedial measures shall be implemented as outlined in ID.

b. Fluctuations in real property value shall be monitored on Knott Street, Fremont Street, Prescott Street, and Skidmore Street to determine if a negative impact results due to the increased traffic resulting from the opening of the Fremont Bridge.

YES ☐ If you agree with the Minority Report, please so indicate by marking the appropriate box.

NO ☐

METROPOLITAN ENGINEER
RECEIVED
DEC 11 1973
☐ ME ☐ AME ☐ AME ☐ [illegible] ☐ MDE ☐ MTE

8909

orig to GMB
cy to Bob Whitts
Klaboe

COLUMBIA GROUP

December 10, 1973

NOTED
F. B. KLABOE

Mayor Neil Goldschmidt
Portland City Council
1021 SW 4th
Portland, Oregon

Dear Mayor Goldschmidt:

It has come to the attention of the Columbia Group that the Irvington Community Association has made some formal, community decision recommendations regarding the Fremont Bridge and several off ramps. I am sure you are aware of the situation in question, the Ivy Street off ramp into Northeast Portland and the on ramp to the Freemont Bridge.

The Columbia Group is in full agreement with and support of the Irvington Community Associations recommendations:

1 To close the Ivy Street ramps east and west.
2 Oppose all freeway construction in the City of Portland.
3 Oppose the construction of the Rose City Freeway.

Our support of the I.C.A. stems from our concern about the continual degradation and destruction of city neighborhoods and our urban fabric in general - all for the convenience of the automobile. In the words of famed planner Lewis Mumford:

> "It's time to renew life of the lifeless city....We need to give people the sense of being someone, somewhere. We need to develop cities that are conducive to a communal spirit....We have created instead, faceless and formless cities."

The Columbia Group strongly favors community participation in planning and decision making. Such participation is an essential ingredient to our democratic society. It is critical at this time and stage of our political history to respond positively to the citizen voice. Faith in the ability of the governed to have impact on their government and their own future demands the city's support of the I.C.A. position.

Pacific Northwest Chapter
SIERRA CLUB
Portland, Oregon 97201 · (503) 222-1963

The Columbia Group has long been opposed to anymore freeway construction in the Portland Metropolitan area. As time passes, all new research evidence and changing events simply reinforce our position.

We are hopeful that the Portland City Council will join with us in working to create a more livable Portland.

Very Truly Yours,

Paul T. Rocks

Paul T. Rocks
Urban Affairs Coordinator

cc: Council Members
Bureau of Planning
Glenn Jackson
State Highway Department

RECEIVED
DEC 13 1973
OFFICE OF
DIRECTOR of TRANSPORTATION

8909

FORM E-30

OREGON STATE HIGHWAY DIVISION
INTER-DEPARTMENT CORRESPONDENCE
Portland, Oregon 97213

DATE November 19, 1973

TO MEMO TO THE FILE

ORIGINAL SIGNED BY R.N BOTHMAN

FROM R. N. BOTHMAN
Metropolitan Engineer

SUBJECT EAST FREMONT CONNECTION

Bureau of Planning and Model Cities neighborhood representatives met Thursday, November 15, and agreed on an Ivy Street two-lane two-way connection as outlined earlier to connect the Fremont Bridge to Vancouver and Williams Avenues.

The agreement includes a two-way street on Ivy between Williams and Vancouver.

The plan also includes a third right turn lane on Ivy west of Vancouver.

The City of Portland is proceeding to establish acceptable air, noise and traffic levels which they will monitor against the interim solution described above and "regulate" the traffic volumes to meet the standards set.

Monday, November 19, met with Dennis Wilde, Bureau of Planning, to discuss the establishment of both ambient and standards for air and noise which will be used against the interim plan. Traffic is being handled by Bergstrom. The City is handling the noise with a study they have underway in the area and the State will assist with the air, utilizing Tony George of this Division.

ar

cc ✓R. L. Schroeder
G. L. Sund

Copies to Baldwin
Klaboe
11-20-73

NOTED
R. L. SCHROEDER

RECEIVED
NOV 20 1973
Office of
Assistant State Highway Engineer

8909

☑ ENGR. ☑ ASST. ☑ OE ☒ AE ☑ UE
☑ UPE ☑ CE ☒ RE ☒ RPE ☐

MEMO TO FILES

November 13, 1973

Re: FAUS P.E. Funds
Consultant Employment
City of Portland

On Thursday, November 8, 1973, a meeting was held in the Portland City Engineer's office to discuss employment of consultants for FAUS preliminary engineering studies. The following individuals were in attendance:

James L. Apperson,	City of Portland
Robert E. Rector	" " "
Wayne J. Oberding	" " "
Clifford Christianson,	FHWA
Patrick E. O'Neil	"
Richard Unrein	OSHD

The Executive Board of CRAG on October 19, 1973 approved the use of FAUS funds for the following preliminary engineering projects in the City of Portland:

(1) E. Burnside (FAU 1113) and Sandy Blvd.

(2) N.E. Fremont (FAU 2029) from Fremont Bridge to Union Avenue.

(3) N.W. Front (FAU 1173) from N.W. 26th to Kittridge Avenue.

(4) N.E. Halsey (FAU 5026) from N.E. 70th to N.E. 80th.

These projects were selected to obligate approximately $305,000 in FY 1972 Federal FAUS funds which will lapse on June 30, 1974 if they are not obligated with FHWA. The City of Portland indicates they will do projects 3 and 4 with their own forces. They feel projects 1 and 2 are too extensive and they desire to employ consultants to study these two problem areas.

MEMO TO FILES - cont'd.

November 13, 1973

This meeting was arranged to make the City of Portland aware of the time factors involved in receiving FHWA approval for a consultant to proceed with a preliminary engineering study (obligation of funds). The writer presented the attached tabulation of eleven TOPICS consultant studies which indicated an average time factor of 7 months for these rather simple studies. Also presented was a NOTICE of October 31, 1973 which indicates that all professional service contracts must be approved by the Executive Department or the Department of General Services.

It was concluded that if preparation of a consultant contract proceeded at a normal rate, it was very unlikely that FHWA approval would be granted by June 30, 1974. Jim Apperson felt the City could apply accelerated and concentrated effort towards employment of consultants for the two projects. He was given a copy of PPM 40-6 (Employment of Consultants) and he stated they would immediately begin the consultant selection process. The writer offered his services in procedural matters.

Richard Unrein

Richard Unrein
Urban Engineer
County and City Section

RU:ljt

Att.

cc: F. B. Klaboe
E. S. Hunter
R. L. Schroeder
R. N. Bothman
C. T. Christianson, FHWA

TIME ELEMENTS FOR AREAWIDE TOPICS CONSULTANT STUDIES

AREA	CITY BEGAN CONSULTANT TALKS	CITY SELECTED CONSULTANT	CONSULTANT PROPOSAL RCD. BY CITY	TRANS. COMM. APPROVES PROJECT	CITY APPROVES AGREEMENT	FHWA APPROVAL GRANTED	TOTAL TIME
COOS BAY	NOV. 6 1970	MAY 19 1971	MAY 13 1971	JUNE 22 1971	JULY 26 1971	OCT 14 1971	11 MONTHS
COTTAGE GROVE	MAR. 10 1971	MAY 25 1971	JULY 8 1971	SEPT. 8 1971	SEPT. 27 1971	NOV. 10 1971	8 MONTHS
DALLAS	SEPT. 6 1971	NOV. 1 1971	OCT 12 1971	JAN. 11 1972	MAY 1 1972	MAY 19 1972	8 MONTHS
FOREST GROVE	APRIL 8 1971	MAY 10 1971	JUNE 1 1971	JUNE 22 1971	AUG. 9 1971	SEPT 8 1971	5 MONTHS
GRANTS PASS	JUNE 11 1971	JULY 7 1971	JULY 6 1971	JULY 27 1971	DEC 2 1971	JAN. 3 1972	7 MONTHS
HILLSBORO	MARCH 26 1971	APRIL 20 1971	APRIL 30 1971	JUNE 22 1971	AUG. 5 1971	SEPT. 8 1971	6 MONTHS
KLAMATH FALLS	DEC. 10 1970	APRIL 20 1971	JULY 6 1971	AUG. 22 1971	SEPT 23 1971	OCT. 14 1971	10 MONTHS
LEBANON	JAN. 5 1971	MARCH 2 1971	JAN. 14 1971	JUNE 22 1971	JULY 20 1971	SEPT. 8 1971	8 MONTHS
NEWBERG	APRIL 6 1971	MAY 3 1971	JULY 8 1971	SEPT. 8 1971	SEPT. 17 1971	OCT. 14 1971	6 MONTHS
ST. HELENS	MARCH 3 1971	APRIL 20 1971	MAY 18 1971	JUNE 22 1971	AUG. 5 1971	SEPT. 8 1971	6 MONTHS
WOODBURN	JULY 12 1971	AUG. 3 1971	JULY 27 1971	SEPT. 8 1971	SEPT 21 1971	OCT. 14 1971	3 MONTHS
					AVERAGE	TIME	7 MONTHS

FORM E-30

OREGON STATE HIGHWAY DIVISION

INTER-DEPARTMENT CORRESPONDENCE

Portland, Oregon 97213

DATE November 9, 1973

TO MEMO TO THE FILE

ORIGINAL SIGNED BY R.N. BOTHMAN

FROM R. N. BOTHMAN
Metropolitan Engineer

SUBJECT EAST FREMONT CONNECTION

Met with representatives of the Bureau of Planning (Gary Stout and Dennis Wilde), Emanuel Hospital, PDC, Model Cities and the neighborhood groups of Boyce, Humboldt and Elliott to review the interim plan as outlined in the attached City of Portalnd ordinance for a connection to the Fremont Bridge from Ivy Street.

The group tentatively agreed to the development of an interim plan which would provide for one ramp to and from the Fremont Bridge connecting to Ivy Street, which would be widened from the existing ramps to Vancouver Avenue. Gantenbein north of Ivy would be restricted from access to the ramps and only have access to Ivy westerly, thence to Commercial and back to Fremont. There would be a third lane on Ivy at Vancouver to provide for a free right turn movement southbound. Ivy between Williams and Vancouver would be a one-way street eastbound. Some traffic handling would be necessary east of Williams on Ivy Street to prohibit traffic from utilizing that street to connect the ramp traffic to Union Avenue.

Consideration was given to purchasing the houses on Ivy Street between Commercial and Williams. Several of the houses are vacant, one tavern is burned out; there would be no reason to worry about these properties. The consideration is to relocate people presently living on Ivy. It was determined that this involved six houses of rather questionable caliber. No mention was made of the church located north of Ivy between Gantenbein and Commercial. These acquisitions are mentioned in an earlier memo.

Agreement was made to conduct noise and air studies to determine existing ambience and how much additional traffic could be handled maintain some reasonable standard. The City will use a consultant they have working in the area to provide the noise studies. I agreed to provide for the air studies.

In addition, Don Bergstrom who was present at the meeting has established traffic counters throughout the area, extending several blocks in all directions of the East Fremont ramp terminals.

A very positive approach is being made for an interim plan to be in operation June 1, 1974. The purpose of this meeting and a meeting in the next couple of weeks is to work out the most agreeable solution to the neighborhood. The deadline is December 15 to get back to the Council with a recommendation.

NOTED
R. L. SCHROEDER

RECEIVED
NOV 13 1973
Office of
Assistant State Highway Engineer

Dennis Wilde will be in further touch with me relative to the work in which we can assist the City in this project. He has been designated Project Director under the Bureau of Planning to take on this interim project and I assume the permanent solution for connection to Union Avenue.

ar

cc R. L. Schroeder w/attachment: In the event that we do not receive an official letter from the Mayor, perhaps the attached ordinance should be passed on to FHWA.
G. L. Sund w/attachment

M E M O R A N D U M

November 8, 1973

TO: East-End Fremont Bridge Ramps Ad Hoc Committee

FROM: Dennis Wilde

RE: Preparation of an interim solution to the opening of the east-end ramps to the Fremont Bridge

On November 1, 1973, Portland City Council passed a resolution delaying the opening of the east-end ramps to the Fremont Bridge until June 1, 1974.

One of the conditions of that delay was that a Committee made up of representatives of the Neighborhood Associations of Eliot, Boise, Irvington, Sabin and King Neighborhoods, as well as Emanuel Hospital and State Highway Division, mutally develop an interim solution regarding the opening of the ramps and to present that solution to City Council no later than December 15, 1973.

The function, then, of this Committee is to develop that interim solution. It is proposed in the resolution that certain guarantees be developed to insure the neighborhoods that environmental impacts, resulting from the increased traffic on the bridge ramps, will not seriously impact the adjacent residential neighborhoods.

In order to carry out the mandate of City Council, this Committee has the following responsibilities:

1. Agree to a traffic circulation alternative and number of lanes allowed on and off the bridge ramps.

2. Agree to a set of standards or upper limits regarding traffic volumes, air pollution, noise pollution and traffic accident statistics that may not be exceeded once the ramps are opened.

3. Agree to a system of monitoring the standards.

4. Agree to a system of controls ultimately leading to the closure of the ramps that may be applied in order to maintain the agreed upon standards.

5. Agree to a system of traffic divertors, controls, and property acquisitions that can be applied to insure a minimum negative impact on the adjacent community.

EAST-END FREMONT BRIDGE RAMPS AD HOC COMMITTEE

Jim Crawley - Boise Neighborhood
James Loving - Boise Neighborhood
Jack Deyampert - Eliot Neighborhood
Robert King - Eliot Neighborhood
Rosadelle Parker - King Neighborhood
Lou Nashner - Irvington Neighborhood
Gary Reddick - Irvington Neighborhood
Brosy Lathan - Humboldt Neighborhood
Herb Simpson - Sabin Neighborhood
Mrs. Joe Bahles - Alameda Neighborhood
Roger Larson - Emanuel Hospital
John Wesley - Emanuel Hospital

Technical Assistance

Dennis Wilde - Office of Planning and Development
Don Bergstrom - Bureau of Traffic Engineering
Bob Bothman - State Highway Division
Howard Laughery - City Engineer's Office
Paul Herman - Office of Neighborhood Environment
Mike Downs - Department of Environmental Quality
Mike Henniger - City Demonstration Agency (Model Cities)

RESOLUTION NO. 31305

WHEREAS, present agreements between the City and the State Highway Division provide that the Ivy Street ramps of the Fremont Bridge be opened to traffic when the bridge is opened approximately November 15, 1973, and

WHEREAS, Emanuel Hospital intends to continue and expand its facility at 2801 N. Gantenbein Avenue as a regional medical care center and the Council wishes to encourage such continuance and expansion; and

WHEREAS, Emanuel Hospital has represented to the Council that direct access from the west end of the Fremont Bridge is essential to its above intention; and

WHEREAS, residents of the Model Cities area, as represented by the Model Cities Citizens Planning Board, have expressed concern that traffic from the ramps will have a severe negative impact on the livability of the surrounding area and have recommended that no ramps be opened until a long-range solution is designed and implemented; and

WHEREAS, the City has applied for Federal Aid for Urban Arterials funds to design a long range solution to the problem;

NOW, THEREFORE, BE IT RESOLVED

1. That the Mayor is authorized to reach an appropriate agreement with the Oregon State Highway Division postponing the immediate opening of the Fremont Bridge Ramps.

2. That the Oregon State Highway Division is requested to undertake, with the City, the necessary steps to design and implement a permanent solution no later than November 1, 1978.

3. That the Office of Planning and Development, with the assistance of the City Traffic Engineer, is instructed to work with representatives of the Eliot, Boise, Irvington and Sabin neighborhoods, Emanuel Hospital and the State Highway Division to present an interim solution to Council no later than December 15, 1973, providing for access to Emanuel Hospital from the Fremont Bridge within a reasonable period with appropriate pre-

cautions for protecting the livability of the neighborhoods. At least the following should be considered:

a. retaining parking along Fremont Street east to Union Avenue.

b. a traffic diverter at the intersection of Williams and Beech, and converting Williams and Vancouver into two-way streets.

c. signing from the bridge which refers only to Emanuel Hospital and local access.

d. signalization and directional signing which discourages traffic moving north into the Boise neighborhood.

e. reconstructing the present ramps to minimize the flow of traffic.

f. acquiring residences along Ivy Street between the ramps and Williams Avenue that may be adversely affected by such interim solution.

4. That the Oregon State Highway Division be requested to undertake, with the City, the measures necessary to implement the agreed upon interim solution and that the bridge ramps be opened immediately thereafter, to occur not later than June 1, 1974.

5. That the Council intends to provide for the ramps to be closed if, during the period preceding implementation of a permanent solution,

a. traffic counts on streets in the area exceed estimates of the City Traffic Engineer included in the interim plan,

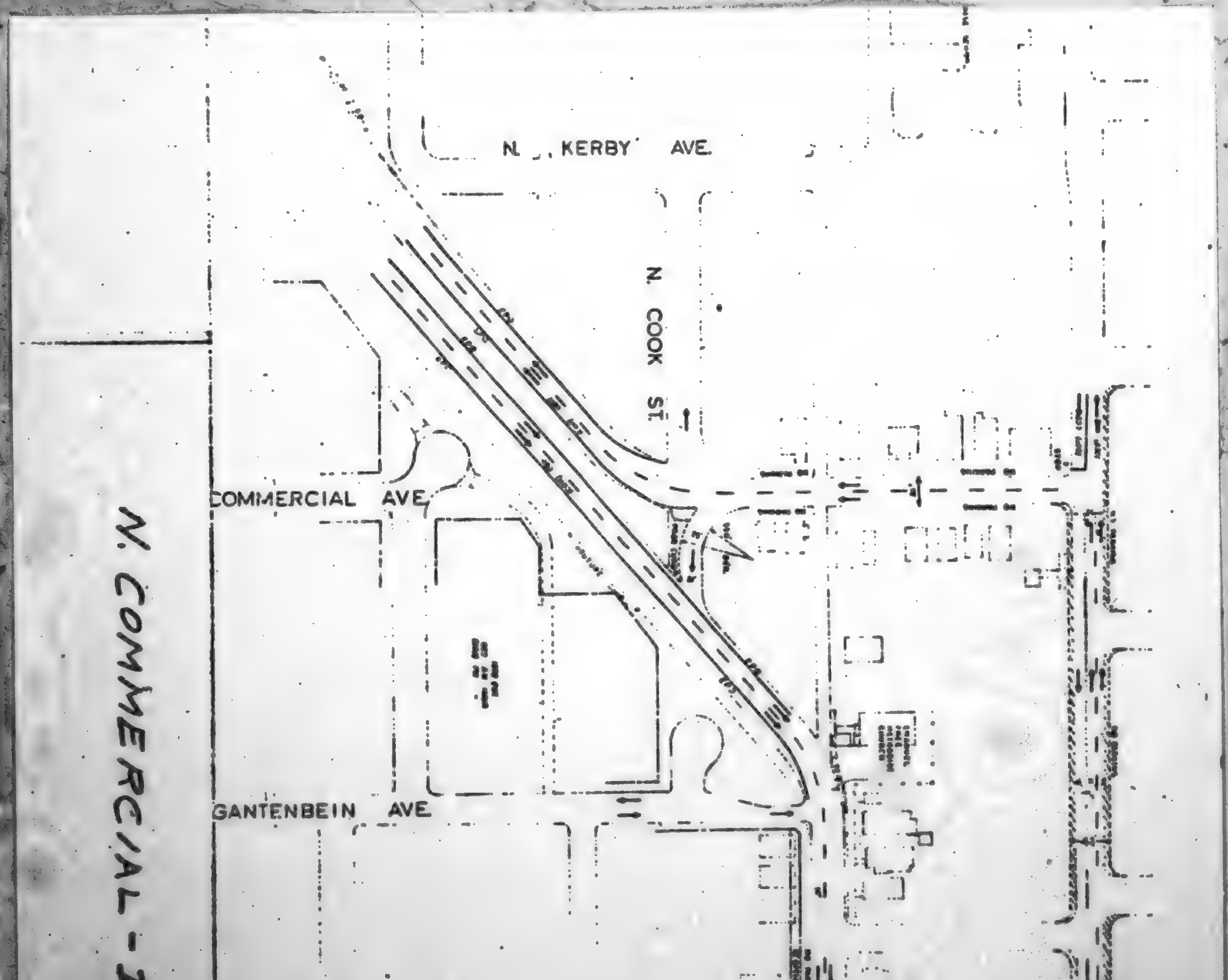
b. air and noise pollution levels exceed standards to be designated in the interim plan, or

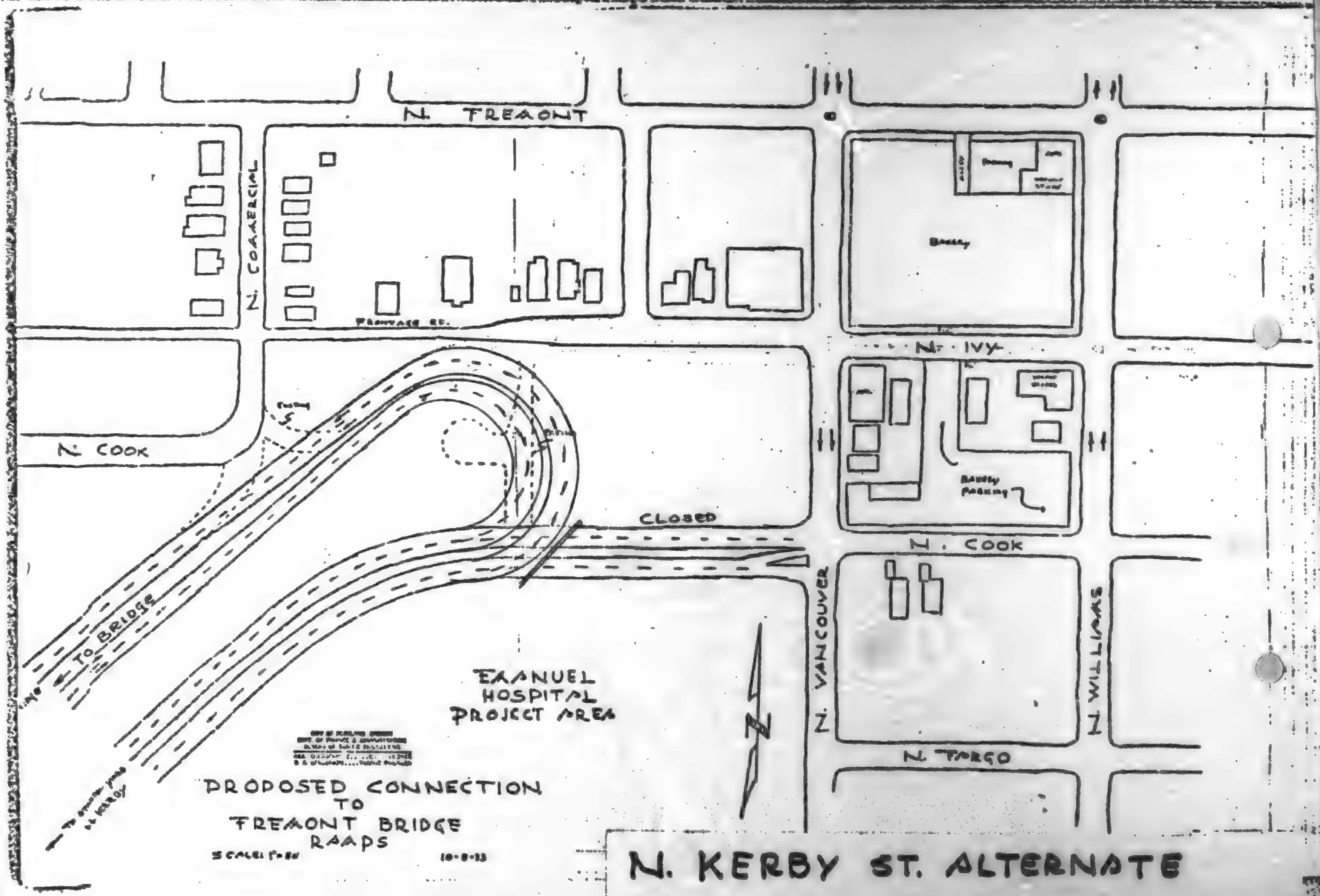
c. traffic accidents in the area are found by the Council to be excessive as a result of the ramps being open.

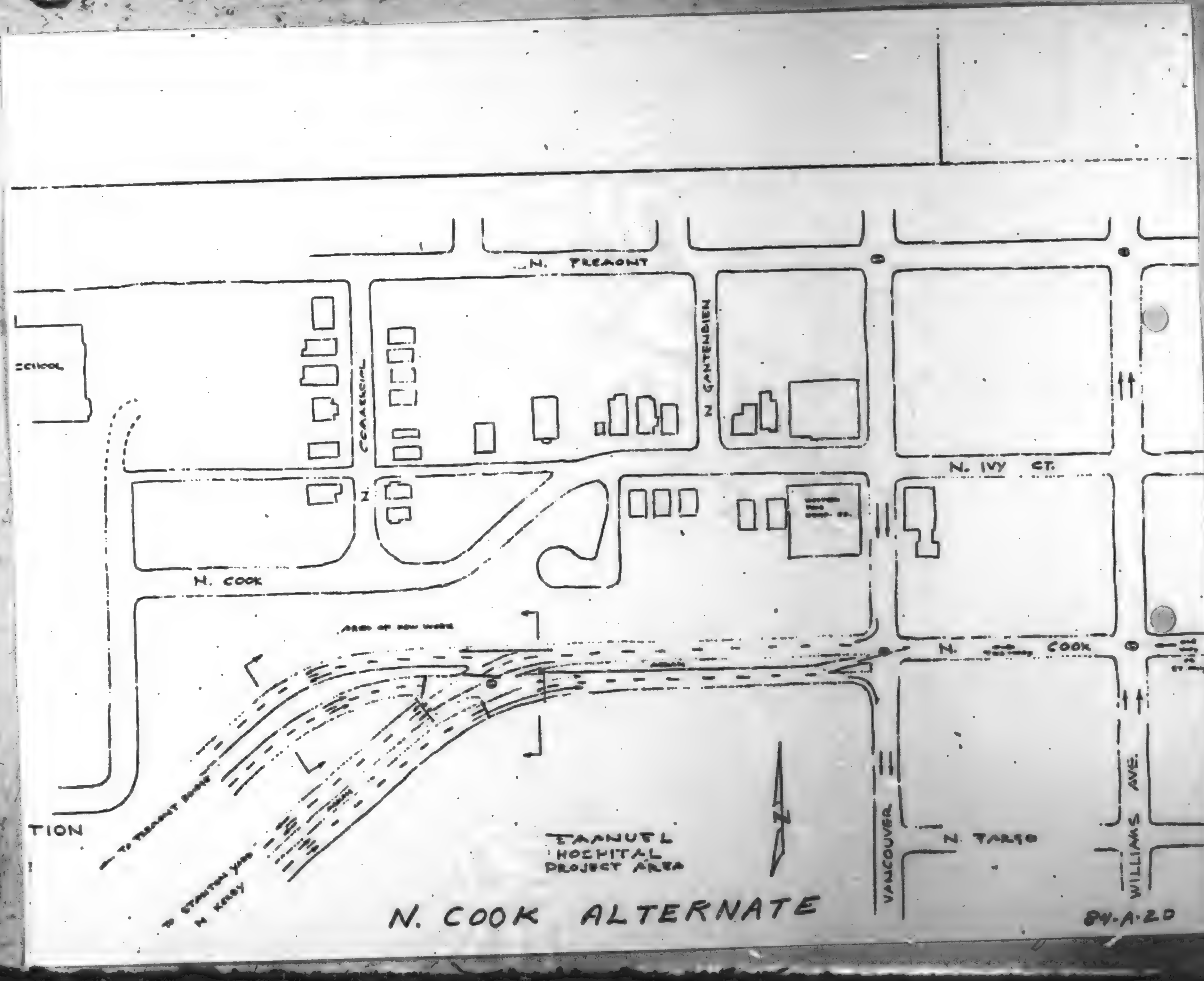
Adopted by the Council NOV - 1 1973

Auditor of the City of Portland

Mayor Neil Goldschmidt
October 26, 1973
DB:pjr


N. COMMERCIAL - IVY ALTERNATE
N. KERBY AVE.
N. COOK ST.
COMMERCIAL AVE.
GANTENBEIN AVE.
N. VANCOUVER AVE.
N. WILLIAMS AVE.
N

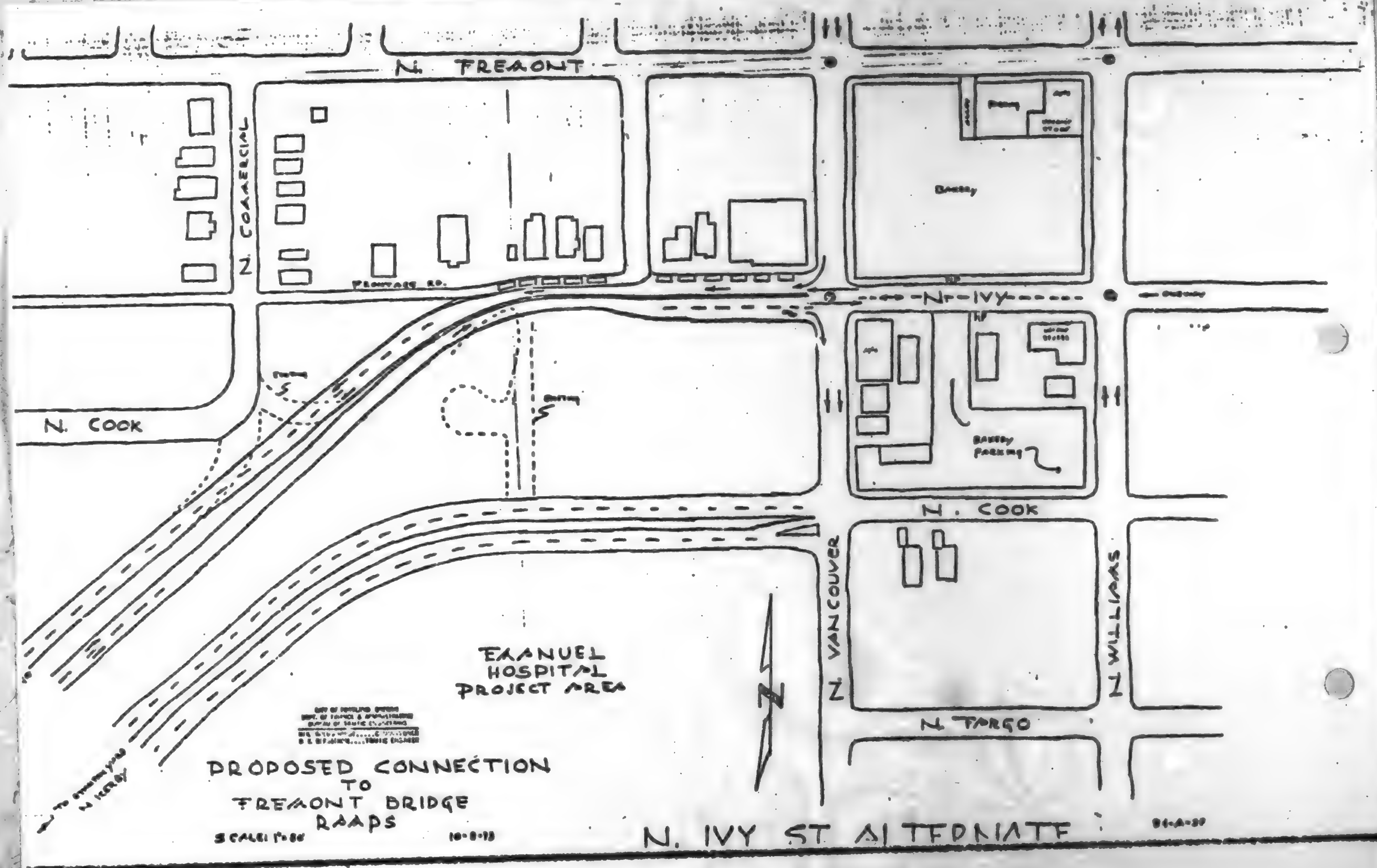

N. FREMONT
N. COMMERCIAL
FRONTAGE RD.
N. IVY
N. COOK
CLOSED
N. COOK
TO BRIDGE
BAKERY
BAKERY PARKING
N. VANCOUVER
N. WILLIAMS
N. FARGO
EMANUEL HOSPITAL PROJECT AREA
N
PROPOSED CONNECTION TO FREMONT BRIDGE RAMPS
SCALE: 1"=80'
10-8-73
N. KERBY ST. ALTERNATE

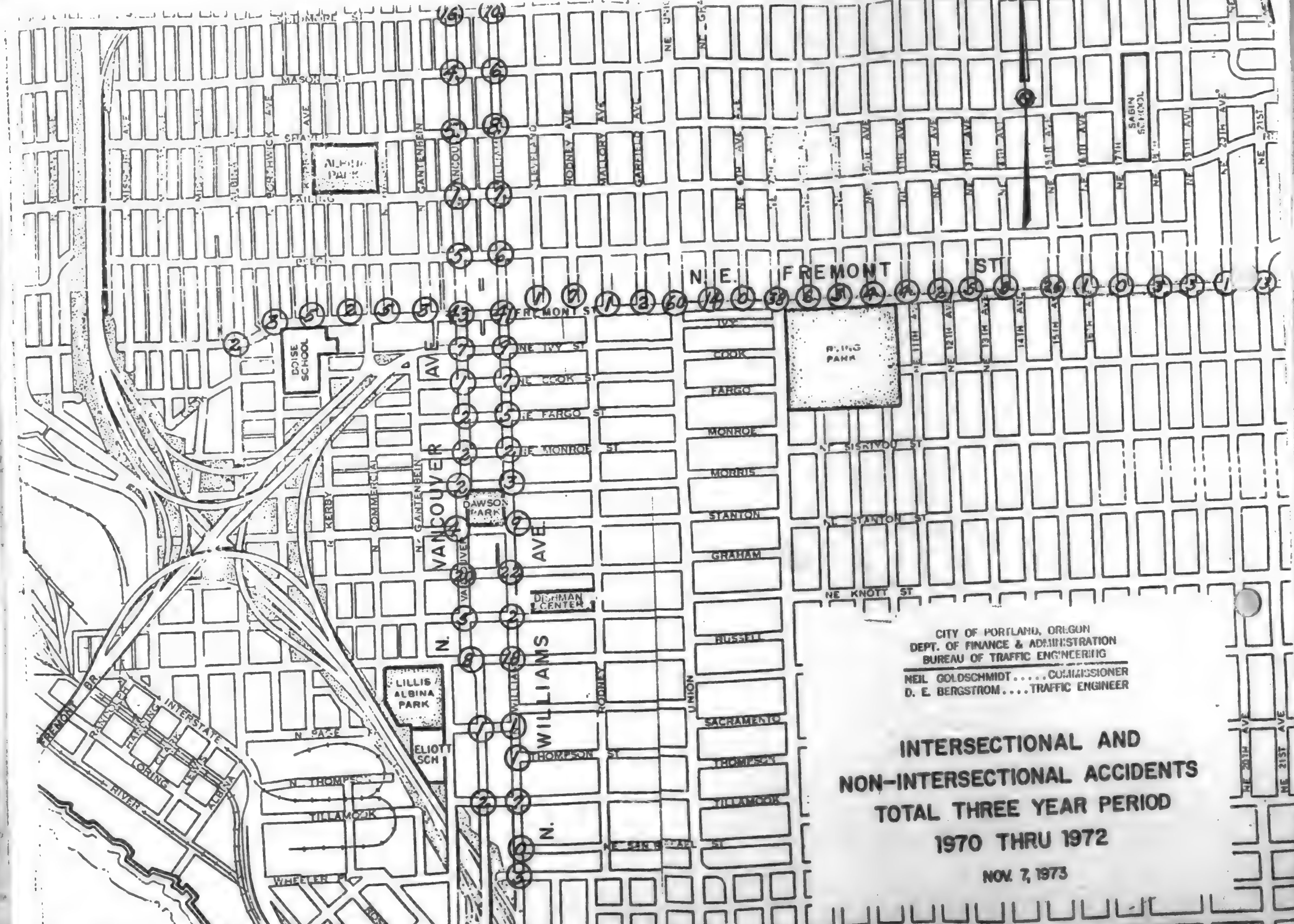


N. TREMONT
SCHOOL
COMMERCIAL
N
N. GANTENBEIN
N. IVY CT.
N. COOK
AREA OF NEW WORK
N. COOK
TION
TO TREMONT BRIDGE
TO STANTON YARD
N KERBY
EMANUEL HOSPITAL PROJECT AREA
N
VANCOUVER
N. TARGO
WILLIAMS AVE.

N. COOK ALTERNATE

84-A-20


N. FREMONT
N. COMMERCIAL
FRONTAGE RD.
N. IVY
BAKERY
N. COOK
PARKING
BAKERY PARKING
N. VANCOUVER
N. WILLIAMS
N. TARGO
EMANUEL HOSPITAL PROJECT AREA
N
PROPOSED CONNECTION
TO
FREMONT BRIDGE
RAMPS
SCALE: 1"=80'
10-8-73
N. IVY ST ALTERNATE

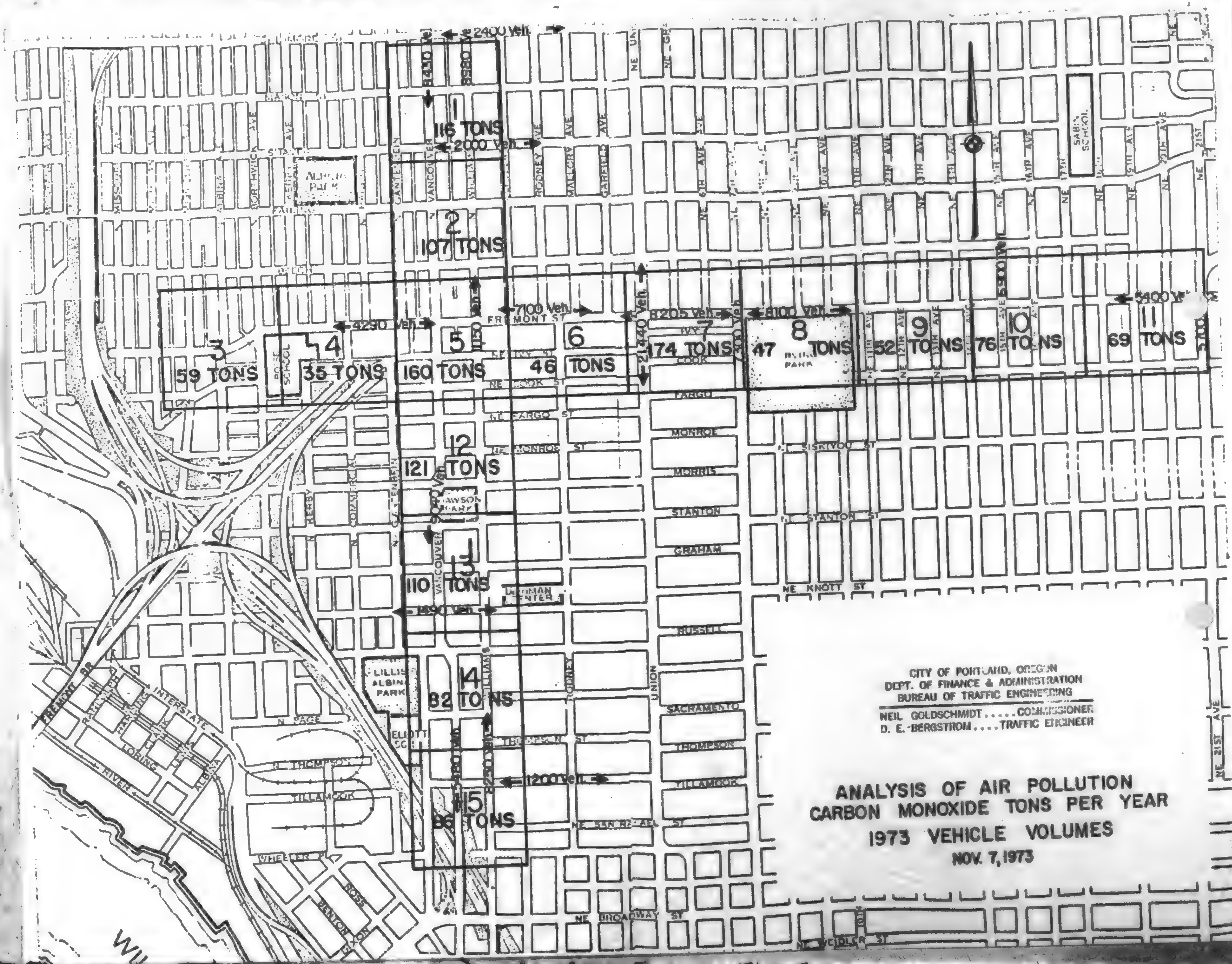

N.E. FREMONT ST
N. VANCOUVER AVE
N. WILLIAMS AVE
BOISE SCHOOL
ALBINA PARK
DAWSON PARK
DISHMAN CENTER
LILLIS ALBINA PARK
ELIOTT SCH
IRVING PARK
SABIN SCHOOL
N KERBY
N COMMERCIAL
N GANTENBEIN
FREMONT BR.
INTERSTATE
RIVER
ALBINA
LORING
N. THOMPSON
TILLAMOOK
WHEELER PL
NE IVY ST
NE COOK ST
NE FARGO ST
NE MONROE ST
THOMPSON ST
RODNEY
UNION
IVY
COOK
FARGO
MONROE
MORRIS
STANTON
GRAHAM
RUSSELL
SACRAMENTO
THOMPSON
TILLAMOOK
NE SISKIYOU ST
NE STANTON ST
NE KNOTT ST
NE BROADWAY ST
NE 20TH AVE
NE 21ST AVE
MASON ST
SHAVER
FAILING
BEECH
SKIDMORE ST
2
3
5
5
2
5
5
43
41
11
11
11
2
60
14
10
38
8
31
4
4
12
15
8
26
11
10
3
5
1
3
16
14
6
5
8
7
7
5
6
7
7
7
7
2
5
2
2
2
3
4
2
22
22
5
2
8
10
1
4
2
7
10
12
23

CITY OF PORTLAND, OREGON
DEPT. OF FINANCE & ADMINISTRATION
BUREAU OF TRAFFIC ENGINEERING

NEIL GOLDSCHMIDT.....COMMISSIONER
D. E. BERGSTROM....TRAFFIC ENGINEER

INTERSECTIONAL AND NON-INTERSECTIONAL ACCIDENTS TOTAL THREE YEAR PERIOD 1970 THRU 1972

NOV. 7, 1973


1
116 TONS
2
107 TONS
3
59 TONS
4
35 TONS
5
160 TONS
6
46 TONS
7
174 TONS
8
47 TONS
9
52 TONS
10
76 TONS
11
69 TONS
12
121 TONS
13
110 TONS
14
82 TONS
15
86 TONS
2400 Veh.
8430 Veh.
8980 Veh.
2000 Veh.
4290 Veh.
1150 Veh.
7100 Veh.
21,440 Veh.
8205 Veh.
7300 Veh.
8100 Veh.
6900 Veh.
5400 Veh.
5700
9040 Veh.
1890 Veh.
5480 Veh.
8250 Veh.
1200 Veh.
BOISE SCHOOL
ALBINA PARK
DAWSON PARK
LILLIS ALBINA PARK
ELLIOTT SCH.
SABIN SCHOOL
FREMONT ST
FREMONT BR.
INTERSTATE
ALBINA
RIVER
LORING
N. PAGE
N. THOMPSON
TILLAMOOK
WHEELER PL.
ROSS
BENTON
DIXON
GANTENBEIN
VANCOUVER
WILLIAMS
RODNEY AVE
MALLORY AVE
GARFIELD AVE
MISSOURI AVE
BORTHWICK AVE
KERBY
COMMERCIAL
NE COOK ST
NE FARGO ST
NE MONROE ST
IVY
COOK
FARGO
MONROE
MORRIS
STANTON
GRAHAM
RUSSELL
UNION
SACRAMENTO
THOMPSON
TILLAMOOK
NE SAN RAFAEL ST
NE SISKIYOU ST
NE STANTON ST
NE KNOTT ST
NE BROADWAY ST
NE WEIDLER ST
NE UNION
NE 6TH AVE
NE 11TH AVE
NE 12TH AVE
NE 13TH AVE
NE 15TH AVE
NE 16TH AVE
NE 17TH
NE 19TH AVE
NE 20TH AVE
NE 21ST
NE 21ST AVE
WIL

CITY OF PORTLAND, OREGON
DEPT. OF FINANCE & ADMINISTRATION
BUREAU OF TRAFFIC ENGINEERING
NEIL GOLDSCHMIDT.....COMMISSIONER
D. E. BERGSTROM....TRAFFIC ENGINEER

ANALYSIS OF AIR POLLUTION
CARBON MONOXIDE TONS PER YEAR
1973 VEHICLE VOLUMES

NOV. 7, 1973

5707

FORM E-30

OREGON STATE HIGHWAY DIVISION

INTER-DEPARTMENT CORRESPONDENCE

Portland, Oregon 97213

DATE October 31, 1973

TO MEMO TO THE FILES

FROM R. N. BOTHMAN
Metropolitan Engineer Bothman

SUBJECT East Fremont Connection to Union Avenue

The City Council will consider the connection of the East Fremont Bridge (Ivy Street) Ramp to Williams and Vancouver as an interim plan in connection with Union Avenue at the council meeting Thursday, November 1.

The present proposal will be a connection to Williams and Vancouver via Ivy Street providing a single lane connection to and from the bridge.

The hang-up to this problem lies with the Model Cities groups who have demanded that the City acquire the properties adjacent to Ivy Street. This includes approximately two blocks between Commercial and Williams on the north side of Ivy and approximately one block between Williams and Vancouver on the south side of Ivy. The estimated cost of the first section including a small church is $160,000. The estimated cost of the second section is $60,000.

The proposal the City will make is that the acquisition of property proceed with willing buyers only, further that the full Federal relocation procedures, including benefits for relocation, be pursued.

The plan would be that the City would provide the properties as their protion of the 50-50 agreement for the connection to Union Avenue. There is a gamble; the area north of Ivy could conceivably be required for all three alternatives now being considered. The section south of Ivy between Williams and Vancouver would only be required if the alternative connection to Union were to pass on the south side of the bakery. I advised Dirker that if the property south of the bakery and Ivy were not needed for the alternative that the State would not be interested in participating in the acquisition of this property. This gamble, therefore, rests with the City. I advised him that I saw no problem with the City participation being provided by this earlier acquisition of property.

NOTED
R. L. SCHROEDER

RECEIVED
NOV 13 1973
Office of
Assistant State Highway Engineer

I advised him the State was not in the position to acquire property at this time and that the City should provide for the acquisition of property.

I advised him that the State could proceed with the construction of the connections to Williams and Vancouver Avenues via Ivy Street either by its own forces or a small contract.

pb

cc: E. S. Hunter
R. L. Schroeder
H. S. Coulter

8909

Schroeder

OREGON STATE HIGHWAY DIVISION
INTER-DEPARTMENT CORRESPONDENCE
Portland, Oregon 97213

DATE October 9, 1973

TO MEMO TO THE FILE

FROM R. N. BOTHMAN
Metropolitan Engineer Bothman

SUBJECT East Fremont Connection
to Vancouver-Williams Avenue

Discussed subject opening with Don Bergstrom this date.

He has proposed three alternatives:

1. A connection from the East Fremont Bridge ramps directly to Kirby;
2. A connection from the East Fremont to Cook Street;
3. A connection from the East Fremont to Ivy.

The latter is the only one which he recommends be pursued. We discussed modification of that plan to provide for a two-lane freeway type interchange connection; this would evolve reducing the lanes on the East Fremont to a single lane in each direction and bringing these two single lanes into Ivy, thence to Williams and Vancouver. It would provide for a right turn lane at Ivy and Williams eastbound. It would provide for a frontage road type concept on the north side of Ivy between Williams and Commercial.

We discussed the committment as to financing with the idea that we would go 50-50 on the signals at Ivy and Vancouver and Ivy and Fremont. The State would provide for the widening necessary on Ivy.

We discussed the necessity of some committment from the City in order to reverse the present agreement to open the connection to Fremont and to Ivy.

ar

cc Schroeder

NOTED
R. L. SCHROEDER

RECEIVED
OCT 11 1973
Office of
Assistant State Highway Engineer

7707

Blaine

OREGON STATE
HIGHWAY DIVISION
METROPOLITAN SECTION
5821 N.E. Glisan Portland, Oregon 97213 Phone: 229-6971

October 8, 1973

MAYOR NEIL GOLDSCHMIDT
Mayor's Office
1220 S.W. 5th Avenue
Portland, Oregon 97204

NOTED
E. S. HUNTER

#7276

Con 7-1-2

Construction of the Fremont Bridge has progressed to the point that it is possible to set November 15 as the tentative opening date for traffic, both eastbound and westbound.

Although recognizing the conflict of opinions between the Model Cities neighborhood who question the opening of the Ivy Street ramps and the Emanuel Hospital who have declared the opening of the ramps necessary to the operation of their facility, present agreements between the State Highway Division and the City of Portland dictate opening of the Ivy Street ramps in conjunction with the Fremont Bridge. The agreement and subsequent supplemental agreements call for the City to accomplish several things in the way of enacting ordinances to designate one way streets in order to develop a connection from the bridge to Williams and Vancouver Avenues. These agreements call for the use of Ivy and Fremont to connect the Fremont Bridge to Vancouver and Williams Avenues with the actual connections the responsibility of the City of Portland.

In the event that the City options to proceed other than as outlined in the existing agreements, a request should be submitted expeditiously in order that necessary steps can be made due to the opening date November 15.

R. N. BOTHMAN
Metropolitan Engineer

NOTED
A. E. JOHNSON

NOTED
H. S. COULTER

NOTED
R. L. SCHROEDER

RNB:ar

RECEIVED
STATE HWY ENGR
OCT 9 '73
REFER TO
Hunter - Schroeder - Coulter
FOR

Info	Inves	R/D	D/R	Sign	Act	File
X						

RECEIVED
OCT 15 1973
Office of
Assistant State Highway Engineer

RECEIVED
OCT 15 1973
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

RECEIVED
OCT 12 1973
Office of
Assistant State Highway Engineer

8909

Salem, Oregon

October 5, 1973

F. B. Klaboe
Administrator and State Highway Engineer

R. L. Schroeder
Assistant State Highway Engineer

Proposed Fremont Bridge to Emanu~~a~~el Hospital Connection

It has been proposed as a suggested interim solution to the East Fremont Interchange problem that the bridge be connected to only the Emanual Hospital complex.

There is presently under construction a major city street which will completely encircle the Emanual Hospital complex. This facility is proposed to extend from the Vancouver-Williams couplet down North Cook Street; run parallel to the East Fremont Bridge ramps; extend southerly on Kirby Avenue; and then connect back to the Vancouver-Williams couplet on North Russell.

This facility is 66 feet in width between curbs with a 16-foot curbed median and left-turn refuges. With parking prohibited, it will handle four lanes of moving traffic. Plans detailing its location and construction are attached.

An analysis conducted by the Planning Section has indicated approximately 21,000 vehicles would be utilizing the local connection to the Fremont Bridge upon its opening. Attached is a traffic flow diagram indicating this estimated usage.

It is my opinion, in view of the high type facility being constructed for the hospital complex, that the majority of these 21,000 vehicles would still utilize this connection to the Fremont Bridge. Even if my estimate is on the high side, certainly at least 50 percent of the estimated traffic or over 10,000 vehicles per day would be traveling through the hospital complex.

It is also my opinion that a connection of the type proposed would result in a traffic congested system in the vicinity of the hospital that would be unacceptable to the hospital administrators, the City of Portland, and the Highway Division.

cc A. E. Johnson

8907

FORM E-30

OREGON STATE HIGHWAY DIVISION

INTER-DEPARTMENT CORRESPONDENCE

Portland, Oregon 97213

RECEIVED
STATE HWY ENGR
SEP 11 '73
REFER TO
FOR
Info Inves R/D D/R Sign Act File

F. B.

DATE September 6, 1973

TO MEMO

FROM R. N. BOTHMAN
Metropolitan Engineer

SUBJECT East Fremont Connection to Union Avenue

Met Wednesday, September 5, with representatives of the City of Portland, Development Commission, Emmanual Hospital and Model Cities; including Ron Buell from the Mayor's office, Roger Larson, from Emanual Hospital, Jim Crolley from Boise Neighbhorhood Association, Ray Brewer from Boise Neighborhood Association and Jack Deyampert from Elliott Neighborhood Association to discuss the Fremont Bridge off-ramps.

The letter by James Crolley, dated August 30, states the position of the Boise Neighborhood which indicates that the neighborhood would allow the Fremont Bridge ramps to be opened with an interim solution subject to stipultation that the neighborhood would be involved in making decisions concerning the final design and that the final plan would be implemented immediately upon completion of the design phase and environmental impact statement.

Ron Buell, at several times during the meeting, pointed this out as a reversal to the position of the Model Cities Neighborhood which has stipulated that no interim solution would be satisfactory and that the bridge should not be open until such time as the final connection to Union Avenue is complete.

Roger Larson expressed the absolute necessity to have a connection to the East Fremont in order for the activities planned for Emanual to continue in the way of expansion. Jack Devampert, from Elliott Neighborhood, restated the tie between the expansion of Emanual and the Model Cities redevelopment program for the Elliott Neighborhood, that actually the Elliott Neighborhood would not be in a postion to proceed unless Emanual proceeds, that Emanual is not in a position to proceed unless they do have a connection to the East Fremont and that a period of five eyars of indecision pending completion of a project to connect the East Fremont would be unsatisfactory, therefore, to both the Elliott Association and to Emanual Hospital. Frankly, I believe the Boise Neighborhood which I have been working with is taking a realistic and sincere approach to resolving the problem of a connection to the East Fremont which would not be detrimental to the neighborhood.

RECEIVED
SEP 10 1973
Office of
Assistant State Highway Engineer

NOTED
R. L. SCHROEDER

The basic stiputaltion is that the interim plan would be part of the final plan and would tie the Fremont Bridge to Williams and Vancouver. This could be done with either plan 4 or plan 8 by making a four lane or possibly six lane connection to Vancouver Avenue on Ivy, widening on the south side using the available PDC property and then proceeding with a couplet system around the bakery with two lanes eastbound on Ivy with the westbound traffic carried on Fremont and Vancouver to Ivy, hence, onto the bridge.

Ron Buell stated that the position of the City would coincide with the position taken by the neighborhood groups. He advised that at this time an application had been made to CRAG to $180,000 for preliminary engineering and environmental impact studies. Further discussions with Bill Dirker indicated that it would probably be 45 days before a decision would be reached through the CRAG Agencies for committment of these monies. Committment by the City to the Model Cities to construct a connection to Union Avenue would be forth coming after the City was assured by the Model Cities that they were in agreement with the interim plan.

I pointed out that actual capital outlay funds would not be appropriated at this time since the project was four to five years in the future and at best the right of way acquisition monies would not be necessary until the fiscal year of 1974. I did indicate that I thought the City had the allocation of urban funds for fiscal year 1975 and that it was simply a matter of them selecting priorities and making a committment to Model Cities to proceed with the project. I was informed by Ron Buell that the Mayor had revised the priority on this project, that being the widening of Fremont from No. 4 to No. 1 in the City. With this type of a priority, there is no doubt that the project will be funded, subject to the approval of the City council.

I advised Ron Buell that if the City did take the position of delaying a decision until the CRAG approval was received, I would need some type of indication from the Mayor that the earlier agreement which calls for opening of the ramp should be voided and that the opening will be delayed pending agreement on an interim plan.

Jack Deyampert requested that I present the alternatives to the Elliott Association. I have been working constantly with the Boise Neighborhood although, he, Jack Deyampert has been in attendance at the last couple of meetings.

cc Gary Sund

8909

RECEIVED
STATE HWY ENGR
SEP 10 '73
REFER TO
FOR
R/D | D/R | Sign | Act | File

August 30, 1973

Mr. Mike Henniger
Physical Program Coordinator
Model Cities
5329 NE Union Avenue
Portland, Oregon 97211

NOTED
F. B. KLABOE

Re: Fremont Bridge On-Off Ramps

Dear Mike:

As you know, the Fremont Bridge Study Committee of the Boise/Humboldt Coordinating Committee has studied several alternatives for Fremont Street improvements over the past two months. At our last meeting, we selected three alternatives to be sent back to the appropriate agencies for further refinement. We further feel that the appropriate agencies should acknowledge the following points and as soon as possible issue a firm commitment to the Boise/Humboldt neighborhood:

1) There will be at least two representatives from the Boise/Humboldt neighborhood involved in making decisions concerning the final designs and the environment impact study;

2) The final plan will be implemented immediately after the completion of the design phase and the environmental impact statement.

At this point, we feel that we have gond as far as we can in reaching a solution that would allow the Fremont Bridge ramps to be opened, until we receive some evidence that the above conditions will be adhered to. As soon as this is done, it would then be appropriate to sit down with all concerned parties and discuss an interim solution that would allow the ramps to be opened.

cc Schroeder ✓

METROPOLITAN ENGINEER
RECEIVED
SEP 04 1973
AME AME MDE MTE

Sincerely yours,

James Crolley, Chairman
Fremont Bridge Study Committee

cc: Ron Buell, Mayor's Office
Robert Bothman, State Highway Dept.
Jack Deyampert, Chairman, Eliot Ass'n.

NOTED
R. L. SCHROEDER

RECEIVED
SEP 5 1973
Office of
Assistant State Highway Engineer

8109

OREGON STATE
HIGHWAY DIVISION
METROPOLITAN SECTION
5821 N. E. Glisan Street Portland, Oregon 97213 Phone: 229-6971

August 14, 1973

R. W. MARCUS
Loan Management &
Property Disposition Branch
520 S. W. 6th Avenue
Portland, Oregon 97204

In response to your inquiry relative to improvement to property located at 221 N. E. Ivy and 211 N. E. Ivy, the planning for a boulevard-type connection from the East Fremont Bridge ramp to Union Avenue is in the very preliminary stages.

At this point, eight alternative plans have been presented to the Model Cities area as a contact group. The group has eliminated those alternatives which would utilize Ivy Street in the 200 N. E. block. It would appear the alternatives have been narrowed down to the point the boulevard would not affect the two properties you have inquired into.

There is an outside chance a final improvement may involve the entire section of Ivy from the East Fremont Bridge to Union Avenue. As I said above, I think this chance is rather remote and would recommend you pursue the properties without regard to the highway improvement.

R. N. BOTHMAN
Metropolitan Engineer

RNB:rr

cc: H. S. Coulter
R. L. Schroeder ✓

RECEIVED
AUG 16 1973
Office of
Assistant State Highway Engineer

NOTED
R. L. SCHROEDER

NOTED
R. L. SCHROEDER

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
PORTLAND AREA OFFICE
CASCADE BUILDING, 520 S.W. SIXTH AVENUE, PORTLAND, OREGON 97204

REGION X
Arcade Plaza Building
1321 Second Avenue
Seattle, Washington 98101

August 3, 1973

IN REPLY REFER TO:
10.2HL (Watson)
221-2671

METROPOLITAN ENGINEER
RECEIVED
AUG 7 1973
☐ ME ☐ AME ☐ AME ☐ [illegible] ☑ MDE ☐ MTE

Mr. Robert Bothman
Metropolitan Engineer
5821 N.E. Glisan
Portland, Oregon

Dear Mr. Bothman:

The Department of Housing and Urban Development has acquired title to the property located at 221 N.E. Ivy, Lot 8, Block 15, Williams Avenue in the City of Portland. In addition, the adjoining property at 211 N.E. Ivy is in the process of being acquired by HUD.

Since our program is to rehabilitate and when necessary, upgrade the property prior to selling, we would like to know if these properties might be involved in your highway expansion program for Northeast Ivy Street.

If they are contained in your development program, we would prefer to negotiate a sale directly to you rather than upgrade and sell on the open market.

May we please hear from you in the very near future so that we can establish our Disposition Program.

Sincerely,

R. W. Marcus
Director
Loan Management and Property
Disposition Branch

8909

FORM E-30

OREGON STATE HIGHWAY DIVISION
INTER-DEPARTMENT CORRESPONDENCE
Portland, Oregon

NOTED
H. S. COULTER

DATE August 9, 1973

TO MEMO TO THE FILE

ORIGINAL SIGNED BY R. N. BOTHMAN

FROM R. N. Bothman
Metropolitan Engineer

SUBJECT Model Cities Committee Meeting
East Fremont Connection to Union
Avenue Project

NOTED
F. B. KLABOE

RECEIVED
STATE HWY ENGR
AUG 29 '73
REFER TO
FOR

Info	Invest	R/D	D/R	Sign	Act	File

RECEIVED
AUG 2[illegible] 1973
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

The meeting of the Fremont Bridge Study Committee of the Model Cities Program was called to order by Chairman James Crolley.

The purpose of the meeting was to agree upon a plan to recommend to the Model Cities Coordinating Committee, which plan would eventually be recommended to the City Council.

Two additional alternative ideas relayed to me by Ray Brewer from the meeting of this group August 1 were discussed. These are alternatives #7 and #8. Previously the group had considered alternatives #1-#6.

Considerable discussion revolved around alternatives #2, #4 and #8 with support for each of these plans from some members of this committee.

The committee adopted my recommendation that the committee submit all three of the above alternatives for consideration and for further study as three alternatives which would be supported by the Model Cities Program, the final selection to be based upon further study and design by the cooperating agency, in this case the State Highway Division. This recommendation was approved unanimously and will be submitted to the Coordinating Council next week.

NOTED
E. S. HUNTER

I attempted to point out that the eight alternatives are only ideas, and the actual details have not been worked out and there are a great number of unanswered design questions and impact questions which would be developed through further study. I advised the group that the idea of the alternatives is to gain support from the Model Cities group for a boulevard from the East Fremont to Union Avenue and to gain ideas as to the limitation upon this boulevard which the Model Cities group would require. I advised by selecting

RECEIVED
STATE HWY ENGR
AUG 13 '73
REFER TO
FOR

Info	Invest	R/D	D/R	Sign

NOTED
R. L. SCHROEDER

RECEIVED
AUG 10 1973
Office of
Assistant [illegible] Engineer

the three alternatives they would give the maximum flexibility and the actual design study and selection of the best alternative for the area if the Model Cities group could support all three of the alternatives.

Actually the group spent considerable time on detail design ideas of which I've taken notes which will be worked out if we do proceed with the project. The group was given the financing situation, that being that the City has requested to CRAG for monies to conduct an EIS and design of the project and further that the City would go to their urban funds for their portion of the monies for this project, that the State would cooperate, and that possibly Federal funds would be utilized.

Not indicated, but I believe the implication is that the ramp from the Fremont Bridge will not be opened until such time as the boulevard is constructed. Also, a definite point was made as to the fact that the ramps from I-5 north and southbound to Fremont would not in any situation be supported by the Model Cities group. This left a definite question as to why we need six lanes approaching the Fremont Bridge, which only has four lanes for westbound traffic to the northwest district. I explained that I felt perhaps under these stipulations four lanes would be adequate for the approach, but at Williams and Vancouver the additional third lanes would be required in order to provide for proper operation of the signalized intersection with Fremont or with Fremont and Ivy, whatever the case, and further that the additional third lane, or a total of six lanes, would most likely be required from that point east to the Union Avenue connection, primarily because of the signalization.

Attached are the minutes of the past study committee meetings.

RNB:slh

cc R. L. Schroeder
Donald Byard
Gary Sund

FREMONT BRIDGE STUDY COMMITTEE

August 1, 1973

Chairman James Crolley called the meeting to order at 5:55 p.m. He stated that the purpose of this meeting would be for the Committee to select a plan to recommend to the Coordinating Committee at their August 2, 1973 meeting. Mr. Crolley had given Mr. Brewer a rough idea for a variation on Plan #2, which Mr. Brewer had drawn up. The Fremont Bridge Study Committee members each contributed their ideas, and the following plan was the result:

To use Ivy Street, three lanes each way, between the Bridge ramp and Williams Avenue; expanding Ivy south to obtain adequate right-of-way. At Williams Avenue, the roadway would swing over to Fremont Street with three lanes each way to and from Union Avenue; expansion for adequate right-of-way would be to the south of Fremont. There would also be a frontage road on the north side of Fremont, and a median strip separating the frontage road from Fremont.

The Committee members all agreed to recommend this plan to the Coordinating Committee. The meeting was adjourned at 7:20 p.m.

Note: After the meeting, Mr. Crolley decided it would be best to wait until the cost of the plan had been estimated, and more information gathered, before recommending it to the Coordinating Committee. Therefore, only a report would be given at the August 2 Coordinating Committee meeting, with no action called for at that time. Then, another meeting of the Fremont Bridge Study Committee was scheduled for August 8, to meet with Mr. Bothman of the State Highway Department, to provide the necessary information. This information would be presented to the Coordinating Committee at their August 16 meeting along with the recommended plan, for the approval by the Coordinating Committee.

nlf

8909

FORM F-20

OREGON STATE HIGHWAY DIVISION

INTER-DEPARTMENT CORRESPONDENCE

Portland, Oregon 97213

DATE July 30, 1973

TO MEMO

FROM R. N. BOTHMAN
Metropolitan Engineer Bothman

NOTED
E. S. HUNTER

SUBJECT East Fremont Connection
Union Avenue

Discussed the subject connection with Lloyd Anderson, Ron Buell, Bill Dirker and others of the City at Monday's staff meeting.

Model Cities is requesting the City to disapprove of the interim plan and make no connection to the East Fremont short of a boulevard scheme. There is general consensus that approval can be obtained for a partial couplet-boulevard connection as proposed in one of the Highway Division's alternatives to the City.

Emanual Hospital is "demanding" that the Fremont Bridge ramps be open and in fact are necessary to the Hospital financially. That effort is being pursued by Carl Halverson who is on the board and responsible for this phase of the Hospital's operation.

Apparently monies are being programed through CRAG to the tune of $180,000 for the designing, etc. of the project.

At this point, it appears that a hearing will be held by the City to hear the two sides of the situation and then render a decision.

I believe a committment on the part of the City and the State to the final project would satisfy the Model Cities group. In the meetings I've had with that group, of which at least one included Ron Buell, the cause for the strong stand of the Model Cities was that if they did accept an interim plan, there would never be a final boulevard scheme pursued by the City. I believe they might bend and accept some type of an interim plan if there was a definite committment on the part of the City to limit that interim plan to a period of time.

pb

cc: R. L. Schroeder
H. S. Coulter
~~E. S.~~ Hunter

8-1-73
cc Hunter
[illegible]

RECEIVED
JUL 31 1973
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WASHINGTON, D.C. 20591

OFFICE OF THE ADMINISTRATOR

JUL 17 1973

IN REPLY REFER TO:
HNG-11

Honorable Wendell Wyatt
House of Representatives
Washington, D. C. 20515

Dear Mr. Wyatt:

This is in further reply to your June 4 letter enclosing correspondence from Mr. Roger G. Larson, President of Emanuel Hospital in Portland, Oregon, concerning proposed on and off ramps from the Fremont area to Interstate Route 5. We acknowledged your letter on June 14.

The East Fremont Interchange is a planned high volume facility connecting directly with the proposed Northeast Freeway. Due to the uncertainty of the freeway, the interchange has been approved as a stage construction project. Construction of the four easterly ramps to and from Interstate Route 5 is being deferred until a firm commitment regarding the Northeast Freeway location is a matter of record.

Representatives of our Division Office in Salem, who work closely with the State on Federal-aid highway matters, have informed us that the State proposed an interim connection to the east and requested the full interchange be constructed. However, traffic projections indicated that the existing street system would be inadequate to handle the predicted traffic that would desire access to the area in question. Also, as mentioned above, the location for the connecting facility, the Northeast Freeway, is uncertain. For these reasons, the Federal Highway Administration did not consider it to be in the overall public interest to expend Federal-aid highway funds for the proposed interim connection.

We appreciate the opportunity to advise you on this matter.

Sincerely yours,

Norbert T. Tiemann
Federal Highway Administrator

RECEIVED
STATE HWY ENGR
JUL 23 '73
REFER TO
FOR

Info	Inves	R/D	DIR	Sign	Act	File

NOTED
F. B. KLABOE

copy to
Johnson
7-23-73

RECEIVED
73

WENDELL WYATT
FIRST DISTRICT
OREGON

HOUSE OFFICE BUILDING
WASHINGTON, D.C. 20515

APPROPRIATIONS
COMMITTEE

FHWA

Congress of the United States
House of Representatives
Washington, D.C. 20515

June 4, 1973

Administrator
Federal Highway Administration
400 Seventh St. S. W.
Washington, D. C. 20590

Dear Sir:

I am enclosing herewith a copy of a letter dated March 5 from Mr. Roger G. Larson, President of Emanuel Hospital in Portland, Oregon to Mr. Glenn L. Jackson, Chairman of the Oregon State Highway Commission, along with a copy of Mr. Jackson's letter in response to Mr. Larson which deals with the desire of the Emanuel Hospital to have the Federal Highway Administration reconsider its decision regarding the construction of some off and on ramps from Fremont Bridge to Interstate 5.

I feel that Emanuel Hospital is fully justified in its request for construction of these on and off ramps and I will deeply appreciate your Administration's reconsideration of your decision. I feel that it would be in the best interests of all concerned to have these off and on ramps constructed.

Thank you very much for your cooperation.

Sincerely,

Wendell Wyatt

WENDELL WYATT
Member of Congress

WW/p
Enc.

47308

Mr. Baldwin

Noted
GEORGE M. BALDWIN

STATE OF OREGON
1859

**OREGON STATE
HIGHWAY COMMISSION**

OFFICE OF GLENN L. JACKSON • % Pacific Power and Light Co. • Medford, Oregon • 97501

TOM McCALL
GOVERNOR

COMMISSIONERS
GLENN L. JACKSON, Chairman
Medford
FRED W. HILL, Member
Pendleton
THADDEUS B. BRUNO, Member
Portland

April 4, 1973

Mr. Roger G. Larson, President
Emanuel Hospital
2801 North Gantenbein Avenue
Portland, Oregon 97227

Dear Mr. Larson:

From the original concept of the East Fremont Interchange, the State Highway Commission has provided a method of service to the residential area of north and northeast Portland. Our many negotiations with the Portland Development Commission in acquiring right-of-way for a complete interchange in coordination with the Emanuel Hospital project will bear this out.

Every effort we have made to the Federal Highway Administration for inclusion of ramps to service your area has been denied. This decision has placed the Commission in an awkward position, not only with the staff of Emanuel Hospital, but with relocating the City of Portland's shop complex.

I am completely sympathetic toward your concern for the development of the Fremont/Union/Broadway area, and I appreciate your offer of a tour. However, lacking federal approval and funding, there is nothing further the Highway Commission can do except to continue our efforts to solve the problem.

Sincerely yours,

Glenn L. Jackson
Chairman

GLJ:ejk

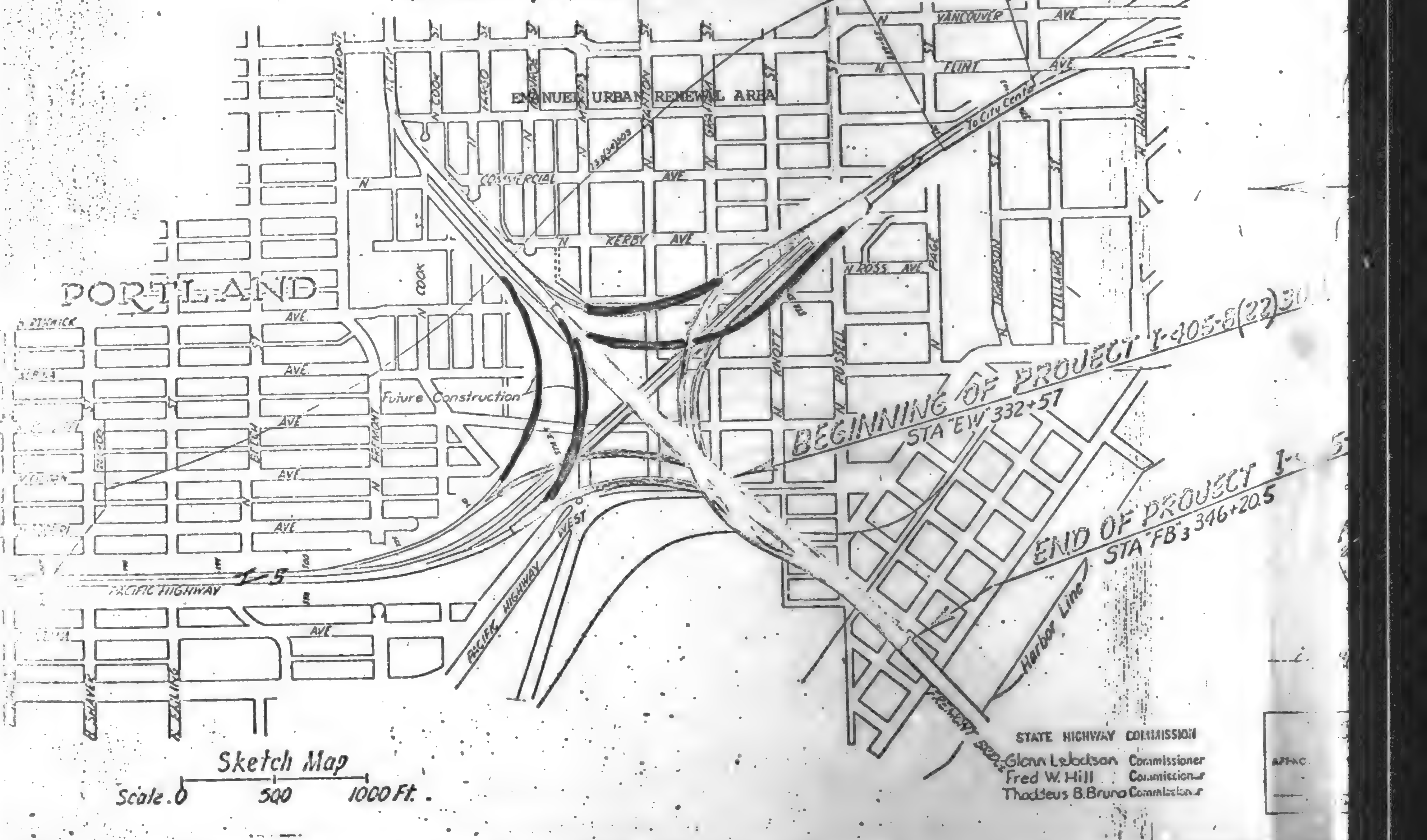
RECEIVED
SEP 1 3 1973
OFFICE OF
DIRECTOR of TRANSPORTATION

ST FREMONT INTCHGE. SECTION

STADIUM FREEWAY HIGHWAY

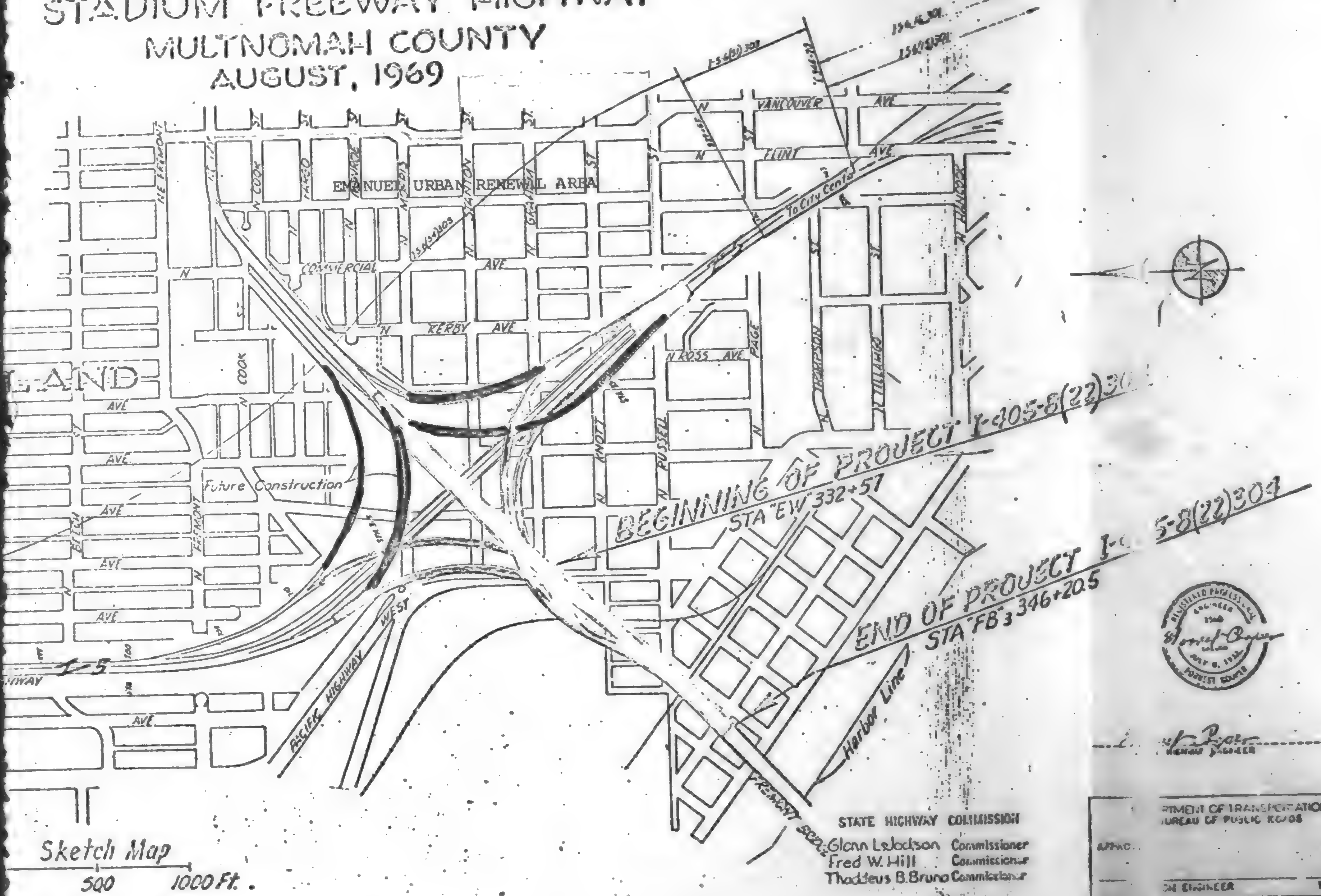
MULTNOMAH COUNTY

AUGUST, 1969


PORTLAND
EMANUEL URBAN RENEWAL AREA
Future Construction
I-5
PACIFIC HIGHWAY
PACIFIC HIGHWAY WEST
N VANCOUVER AVE
N FLINT AVE
To City Center
N COMMERCIAL AVE
N KERBY AVE
N ROSS AVE
N PAGE
N THOMPSON
N TILLAMOOK
N HANCOCK
N COOK
N FARGO
N MORRIS
N STANTON ST
N GRAHAM ST
N KNOTT
N RUSSELL
NE FREMONT
N FREMONT
N BEECH
N SHAVER
N FAILING
AVE
ST
Harbor Line
FREMONT SCALE
BEGINNING OF PROJECT I-405-5(22)301
STA "EW" 332+57
END OF PROJECT I-5
STA "FB3" 346+20.5
Sketch Map
Scale 0 500 1000 Ft.

STATE HIGHWAY COMMISSION

Glenn L. Jackson Commissioner
Fred W. Hill Commissioner
Thadeus B. Bruno Commissioner



REMONT INTCHGE. SECTION

STADIUM FREEWAY HIGHWAY

MULTNOMAH COUNTY
AUGUST, 1969

BEGINNING OF PROJECT I-405-8(22)30
STA "EW" 332+57

END OF PROJECT I-5-8(22)304
STA "FB"3 346+20.5

Sketch Map
500 1000 Ft.

STATE HIGHWAY COMMISSION
Glenn L. Jackson Commissioner
Fred W. Hill Commissioner
Thaddeus B. Bruno Commissioner

Forrest Cooper

HIGHWAY ENGINEER

RTMENT OF TRANSPORTATION
UREAU OF PUBLIC ROADS

APPRO

ON ENGINEER DATE

EMANUEL URBAN RENEWAL AREA
N VANCOUVER AVE
N FLINT AVE
To City Center
NE FREMONT
N COOK
FARGO
MONROE
N MORRIS
STANTON
GRAHAM
COMMERCIAL AVE
N KERBY AVE
N ROSS AVE
PAGE
THOMPSON
TILLAMOOK
HANCOCK
N KNOTT
N RUSSELL
Future Construction
LAND
AVE
BEECH
FREMONT
I-5
HIGHWAY
PACIFIC HIGHWAY WEST
FREMONT BRIDGE
Harbor Line

Emanuel Hospital

2801 north gantenbein avenue • portland, oregon 97227

eh

March 5, 1973

Mr. Glenn L. Jackson
Chairman
State of Oregon Highway Commission
Salem, Oregon

Dear Mr. Jackson:

The purpose of my letter is to make a request of the Highway Commission to give further consideration to building off and on ramps from Fremont to Interstate 5.

I recognize that the original intent was to relate this interchange to the Rose City Freeway. However, I have heard that there is some thought that this freeway system will be some years in the future. I am appealing to you on behalf of the hospital and what I believe would be in the best interests of the development of the near north side of the Portland area, which is presently the heart of the ghetto.

The Board of Directors of Emanuel Hospital made a decision some years back to keep our facility in the heart of the city, primarily because we felt there would continue to be a need to serve the people in the core area of the city. However, concomitant with our desire to serve these needs, we have a need to provide service to the entire metropolitan area in order to remain a viable institution. Access to and from the hospital becomes a key factor as to how the citizens of the community use us. Additionally, it is my opinion that the economic survival of the whole Fremont/Union/Broadway area is much dependent on access to and from the freeway at the Fremont interchange.

We feel this is particularly important because the redevelopment of the core area of the city is going to require additional capital investment beyond what Emanuel Hospital can provide, in order to save this section of the city.

I would be happy to discuss this with you further if you have any questions. Additionally, I would be happy to discuss with you our plans for remaining here in the core area and to give you a tour of the area.

Sincerely,

Roger G. Larson
President

RECEIVED
MAR 14 1973
OFFICE ENGINEERING SECTION

RECEIVED
STATE HWY ENGR
MAR 13 '73
REFER TO
FOR

Note	Inves	R/D	D/R	Sign	Act	File

RGL:ymd

sixty years of service 1912-1972

8709

FORM E-80

OREGON STATE HIGHWAY DIVISION

INTER-DEPARTMENT CORRESPONDENCE

Portland, Oregon

DATE May 3, 1973

TO MEMO TO THE FILE

ORIGINAL SIGNED BY R.N. BOTHMAN

FROM R. N. BOTHMAN
Metropolitan Engineer

SUBJECT Ivy-Fremont Street Connection to the Fremont Bridge.

RECEIVED
MAY 7 1973
Office of
Assistant State Highway Engineer

Met with Dick Speer from the Portland Traffic Engineer's Office, a representative from the Portland Development Commission, Dick Brainard from CH2M Hill doing study for PDC, a representative from the Model Cities Program and three representatives from Continental Baking Company including John S. McDonald and G. William Musgrave, the later being the Portland Manager.

Subject of discussion was the improvements to be made at the east end of the Fremont Bridge which would effect the expansion program for the Continental Baking Company plant located in the block surrounded by Ivy, Williams, Fremont and Vancouver. The company is anticipating expansion of their building within that block, moving their transportation activities to the block immediately south of Ivy Street. Their existing plant is valued at something in excess of $5,000,000.

The work being done by CH2M Hill suggests that the boulevard connection from the bridge to Union Avenue be located south of Fremont as opposed to the Model Cities De Leuw Cather proposal to locate the boulevard north of Fremont. If the facility were located south of Fremont it would "wipe out" the bakery plant.

John McDonald representing the company's engineer division from New York indicated that no action would be taken for their much needed expansion until a definite decision on the future of this site was available.

I reviewed the activities to date in so far as the alternatives available to the City for the connections to and from the Fremont Bridge connecting Ivy and Fremont Streets. Any construction accomplished would impart an impact on the bakery. I suggested some direction on the part of the City could be possible within the next month or two but that actual determination of the route for a boulevard connection if one were requested by the City would take in the neighborhood of five years. I further advised that the City Council would not be in a position (in my opinion) to render a plan or approve of plan which would define the location of the boulevard and give any conclusive assistance to allow the bakery development. This decision would not be appropriate from any public body until such time as an impact study had been completed.

I did refer the bakery personnel to Ron Buell to get a time table in so far as the Citys part in deciding the type of connection which will be pursued from the Fremont Bridge to Ivy Street and Fremont Street.

RNB:rr

cc H. S. Coulter✓
R. L. Schroeder

2757

FORM E-30

OREGON STATE HIGHWAY DIVISION

INTER-DEPARTMENT CORRESPONDENCE

Portland, Oregon

DATE May 1, 1973

TO MEMO TO THE FILE

ORIGINAL SIGNED BY R.N. BOTHMAN

FROM R. N. BOTHMAN
Metropolitan Engineer

SUBJECT

Met with the Neighborhood Development Office and Portland Development Commission at their request this date. In attendance were Don Bergstrom, Ron Buell (City of Portland), several Model Cities staff, and interested residents.

Purpose was to assist this group in recommending through their Model Cities organization steps to be taken to open the east Fremont approaches to Ivy and Fremont.

Don Bergstrom outlined the planned developed jointly between the City and the State which would provide widening of Fremont to three lanes, widening of Ivy to two lanes, and restriction of parking on Commercial for two lanes. This improvement would connect the Fremont traffic to Williams Avenue and Vancouver Avenue. It would not connect to Union Avenue.

The neighbors were concerned with relocation particularly as to the benefits paid to those persons relocated for the hospital expansion. Apparently those persons received $15,000 plus the fair value for their property. The drift of the group was that this benefit should also go to those persons which would be relocated by a proposed expressway from the east Fremont to Union Avenue. The planner for Model Cities described the disruption with school children being required to cross Williams Avenue, Vancouver Avenue and Commercial in order to get to Boise School and also the disruption due to the parking restriction on Commercial and on Fremont. Ivy already has parking restrictions. Also described was the impact on the community due to the one-way grid system proposed with Ivy and Commercial. Fremont would remain two way.

However, generally I think the real feeling from the people was to attain the $15,000 relocation "bonus".

At this point Ron Buell interceded to into the group the alternatives which they had and which he would recommend they chose from in their recommendation to the Model Cities group. He outlined three alternatives.

RECEIVED
MAY 4 1973
Office of
Assistant State Highway Engineer

(1) request that the ramps be not open to Fremont and Ivy Street; (2) the interm plan presented by Don Bergstrom utilizing existing streets be adopted; and (3) the connection from the east Fremont to Union Avenue proposed in the DeLeuw Cather type connection through the Model Cities, through the City, through the State and through the Federal Government. This is predicated on the fact that funds were not available other than if this connection were added to the State Highway system and perhaps to the Interstate system. I explained that the possibility of adding this to the State system would be somewhat of an uphill battle due to the demands on the highway system today and that further the request to add it to the Interstate would be a further challenge to the Federal Government. However, both of these alternatives did have a possibility. I explained the relocation benefits which would occur if these alternatives were selected. The group seem to still stick to the $15,000 bonus idea and wanted to explore some method of gaining that additional funding for those persons which would be relocated.

Ron Buell advised that he felt he could get a reply from the City in 30 days which would in fact request the State to add this connection to the Interstate system. I advised that this was a possibility, however I would think it would take 5-7 years to go through the many processes of adding this section to the Interstate system, then to gain financing, then to go through the corridor design and impact study steps and then proceed with the actual construction.

The Model Cities planner interceded as did Ron Buell that a lot of the ground work had been laid and that the Model Cities group had adopted this plan and that in fact the citizens were behind the Model Cities DeLeuw Cather proposal. I questioned the group in attendance and they confirmed this statement realizing the effect this plan would have on the neighborhood, that being an expressway through the neighborhood. Again, however, the relocation benefits were the key issue.

The group voted to select the third alternative with no stipulation to allow use of the surface streets under any condition (this might be changed by a document to provide the expressway).

The group further passed a motion to seek funding via the State Highway Division.

The schedule of events are (1) present these motions to the Model Cities executive committee 5/3/73, (2) the Model Cities Board 5/7/73, and (3) the City Council 5/11/73.

R. N. BOTHMAN
Metropolitan Engineer
RNB:rr
cc H. S. Coulter✓
R. L. Schroeder

8909

RECEIVED
DEC 2 - 1970
FOR FILING

Conf
Prog
Mund - Portland

OREGON STATE HIGHWAY DEPARTMENT
INTER-DEPARTMENT CORRESPONDENCE
Salem, Oregon
December 4, 1970

SUBJECT: Emanuel Hospital Project
Portland Development Commission
East Fremont Interchange
Stadium Freeway

E. Fremont St.
1.405-8 (1) 301

To:
Mr. R. L. Schroeder
Metropolitan Engineer
5821 N. E. Glisan Street
Portland, Oregon

Attention: Mr. Hal Versteeg

NOTED
A. E. JOHNSON

We have reviewed your submittal of December 3 and concur in your plan to leave the fence as shown until some future date when the property is needed for highway purposes.

No further suggestions or recommendations come to mind at this time.

ORIGINAL SIGNED BY
FRANK L. HALL
Frank L. Hall
Design Engineer

DNS:jp
cc: A. E. Johnson
F. B. Klaboe
F. D. Morgan

RECEIVED
DEC 4 1970
OFFICE OF
STATE HIGHWAY ENGINEER

8707

RECEIVED
DEC 7 1970

FORM [illegible] (REV. 10-69)

Covil
Roy
Nunne - Dlld
To Frame Set

OREGON STATE HIGHWAY DIVISION
INTER-DEPARTMENT CORRESPONDENCE

Portland, Oregon 97213
December 3, 1970

e
SUBJECT: Emanual Hospital Project
Portland Development Commission
East Fremont Interchange
Stadium Freeway

To: Frank Hall
Design Engineer
State Highway Building
Salem

A second meeting was held at the Portland Development Commission's office at 10:00 AM, December 2, 1970. The exchange of properties, removal work and the establishment of a boundary between the properties were discussed. There was general agreement on these subjects and the Commission staff is proceding to evaluate the properties involved in the exchange between the Highway Division and the Emanual Hospital project.

We later discussed these right of way developments with Mr. Grothaus. He could not see any problem. It is assumed that this will be a straight land exchange and the refined detail of damages, etc. will not be a part of the exchange.

Attached is a print of the construction plan of the area. The new right of way line (70' southerly "WE" centerline) is shown colored orange, the removal area hatched in brown and the proposed fence line in red. It is our intention, subject to your approval, to leave the fence at this location until some future date when the property was needed for highway purpose, Emanual Hospital would be requested to maintain that area outside the fence until this future date.

We are asking for some additional width along the southerly side of Ivy Street from Gantenbein and Vancouver Streets.

Please advise if you have any suggestions or recommendations. This project seems to be moving quite fast with plans that all properties will be acquired by the late fall of 1971.

See attachment for those present.

RECEIVED
DEC 4 1970
OFFICE OF
STATE HIGHWAY ENGINEER

Robert L. Schroeder
Metropolitan Engineer

By: ORIGINAL SIGNED BY
J. H. VERSTEEG

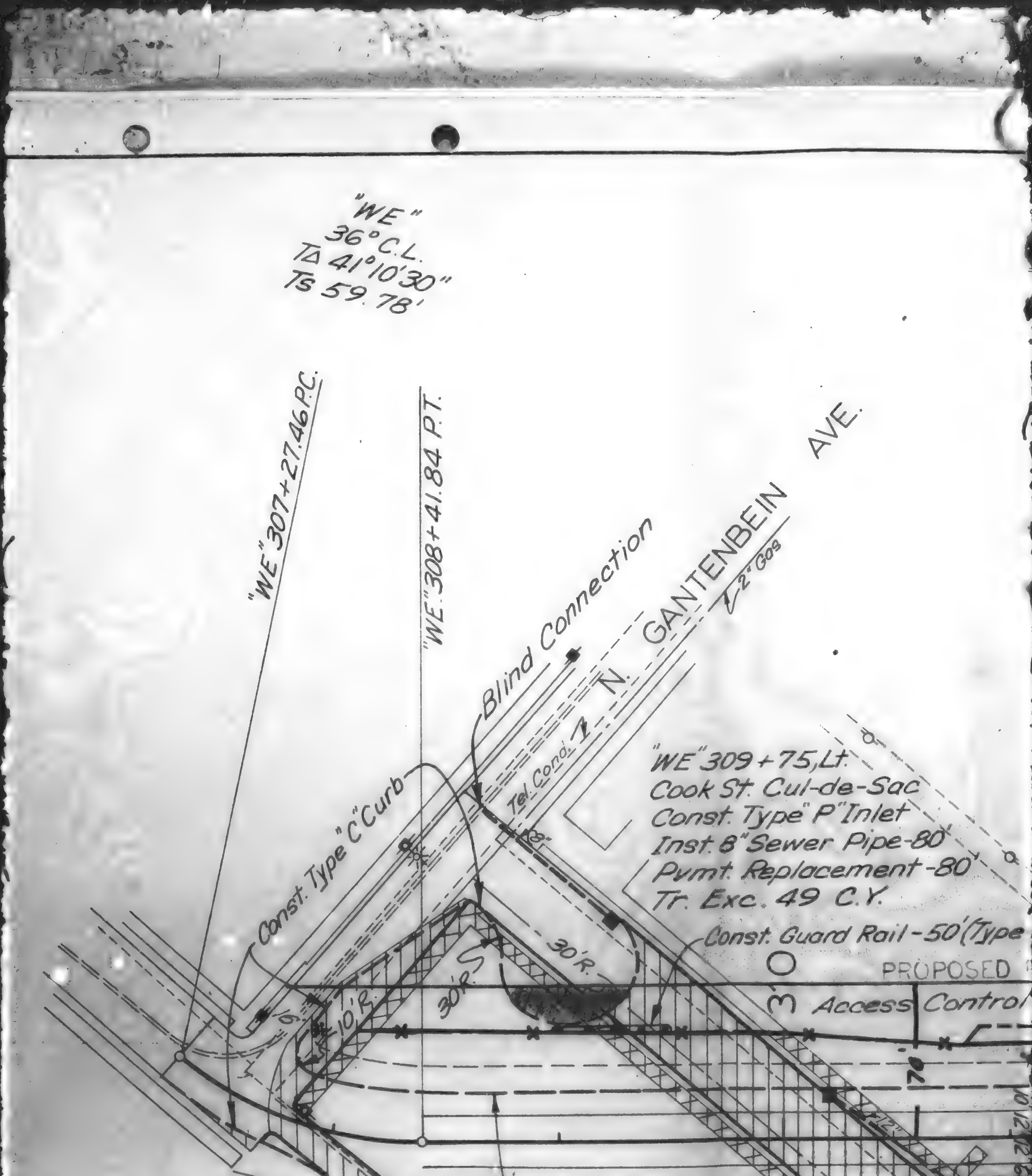
J. H. Versteeg
Assistant Metropolitan Engineer

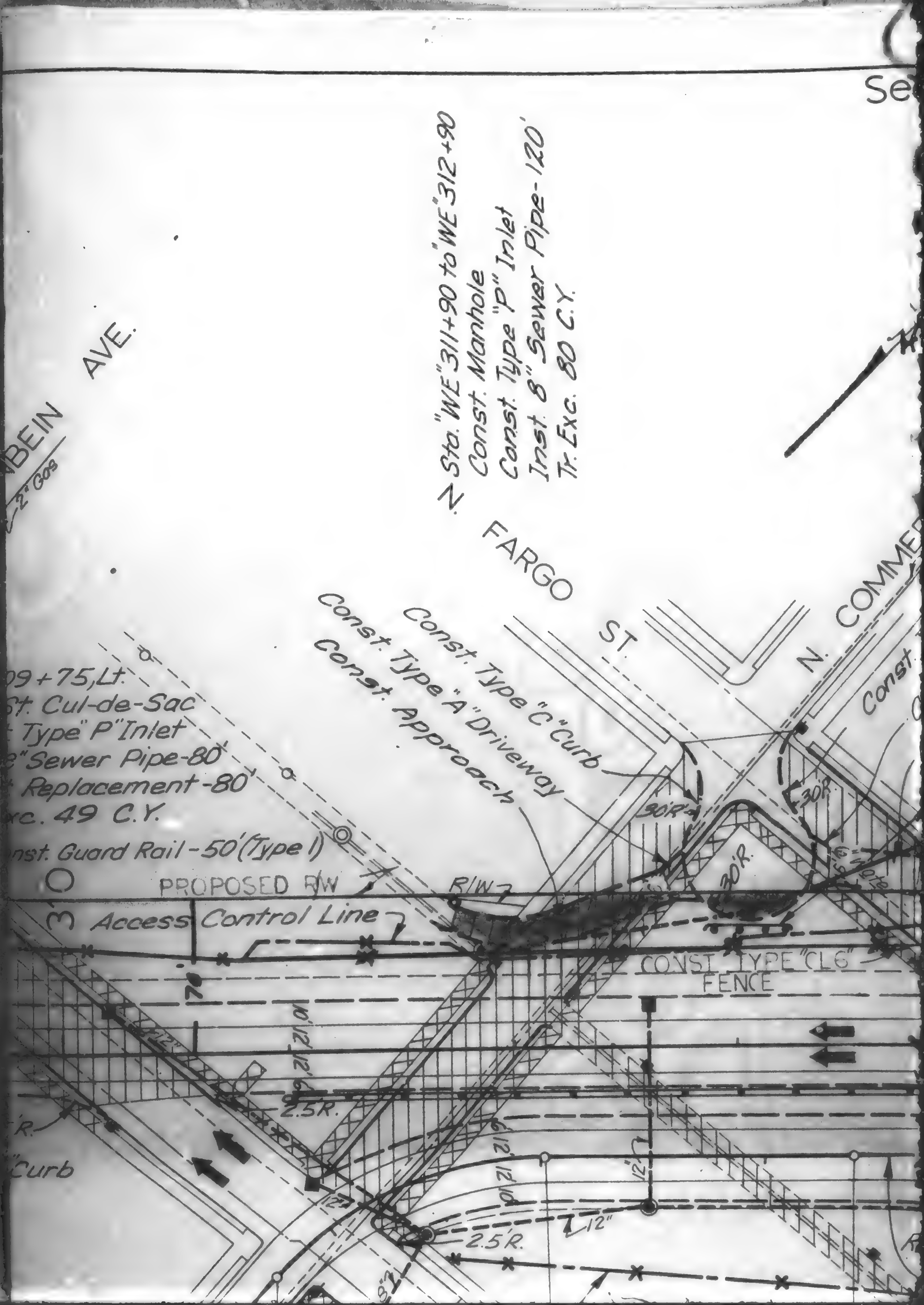
REFERRED TO
H. Q. Ruhene
BY ASST. STATE HWY. ENGR
12-7-70

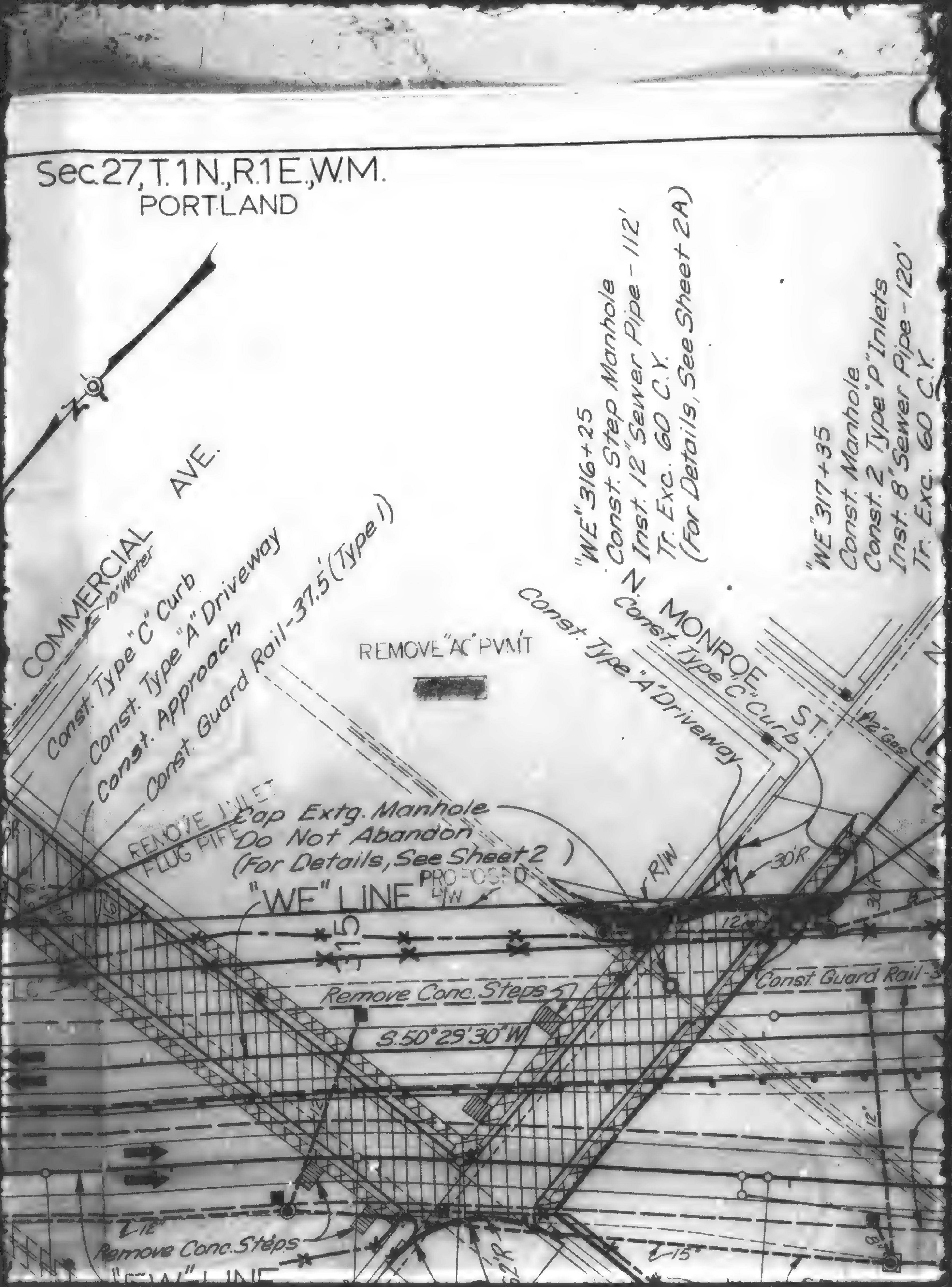
cc: F.D. Morgan
A.E. Johnson
F.B. Klaboe
Louis C. Grothaus
James Don
Robert Shotwell

JHV:pb
Attach.

NOTED
F. B. KLABOE


"WE"
36° C.L.
TΔ 41°10'30"
Ts 59.78'
"WE" 307+27.46 P.C.
"WE" 308+41.84 P.T.
N. GANTENBEIN AVE.
2" Gas
Blind Connection
Tel. Cond.
8"
Const. Type "C" Curb
"WE" 309+75, Lt.
Cook St. Cul-de-Sac
Const. Type "P" Inlet
Inst. 8" Sewer Pipe-80'
Pvmt. Replacement-80'
Tr. Exc. 49 C.Y.
Const. Guard Rail-50' (Type
30'R.
30'R.
10'R.
16'
PROPOSED
30 Access Control
70
12"
55'R.
R/W
Const. Type "C" Curb
Tel. Cond.

Se
Sta."WE"311+90 to "WE"312+90
Const. Manhole
Const. Type "P" Inlet
Inst. 8" Sewer Pipe-120'
Tr. Exc. 80 C.Y.
BEIN AVE.
2" Gas
N. FARGO ST.
N. COMME
Const. Type "C" Curb
Const. Type "A" Driveway
Const. Approach
09+75,Lt.
St. Cul-de-Sac
t Type "P" Inlet
8" Sewer Pipe-80'
t Replacement-80'
rc. 49 C.Y.
nst. Guard Rail-50'(Type I)
PROPOSED R/W
R/W
3 Access Control Line
CONST. TYPE "CL6" FENCE
30'R.
30'R.
30'R.
2.5'R.
2.5'R.
12"
12'
'R.
"Curb
Const


Sec.27, T.1N., R.1E., W.M.
PORTLAND
N
COMMERCIAL AVE.
10" Water
Const. Type "C" Curb
Const. Type "A" Driveway
Const. Approach
Const. Guard Rail-37.5' (Type 1)
REMOVE "AC" PVMT
"WE" 316+25
Const. Step Manhole
Inst. 12" Sewer Pipe - 112'
Tr. Exc. 60 C.Y.
(For Details, See Sheet 2A)
"WE" 317+35
Const. Manhole
Const. 2 Type "P" Inlets
Inst. 8" Sewer Pipe - 120'
Tr. Exc. 60 C.Y.
N. MONROE ST.
Const. Type "C" Curb
Const. Type "A" Driveway
2" Gas
REMOVE INLET
PLUG PIPE
Cap Extg. Manhole
Do Not Abandon
(For Details, See Sheet 2)
"WE" LINE
PROPOSED R/W
R/W
30'R.
30'R
12"
315
Const. Guard Rail-3
Remove Conc. Steps
S.50°29'30"W
12'
8"
℄ 12"
Remove Conc. Steps
℄ 15"
"EW" LINE

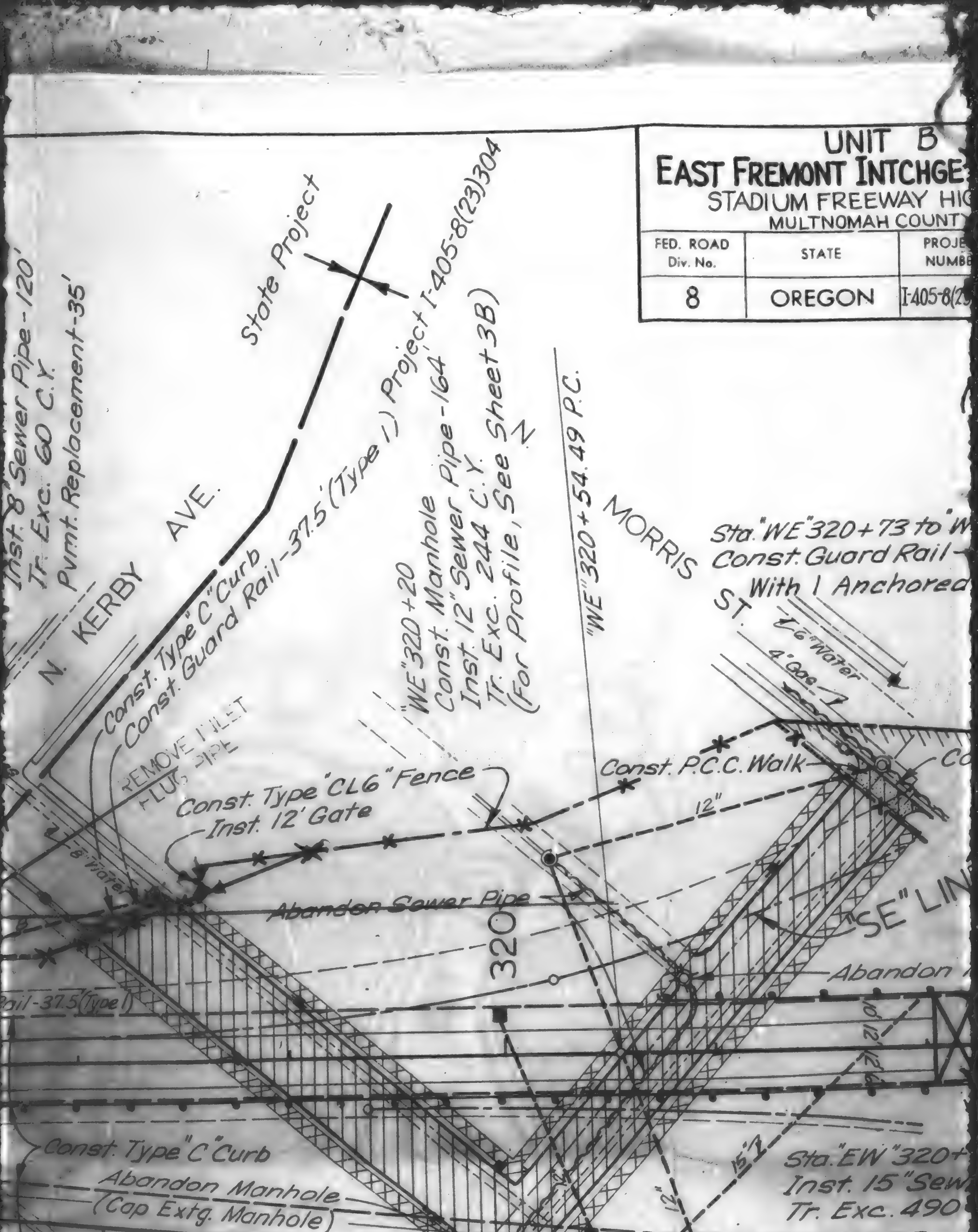
UNIT B

EAST FREMONT INTCHGE

STADIUM FREEWAY HIG

MULTNOMAH COUNTY

FED. ROAD Div. No.	STATE	PROJE NUMBE
8	OREGON	I-405-8(23



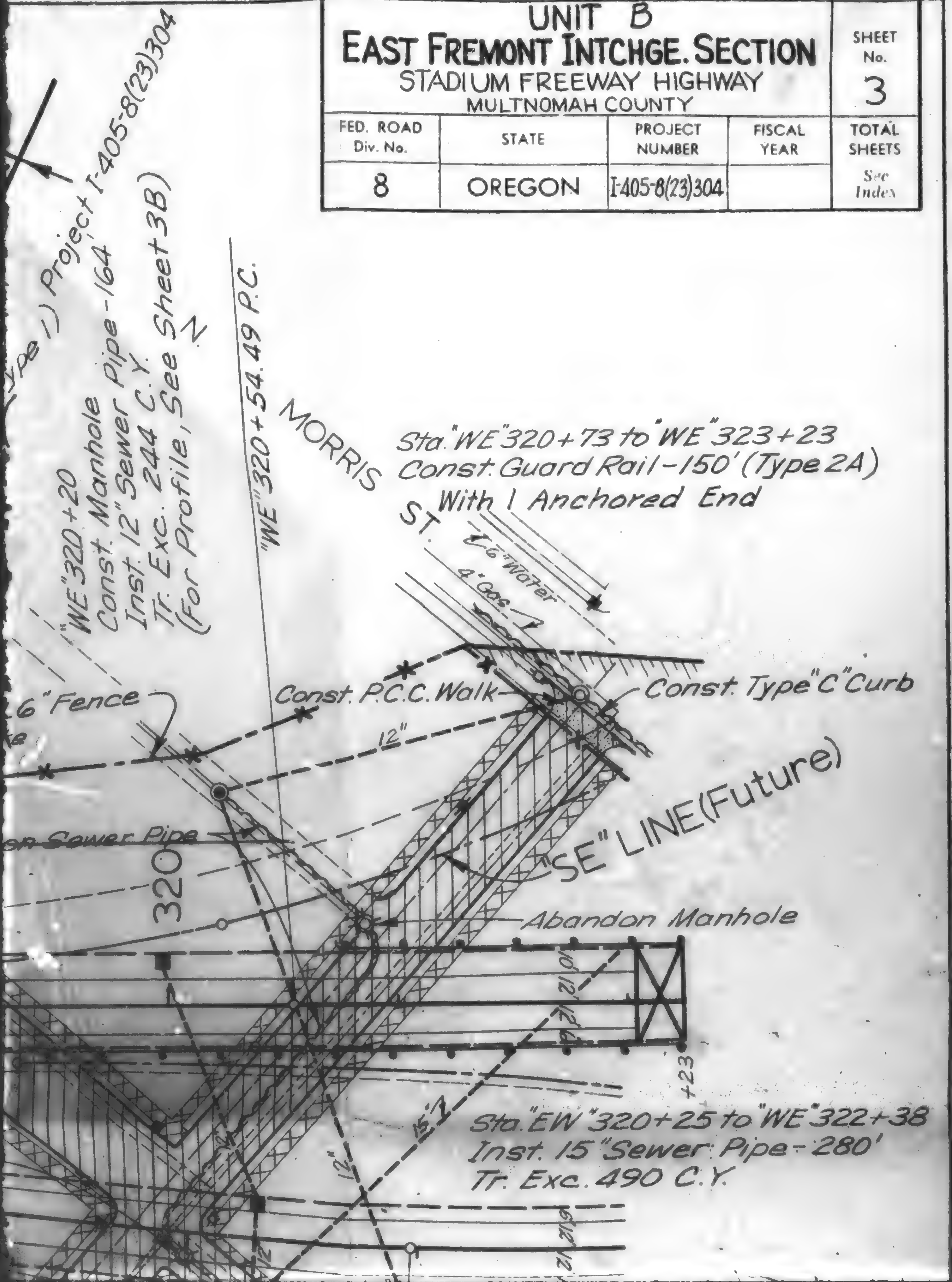
State Project
Project I-405-8(23)304
Inst. 8" Sewer Pipe - 120'
Tr. Exc. 60 C.Y.
Pvmt. Replacement - 35'
N. KERBY AVE.
Const. Type "C" Curb
Const. Guard Rail - 37.5' (Type 1)
"WE" 320+20
Const. Manhole
Inst. 12" Sewer Pipe - 164'
Tr. Exc. 244 C.Y.
(For Profile, See Sheet 3B)
N
"WE" 320+54.49 P.C.
MORRIS ST.
Sta. "WE" 320+73 to "W
Const. Guard Rail -
With 1 Anchored
6" Water
4" Gas
REMOVE INLET
PLUG PIPE
Const. Type "CL6" Fence
Inst. 12' Gate
Const. P.C.C. Walk
12"
8" Water
Abandon Sewer Pipe
"SE" LIN
320
Abandon
Rail - 37.5 (Type 1)
Const. Type "C" Curb
Abandon Manhole
(Cap Extg. Manhole)
Sta. "EW" 320+
Inst. 15" Sew
Tr. Exc. 490
15"
12"

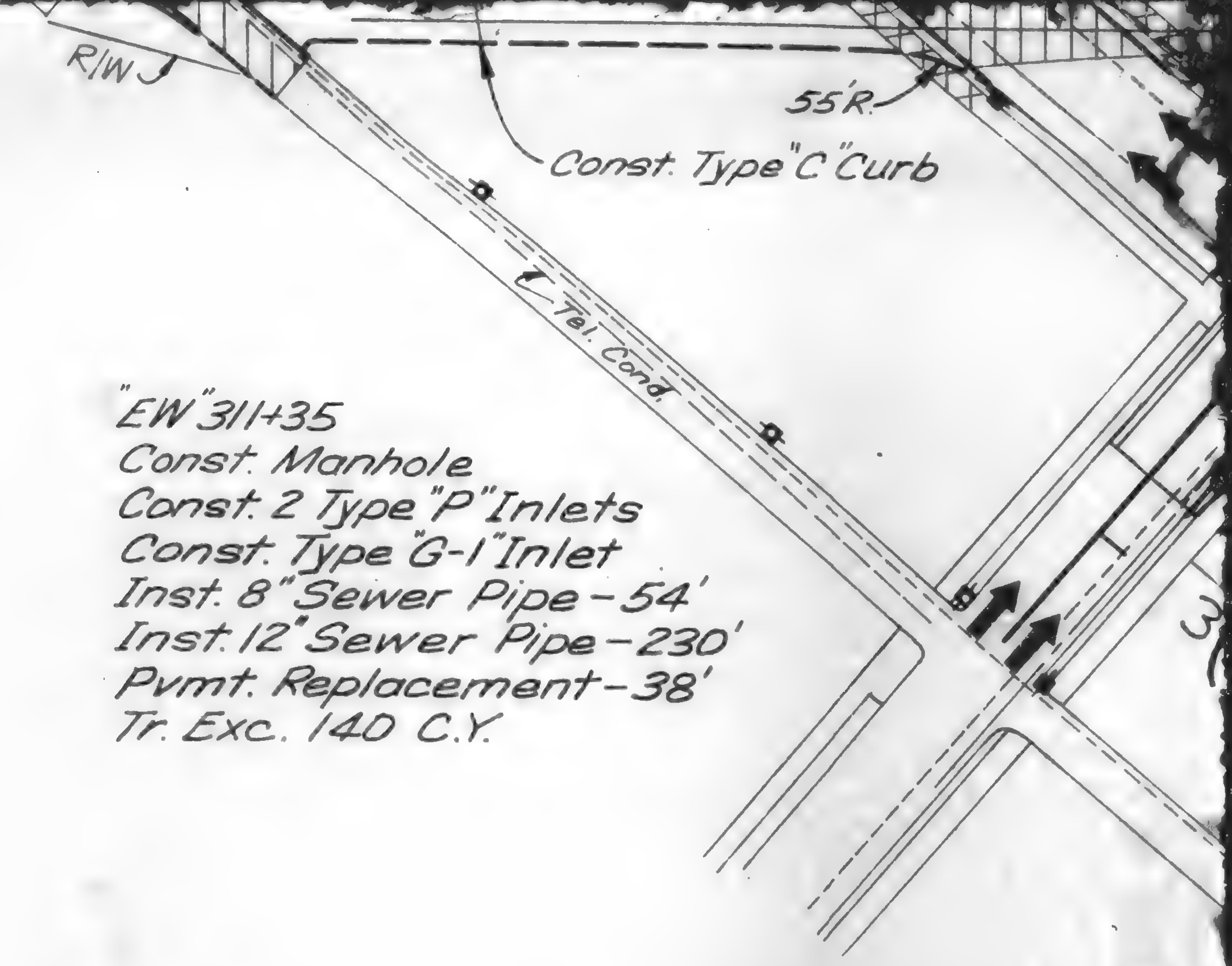
9V-411

UNIT B
EAST FREMONT INTCHGE. SECTION
STADIUM FREEWAY HIGHWAY
MULTNOMAH COUNTY

SHEET No. 3

FED. ROAD Div. No.	STATE	PROJECT NUMBER	FISCAL YEAR	TOTAL SHEETS
8	OREGON	I-405-8(23)304		See Index

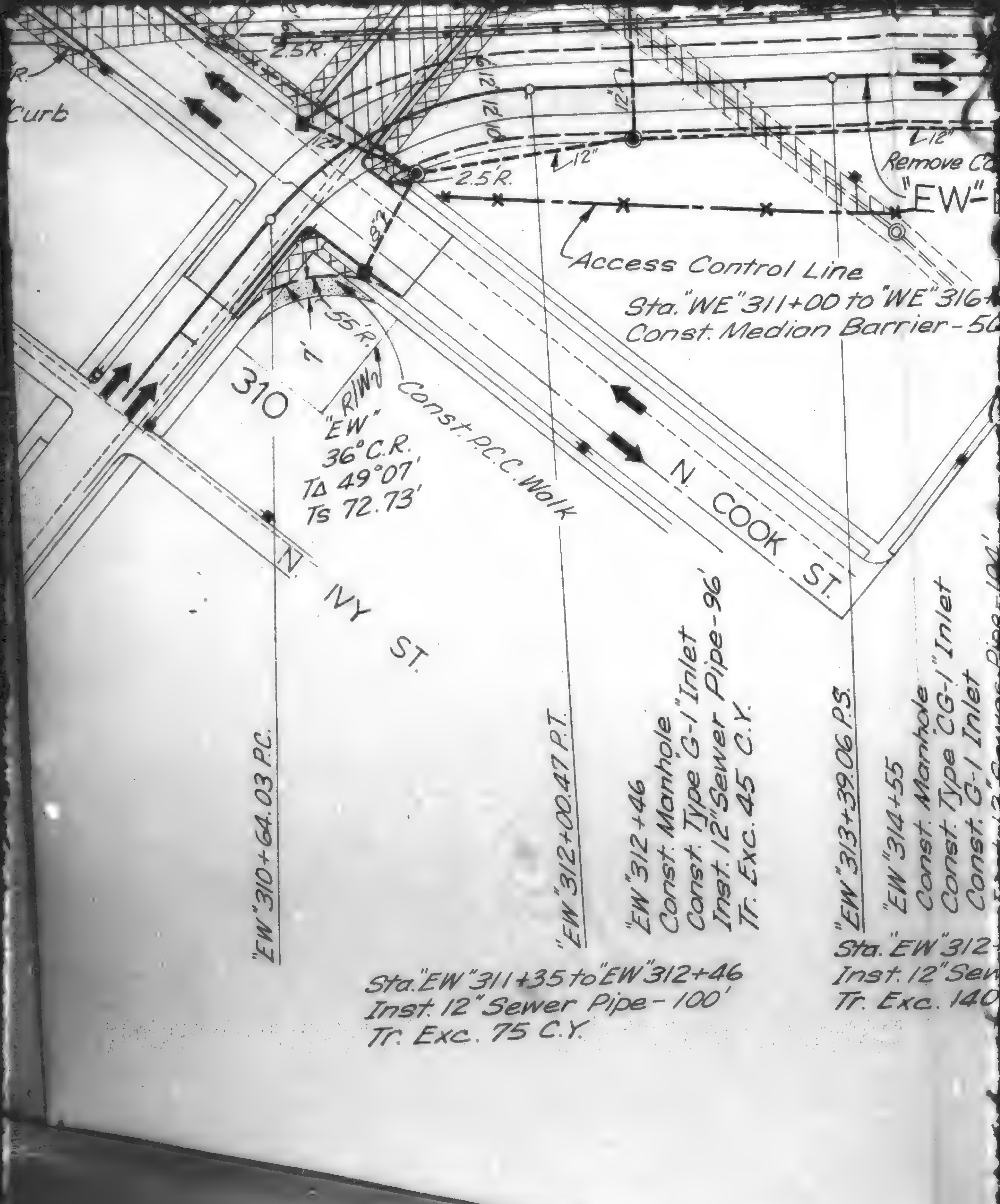

ype 1) Project I-405-8(23)304
"WE" 320+20
Const. Manhole Pipe -164'
Inst. 12" Sewer C.Y.
Tr. Exc. 244 C.Y.
(For Profile, See Sheet 3B)
N
"WE" 320+54.49 P.C.
MORRIS ST.
Sta. "WE" 320+73 to "WE" 323+23
Const. Guard Rail-150' (Type 2A)
With 1 Anchored End
6" Water
4" Gas
6" Fence
Const. P.C.C. Walk
Const. Type "C" Curb
12"
"SE" LINE (Future)
on Sewer Pipe
320
Abandon Manhole
10
12
12
14
+23
15"
12"
Sta. "EW" 320+25 to "WE" 322+38
Inst. 15" Sewer Pipe-280'
Tr. Exc. 490 C.Y.
12
12
12

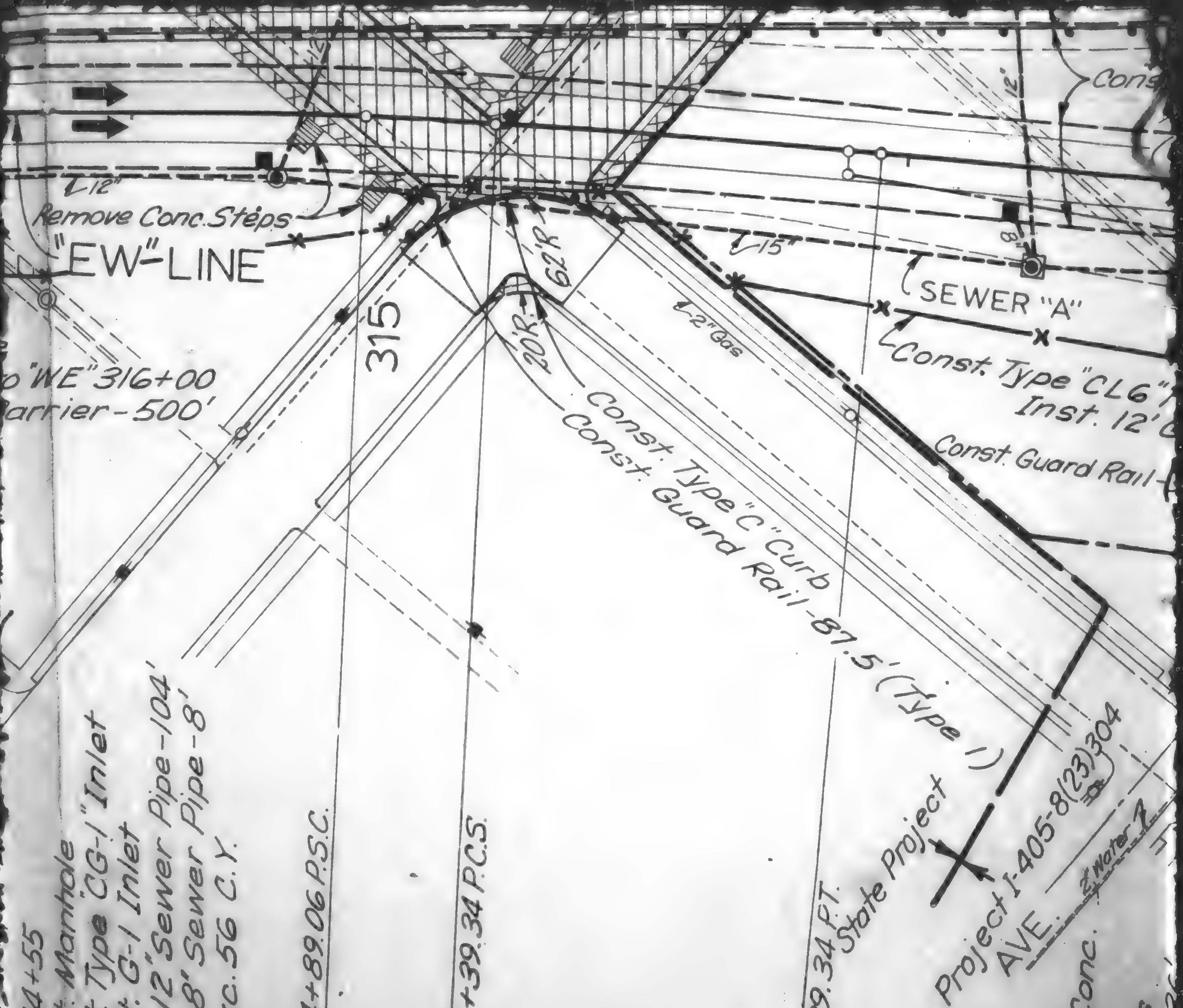

R/W
55'R.
Const. Type "C" Curb
℄ Tel. Cond.
"EW" 310+64.03 P.C.

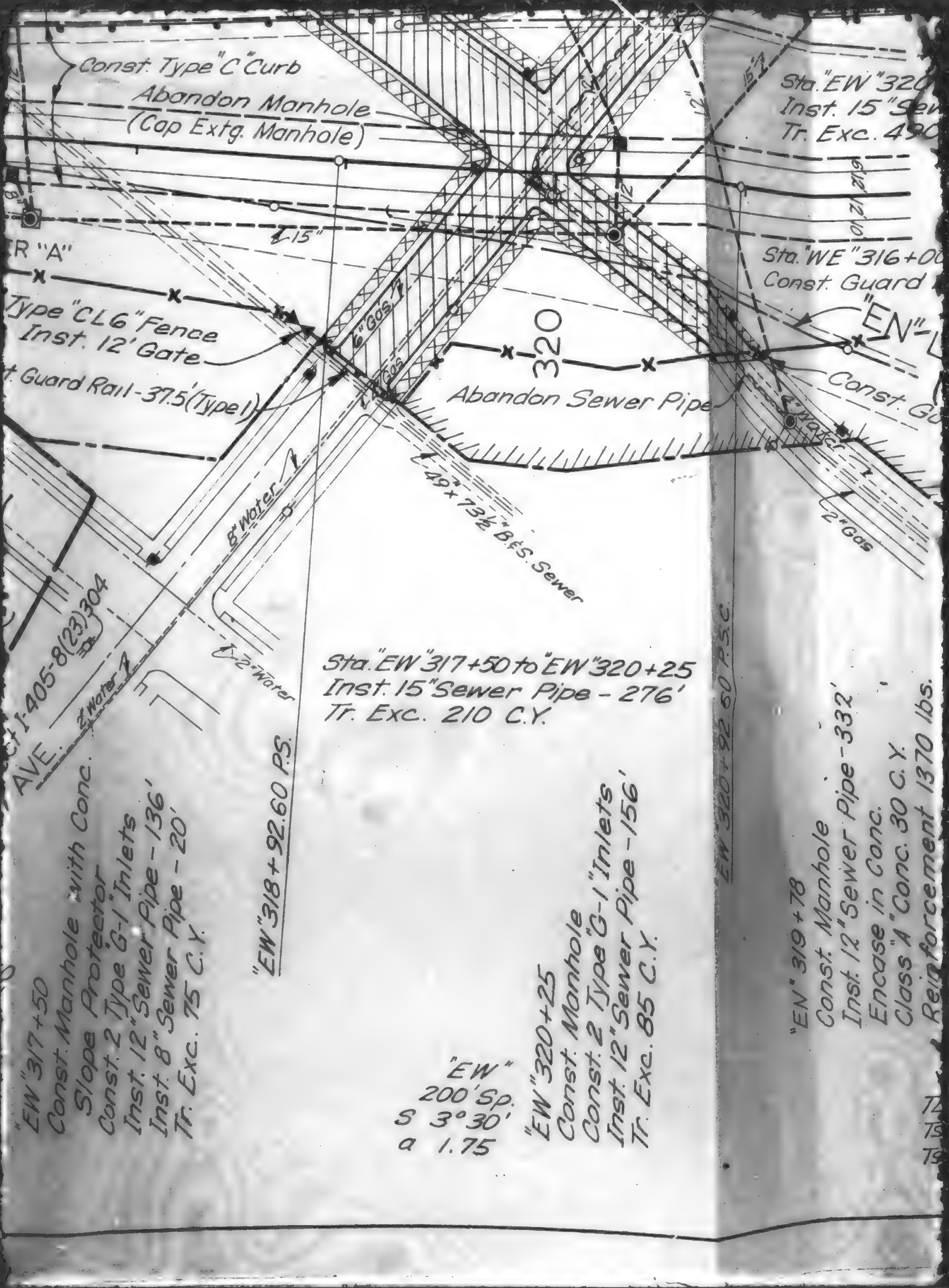
"EW" 311+35
Const. Manhole
Const. 2 Type "P" Inlets
Const. Type "G-1" Inlet
Inst. 8" Sewer Pipe – 54'
Inst. 12" Sewer Pipe – 230'
Pvmt. Replacement – 38'
Tr. Exc. 140 C.Y.

Perforated or Unperforated Drain Pipes May be Furnished in the Following Materials:
Corrugated, Aluminum or Steel,
18 Ga., Uncoated or Asbestos Cement,
Bit.-Fiber or Concrete

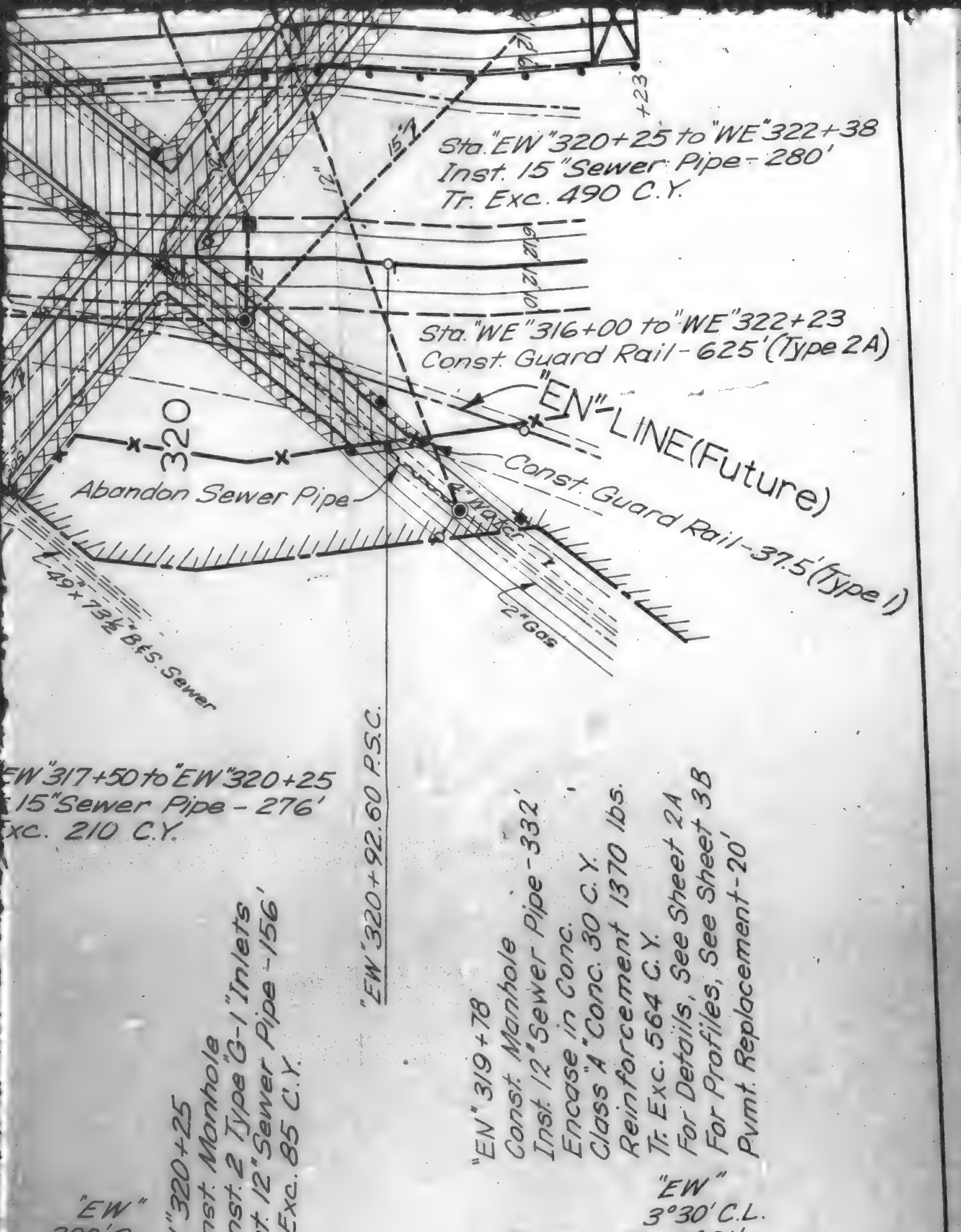
▧ Remove Extg. Pvmt.
▩ Remove Extg. Walk
— Remove Extg. Curb


2.5'R.
R.
Curb
12"
12"
12"
12"
2.5'R.
12"
Remove Co
"EW"-
Access Control Line
Sta. "WE" 311+00 to "WE" 316+
Const. Median Barrier - 50
.83'
55'R.
7'
R/W
Const. P.C.C. Walk
310
"EW"
36° C.R.
TΔ 49°07'
Ts 72.73'
N. COOK ST.
N. IVY ST.
"EW" 310+64.03 P.C.
"EW" 312+00.47 P.T.
"EW" 312+46
Const. Manhole
Const. Type "G-1" Inlet
Inst. 12" Sewer Pipe - 96'
Tr. Exc. 45 C.Y.
"EW" 313+39.06 P.S.
"EW" 314+55
Const. Manhole
Const. Type "CG-1" Inlet
Const. G-1 Inlet
Sta. "EW" 311+35 to "EW" 312+46
Inst. 12" Sewer Pipe - 100'
Tr. Exc. 75 C.Y.
Sta. "EW" 312-
Inst. 12" Sew
Tr. Exc. 140


"EW"-LINE
Remove Conc. Steps
℄ 12"
℄ 15"
315
62'R
20'R
℄ 2" Gas
SEWER "A"
Const. Type "CL6"
Inst. 12'
Const. Guard Rail
12'
8'
Cons
"WE" 316+00
arrier - 500'
Const. Type "C" Curb
Const. Guard Rail - 87.5' (Type 1)
State Project
BORTHWICK Project I-405-8(23)304
AVE.
℄ Water
"EW" 314+55
Const. Manhole
Const. Type "CG-1" Inlet
Const. G-1 Inlet
Inst. 12" Sewer Pipe - 104'
Inst. 8" Sewer Pipe - 8'
Tr. Exc. 56 C.Y.
"EW" 314+89.06 P.S.C.
"EW" 315+39.34 P.C.S.
"EW" 316+89.34 P.T.
a. "EW" 312+46 to "EW" 314+55
st. 12" Sewer Pipe - 212'
Exc. 140 C.Y.
Sta. "EW" 314+55 to "EW" 317+50
Inst. 15" Sewer Pipe - 292'
Tr. Exc. 260 C.Y.
Pvmt. Replacement - 45'
"EW" 317+50
Const. Manhole with Conc.
Slope Protector
Const. 2 Type "G-1" Inlets
Inst. 12" Sewer Pipe
"EW"
3° C.R.
T∆ 6° 00' 30"
Ts 175.26'
2-150' Sp.
S 2° 15'
a 2.0



Const. Type "C" Curb
Abandon Manhole
(Cap Extg. Manhole)
Sta. "EW" 320
Inst. 15" Sew
Tr. Exc. 490
℄ 15"
R "A"
Sta. "WE" 316+00
Const. Guard
"EN"
Type "CL6" Fence
Inst. 12' Gate
Guard Rail-37.5' (Type 1)
6" Gas
Gas
320
Abandon Sewer Pipe
Const. G
2" Water
2" Gas
℄ 49"x73½" B.&S. Sewer
8" Water
2" Water
2" Water
1-405-8(23)304
AVE.
Sta. "EW" 317+50 to "EW" 320+25
Inst. 15" Sewer Pipe - 276'
Tr. Exc. 210 C.Y.
"EW" 318+92.60 P.S.
"EW" 320+92.60 P.S.C.
"EW" 317+50
Const. Manhole with Conc.
Slope Protector
Const. 2 Type "G-1" Inlets
Inst. 12" Sewer Pipe - 136'
Inst. 8" Sewer Pipe - 20'
Tr. Exc. 75 C.Y.
"EW"
200' Sp.
S 3°30'
a 1.75
"EW" 320+25
Const. Manhole
Const. 2 Type "G-1" Inlets
Inst. 12" Sewer Pipe - 156'
Tr. Exc. 85 C.Y.
"EN" 319+78
Const. Manhole
Inst. 12" Sewer Pipe - 332'
Encase in Conc.
Class "A" Conc. 30 C.Y.
Reinforcement 1370 lbs.


Sta."EW"320+25 to "WE"322+38
Inst. 15"Sewer Pipe-280'
Tr. Exc. 490 C.Y.
+23
15"
12"
Sta."WE"316+00 to "WE"322+23
Const. Guard Rail-625'(Type 2A)
"EN"-LINE(Future)
320
Abandon Sewer Pipe
Const. Guard Rail-37.5'(Type 1)
2" Water
2" Gas
49"x73½" B.&S. Sewer
EW"317+50 to "EW"320+25
15"Sewer Pipe-276'
Exc. 210 C.Y.
"EW"320+92.60 P.S.C.
"EW"320+25
Const. Manhole
Const. 2 Type "G-1" Inlets
Inst. 12" Sewer Pipe-156'
Tr. Exc. 85 C.Y.
"EN"319+78
Const. Manhole
Inst. 12" Sewer Pipe-332'
Encase in Conc.
Class "A" Conc. 30 C.Y.
Reinforcement 1370 lbs.
Tr. Exc. 564 C.Y.
For Details, See Sheet 2A
For Profiles, See Sheet 3B
Pvmt. Replacement-20'
"EW"
200' Sp.
S 3°30'
a 1.75
"EW"
3°30' C.L.
TΔ 14°21'
Ts1 342.34'
Ts2 310.15'

AREAS TO BE ACQUIRED		
PARCEL NO.	OWNER	AREA SQ. FT.
AB-1-3	LOIS B. & JACK L. DOWNING	4,050.00
AB-2-2	W[illegible] BILLINGS	3,700.00
AB-3-2	LAURA [illegible]	[illegible]
AB-3-3	CEPHAS & THELMA D. CLOVER	6,01[illegible].56
AB-3-5	JACOB E. & MARTHA A. WA[illegible]	[illegible]
AB-3-6	JOHN S. & EDITH L. ALTMA[illegible]	[illegible]
AB-3-8	SAMUEL & MAGGIE STOKES	[illegible]
A-2-2	JAMES M. & ERMAR COHEN	10,000.00
A-2-3	ROBERT S. PRICE	2,700.00
A-2-4	SANFORD C. & EVELIN L. SPRAT[illegible]	7,300.00
A-2-5	EUGENE C. & VIOLA BONNER	4,100.00
A-2-6	WILLIE SMITH	3,000.00
A-2-7	GENERAL S. & ALBERDIA SKIPPER	2,331.00
A-2-8	MARY LEE JACKSON	2,331.[illegible]
A-2-9	ALFRED A. [illegible]	[illegible]
A-2-10	MATTIE L. LEWIS	[illegible],350.00
A-2-11	LEROY & ANNA OVERHOLTZ	2,650.00
A-3-1	WAYNE E. & LORENE S. WESTON	[illegible]
A-3-2	GERTRUDE L. MATTISON	2,[illegible]
A-3-3	NEBB E. & CARRIE WOOLARDS	[illegible],000.00
A-3-4	HARRY & MARION E. MILLER	4,100.00
A-3-5	ALAN A. & MARILYN C. PAGET	4,100.00
A-3-6	FRANK YOUNG	4,100.00
A-3-7	DAVE & SARA ANN YOUNG	1,25[illegible].00
A-3-8	ISSAC S. & MARTHA PAYNE	3,75[illegible]
A-3-9	GERTRUDE M. RAE [illegible]	[illegible],000.00
A-3-10	CHESTER L. YUNG	5,000.00
A-3-11	ALEXANDER R. & CLAUDINE M. GALLEGOS	1,666.50
A-3-12	LONNIE & ELVA MOSDAHL	1,666.50
A-3-13	LOUIS & BEATRICE M. MARSHALL	1,666.50
A-3-14	WILLIAM & ALMA THOM	4,100.00
A-3-15	EVELYN L. SPRATLEN	4,100.00
A-3-16	ALBERT A. & JEANNETTE M. CROSSMAN	4,100.00
A-3-17	LOUIS & HATTIE MAE BROWNING	2,500.00
A-3-18	T.C. & MANDY WILLIAMS	[illegible]00.00
A-3-19	THOMAS J. & BEULAH MILLS	[illegible],500.00
A-3-20	T. [illegible] & GRACE LEE PAC[illegible]	[illegible],500.00
A-4-1	HUGH & JOSEPHINE KINKADE	[illegible],000.00
A-4-2	THOMAS J. & ZENOBIA N. HARRIS	[illegible]
A-4-3	ALAN A. & MARILYN PAGET	[illegible],200.00
A-4-4	C.W. PALLETT JR. & ANNA GRA[illegible] LYON	4,9[illegible]
A-4-5	IRMA LYON	[illegible]
A-4-6	GOTTFRIED & ANNA M. SCHIMPF	2,[illegible]
A-4-7	WILBUR DENSON	5,000.00
A-4-8	ELNORA BOOKER	[illegible],500.00
A-4-9	ROBERT N. ASHLEY	[illegible],500.00
A-4-10	ISABELLE [illegible]	4,100.00
A-4-11	RUBY LEE [illegible]	[illegible]
A-4-12	EVIE C. & PEARLIE M. BOWLES	[illegible],100.00
A-4-13	JOE M. & JEANNE M. REID	5,000.00
A-4-14	VINCENT & ELLA M. BYRNE	5,000.00
[illegible]	[illegible] & FLORENCE TURNER	[illegible],780.00
[illegible]	[illegible] & RUTH MAE BROWN	[illegible]

AREAS	
PARCEL NO.	
AB[illegible]	EMAN
[illegible]	EMAN
AB-3-[illegible]	EMAN
AB-3-4	EMAN
AB-3-7	EMAN
A-2-[illegible]	EMAN
[illegible]	EMAN
[illegible]	EMA
[illegible]	EMA
[illegible]	EMAN
[illegible]	EMA
[illegible]	EMA
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]-4-5	EMA
RS-5-2	EMAN
RS-6-1	EMAN
RS-8-1	EMAN
R-4-5	EMA
[illegible]	EMA
R-[illegible]-8	EMA
R-[illegible]	EMA
R-14-1	EMA
R-14-5	EMA
R-14-6	EMA
R-14-9	EMA
R-15-1	EMA
R-15-2	EMA
AB-1-2	CITY
R-13-1	CITY
R-13-5	CITY
	STRE
	TOTA

RED - OSHD

GREEN - PD &

YELLOW -

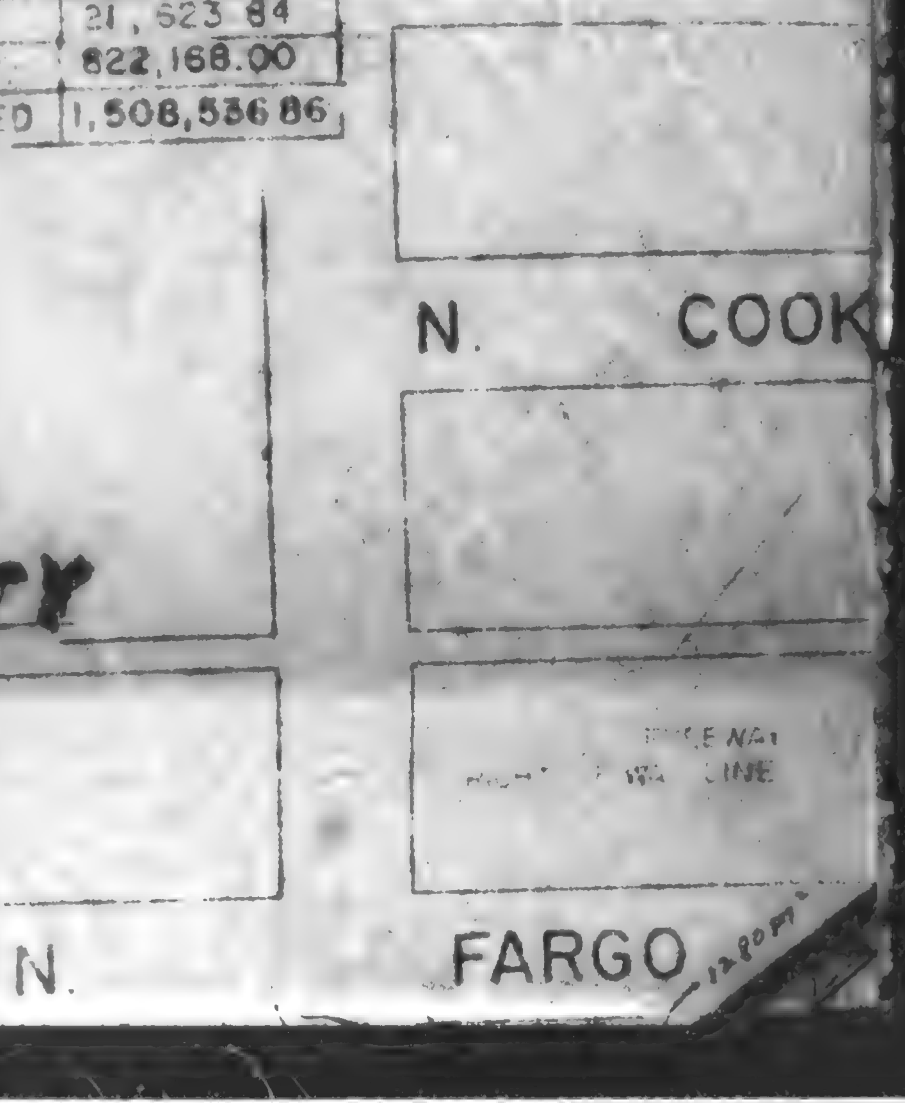
AREAS NOT TO BE ACQUIRED

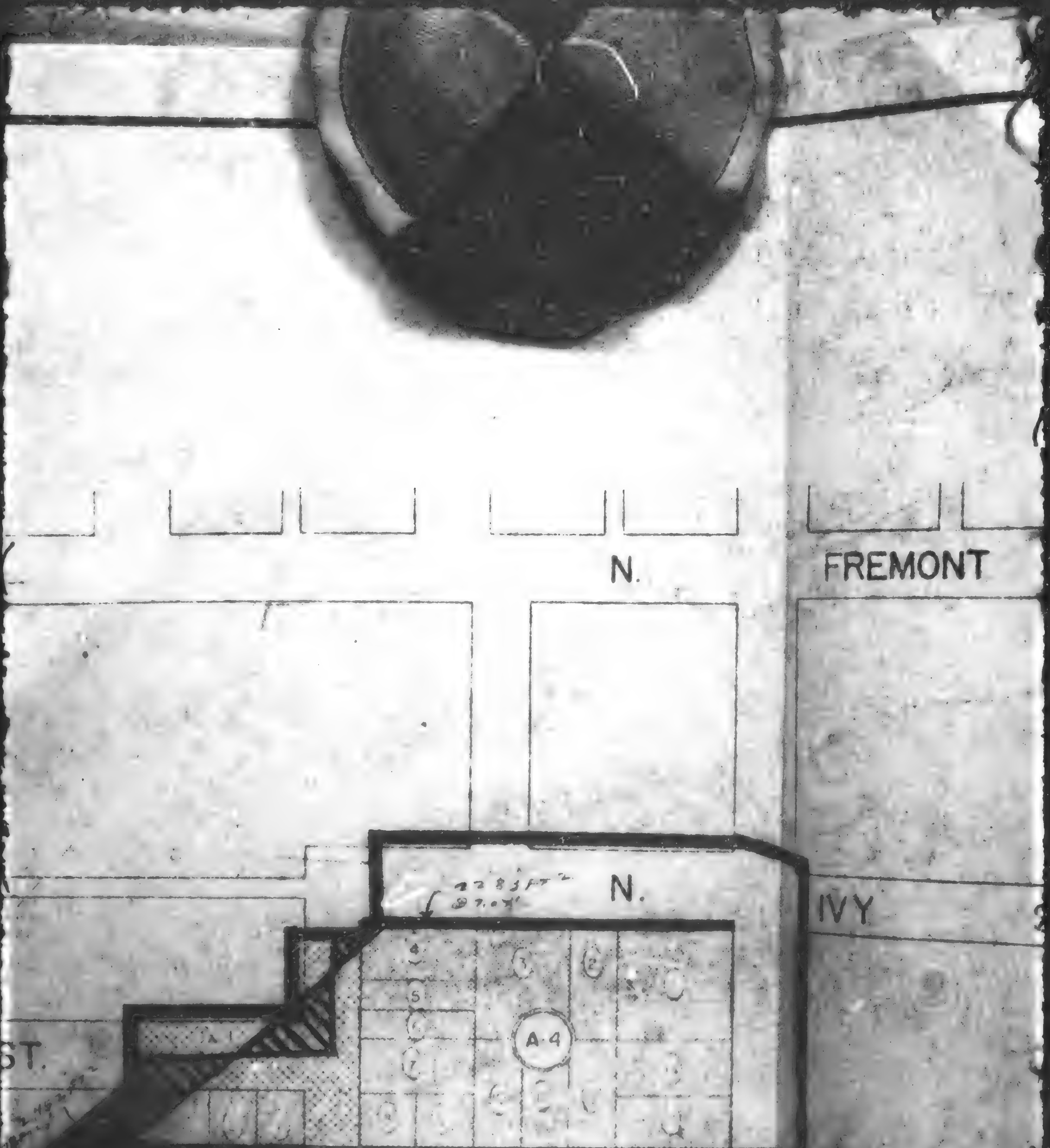
PARCEL NO.	OWNER	AREA SQ. FT.
AB-[illegible]	EMANUEL HOSPITAL	31,950.00
[illegible]	EMANUEL HOSPITAL	66,060.70
AB-[illegible]	EMANUEL HOSPITAL	27,200.00
AB-3-4	EMANUEL HOSPITAL	[illegible]
AB-3-7	EMANUEL HOSPITAL	[illegible]
A-2-1	EMANUEL HOSPITAL	25,5[illegible]
[illegible]	EMANUEL HOSPITAL	75,600.00
[illegible]	EMANUEL HOSPITAL	35,[illegible]40[illegible]
[illegible]	EMANUEL HOSPITAL	2,700.00
[illegible]	EMANUEL HOSPITAL	12,42[illegible].00
[illegible]	EMANUEL HOSPITAL	70,038.05
[illegible]	EMANUEL HOSPITAL	[illegible]
[illegible]	EMANUEL HOSPITAL	[illegible]
[illegible]	EMANUEL HOSPITAL	[illegible]
[illegible]-4-5	EMANUEL HOSPITAL	5,1[illegible]
RS-5-2	EMANUEL HOSPITAL	31,116.00
RS-6-1	EMANUEL HOSPITAL	17,658.00
RS-8-1	EMANUEL HOSPITAL	40,91[illegible].99
R-9-5	EMANUEL HOSPITAL	[illegible],402.04
R-9-6	EMANUEL HOSPITAL	4,442.0[illegible]
R-9-8	EMANUEL HOSPITAL	[illegible]
R-9-[illegible]	EMANUEL HOSPITAL	11,43[illegible].84
R-14-1	EMANUEL HOSPITAL	17,[illegible]02[illegible]
R-14-5	EMANUEL HOSPITAL	1,962.51
R-14-6	EMANUEL HOSPITAL	9,794.04
R-14-9	EMANUEL HOSPITAL	4,442.0[illegible]
R-15-1	EMANUEL HOSPITAL	[illegible],484.08
R-15-2	EMANUEL HOSPITAL	25,[illegible]78.54
AB-1-2	CITY OF PORTLAND	37,440.00
R-13-1	CITY OF PORTLAND	4,375.62
R-13-5	CITY OF PORTLAND	21,623.84
	STREETS & OTHER RIGHT-of-WAY	822,168.00
	TOTAL AREA NOT TO BE ACQUIRED	1,508,536.86

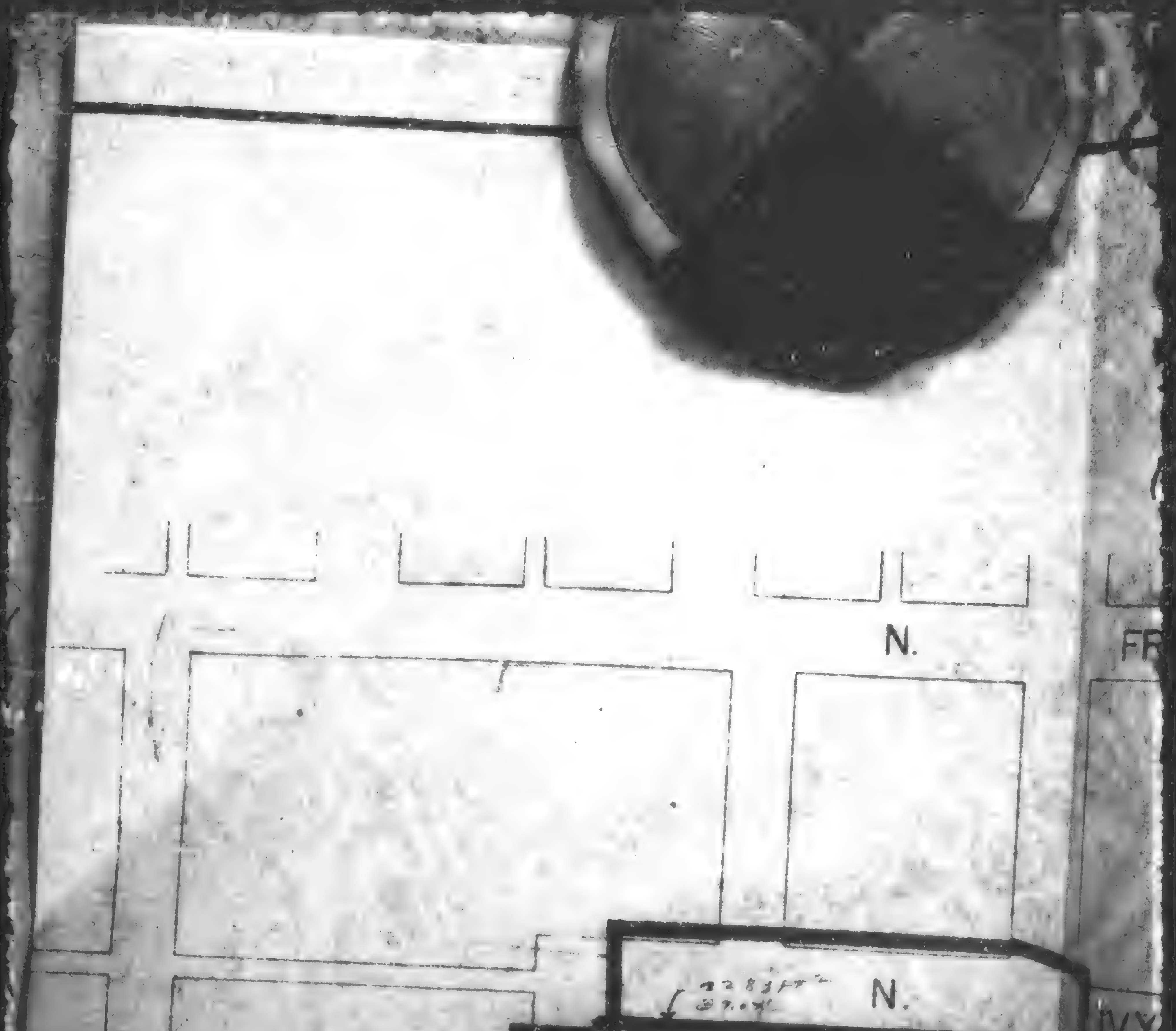
RED - OSHD TO PDC

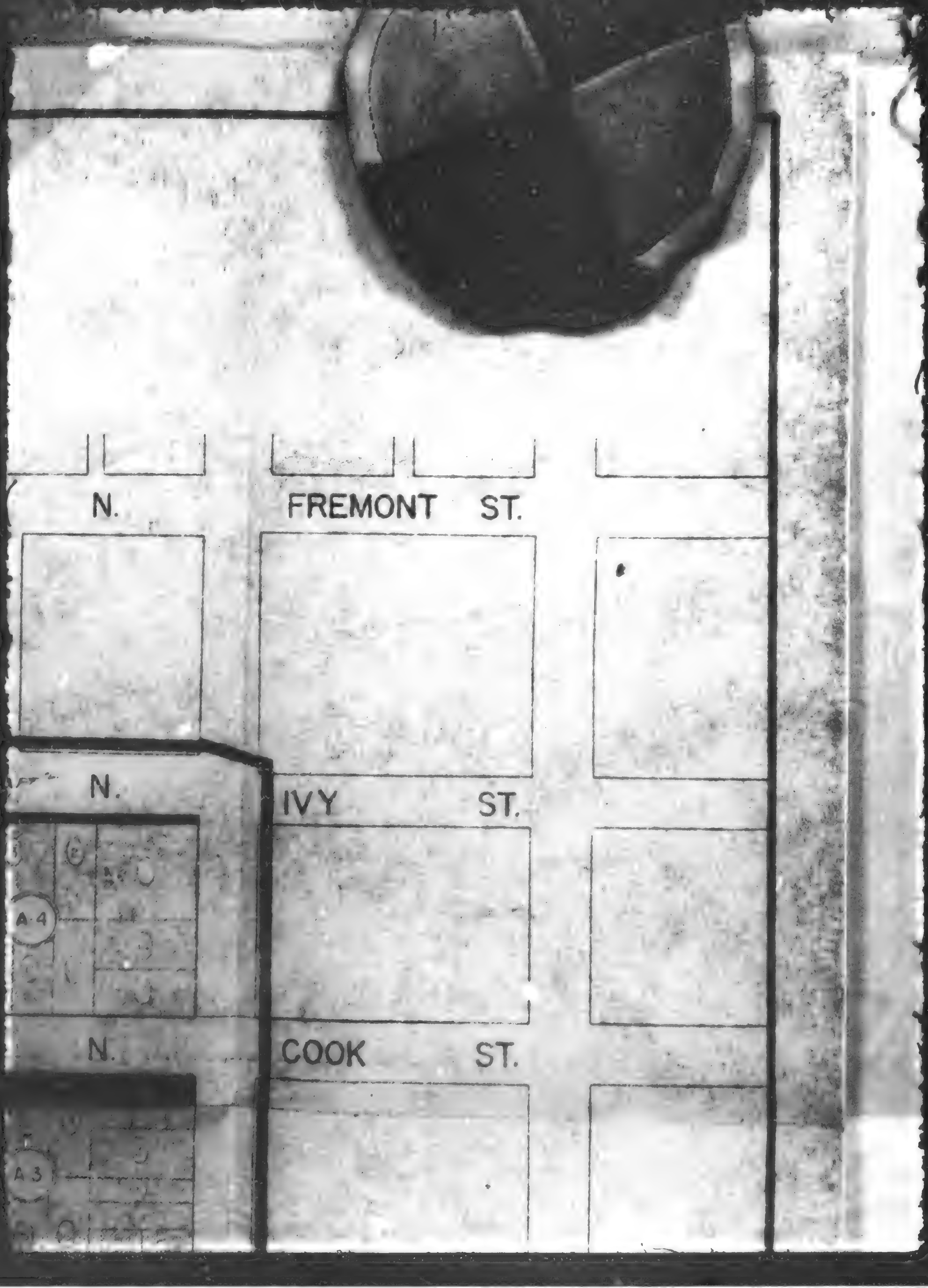
GREEN - PDC TO OSHD

YELLOW - PDC TO CITY

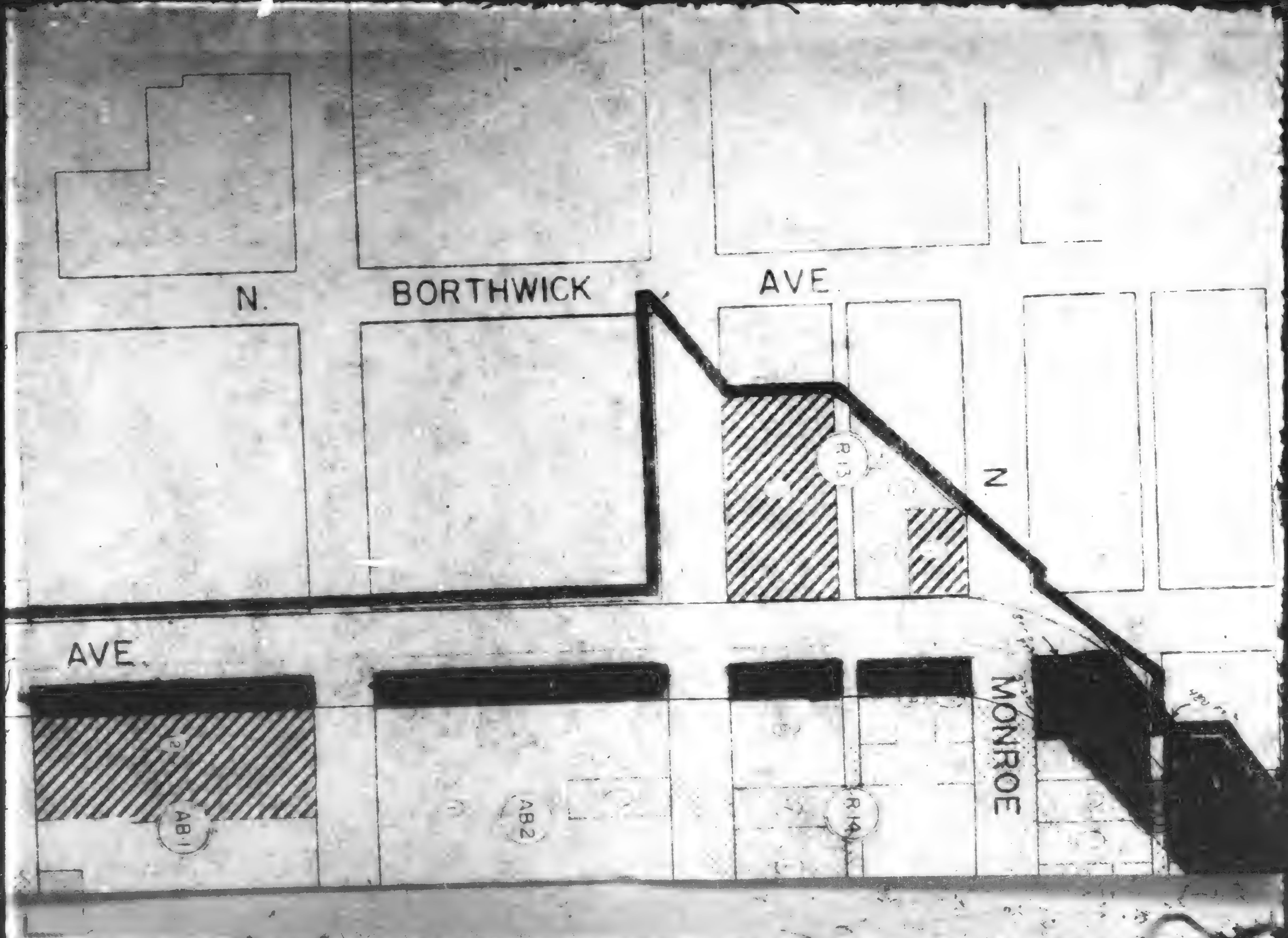


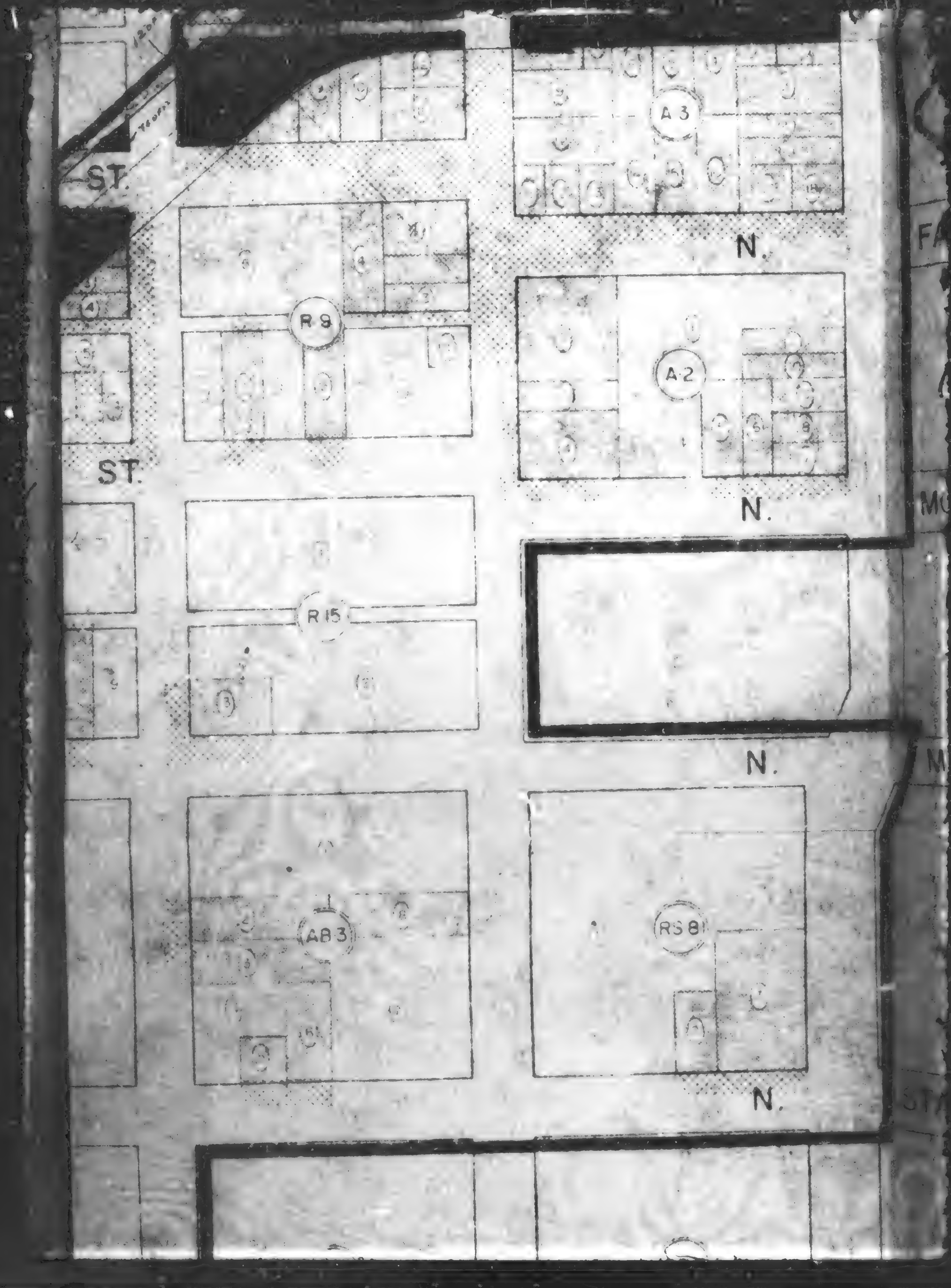

N. FREMONT
N. IVY
2283 ft²
87.0'
ST.
A-4
N. COOK
A-3

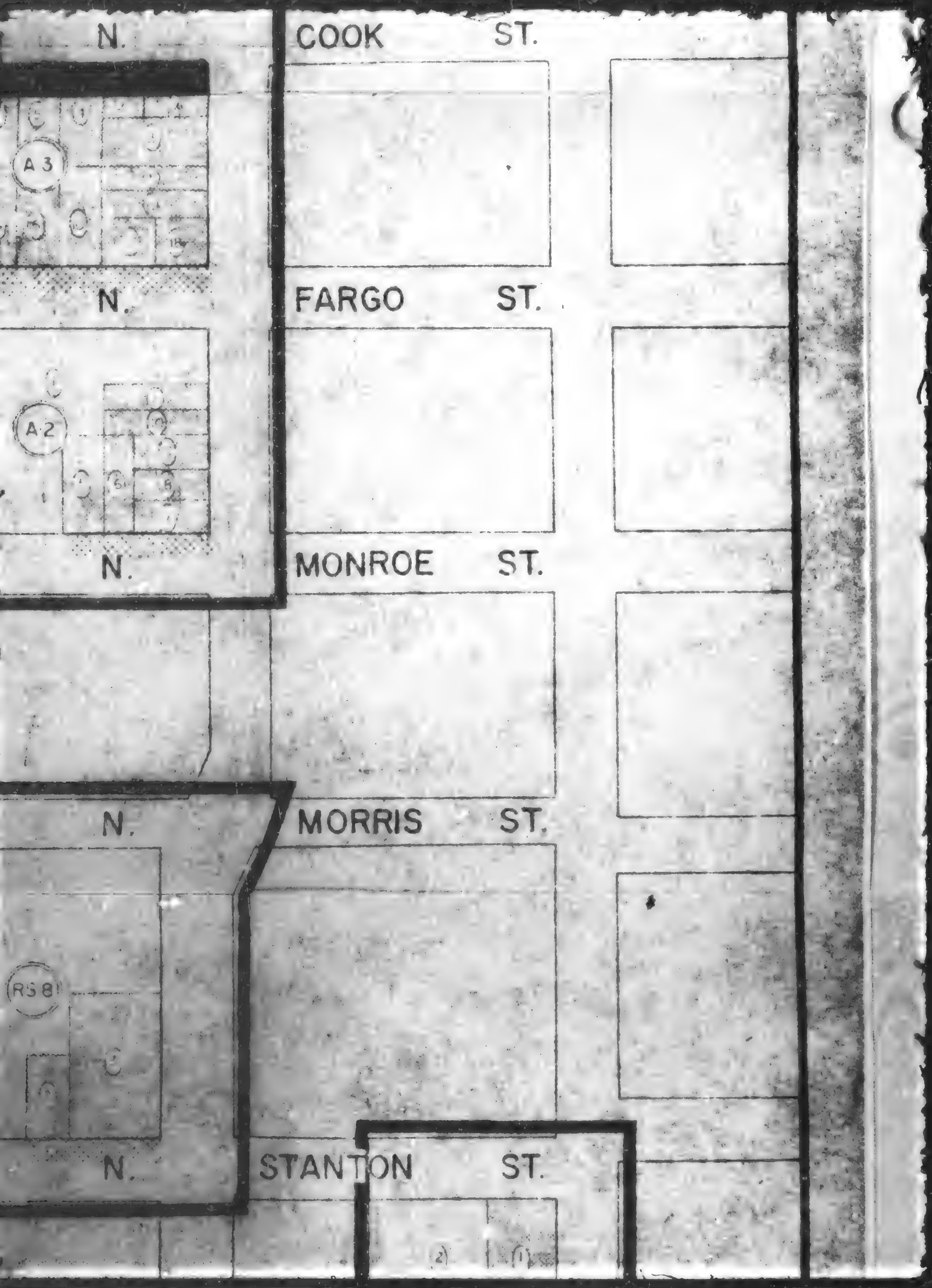

N.
FR
N.
IVY
ST.
A 1
A 4
N.
A 3
ST.


N. FREMONT ST.
N. IVY ST.
N. COOK ST.
A-4
A-3

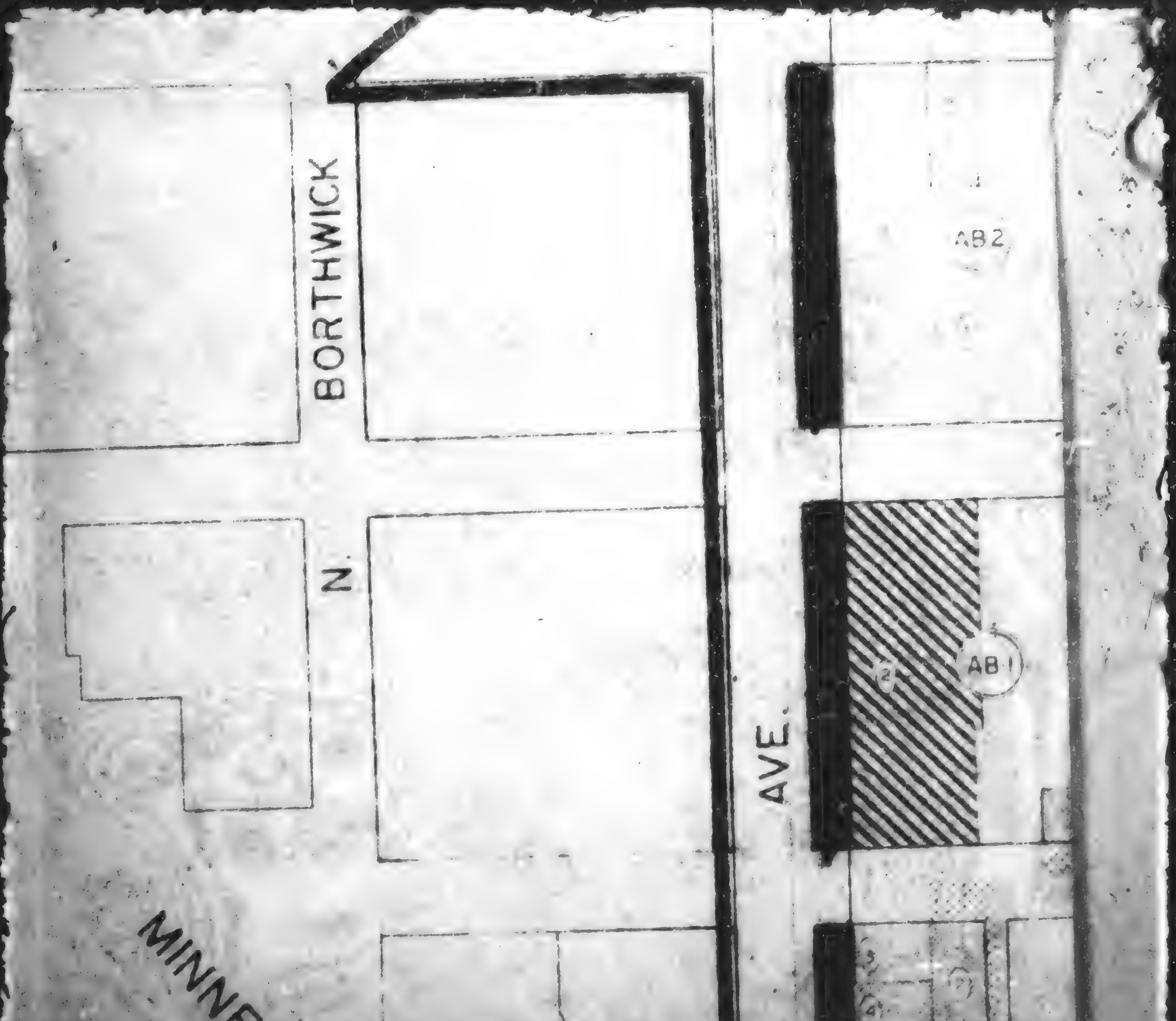
[illegible]	[illegible]	
E-3-1	CECIL & BETTY SUE BROWN	1,[illegible] 72
E-3-2	BRADY EARL & LUCILE TURNER	1,87[illegible] 43
E-3-3	PRISCILLA & CATHER[illegible] [illegible]ORONE	1,917 85
E-3-4	H & M INVESTMENT CO	[illegible],4[illegible] 96
E-3-5	JOE FLECK	[illegible],785 00
E-3-6	R. DALE HANEY	7,500 00
E-3-7	DARRELL CORNWELL	3,600 [illegible]
E-3-8	DAVID NANCE & [illegible] JOHNSON	[illegible],500 00
E-3-9	LEWIS & BETTY [illegible]	[illegible]
E-3-10	TENET MORTGAGE CO	2,9[illegible]
E-3-11	LYLE W. & CORINNE E [illegible]	[illegible]
E-3-12	EVA SAVOFF	[illegible]
E-4-1	BLANCHE E BROOKS	[illegible]
E-4-2	INTERURBAN HOMES, INC	[illegible]
E-4-3	FRED A. & LOUIS [illegible]	[illegible]
E-4-4	NEWTON PETER [illegible]	[illegible]70 00
E-4-5	DONALD [illegible] & ELIZABETH [illegible]PBURN	[illegible]
E-4-7	[illegible]	[illegible]
E-4-8	CHAS [illegible] WALKER	[illegible] 00
E-4-9	[illegible] NEWELL	8,905 00
E-4-10	[illegible]NEY & [illegible] M ALLEN	[illegible]
W 30' R-11-5&6	EMANUEL HOSPITAL	4,443 00
W 30' AB-2-1		8,643 30
W 30' E-2-3		1,350 00
W 30' E-2-6		1,350 00
S 30' E-4-6		2,61[illegible]
RS-2-1	THEODORE [illegible] MANNING [illegible]	[illegible],895 00
RS-2-[illegible]	SOCIETY OF ST VINCENT DE PAUL	[illegible] 082 04
RS-3-[illegible]	[illegible]STEN CORPORATION	[illegible],520 00
RS-3-[illegible]	[illegible]AKE & BETTY [illegible] ROBINSON	[illegible],420 00
RS-3-4	ALEX, JR & [illegible] LEE [illegible]	[illegible],450 00
RS-3-5	LEO C CLINTON	1,335 00
RS-3-6	LILLIAN [illegible] CONLEY	[illegible]110 00
RS-3-7	FRANK [illegible] & HAZEL [illegible] SCHUNK	[illegible],050 00
RS-3-8	[illegible]-RENT, INC	[illegible],100 00
RS-3-9	EARL SPINNEY	2,[illegible]20 00
RS-4-1	EARL SPINNEY	20,898 80
RS-4-2	IRVING T & CHARLES D ERICKSON	5,600 00
RS-4-3	HEDWIG & FRIEDRICH [illegible]	[illegible],8[illegible]1.00
RS-4-4	ELIZABETH KUNKEL & ADA K GILLISPIE	[illegible],508 00
RS-4-6	DEMME BROS INC.	5,[illegible]
RS-4-7	LEWIS [illegible] & BARBARA GRESS	7,818 [illegible]
RS-4-8	HARRY & ANNIE MOSLER	1,[illegible]4.06
RS-4-9	KATHERINE MATTHIEU	9,603.87
RS-5-1	CECIL A & EUGENIA WALKER	[illegible],100 00
RS-5-3	R.[illegible] & GEORGIA MAE ALLEN	[illegible],000 00
RS-5-4	VICTOR S. & ZULA [illegible]	8,240.70
RS-5-5	GETHSEMANE CHURCH of God in Christ	4,955 [illegible]
RS-5-6	SEYMOUR R DANISH	8,919.90
RS-8-2	ROBERT LEE & CLEO GREEN	3,375 [illegible]
RS-8-3	MARY A STEWART	2,846 60
R-8-1	WILLIE CHARLES THOMAS	[illegible],22[illegible]
R-8-2	LEO & INA V WARREN	2,160 00
R-8-3	HORACE E & DOROTHY M CA[illegible]WELL	[illegible]81.02
R-8-4	RUFUS & MARY YOUNG	6,[illegible]
R-8-5	EPHRUM & ANNA CLARK	[illegible],130 00
R-8-7	GOOD SAMARITAN CHURCH of G[illegible]	5,[illegible]62.04
R-8-8	JENNIE & NAOMI [illegible]	[illegible]00
R-8-9	FANNIE MAE FAULKNER	[illegible],32[illegible] 00
R-8-10	CHARLES & VIOLA MONTAQUE	4,[illegible]
R-8-11	IVER & ANNA S [illegible]ALSETH	4,[illegible]
R-8-12	AL[illegible] & DOROTHY E Mc[illegible]	[illegible]81 02
R-9-1	OLIVE C HUGHES	[illegible],055 50
R-9-2	[illegible]BERT [illegible] ASHE[illegible]	2,[illegible]

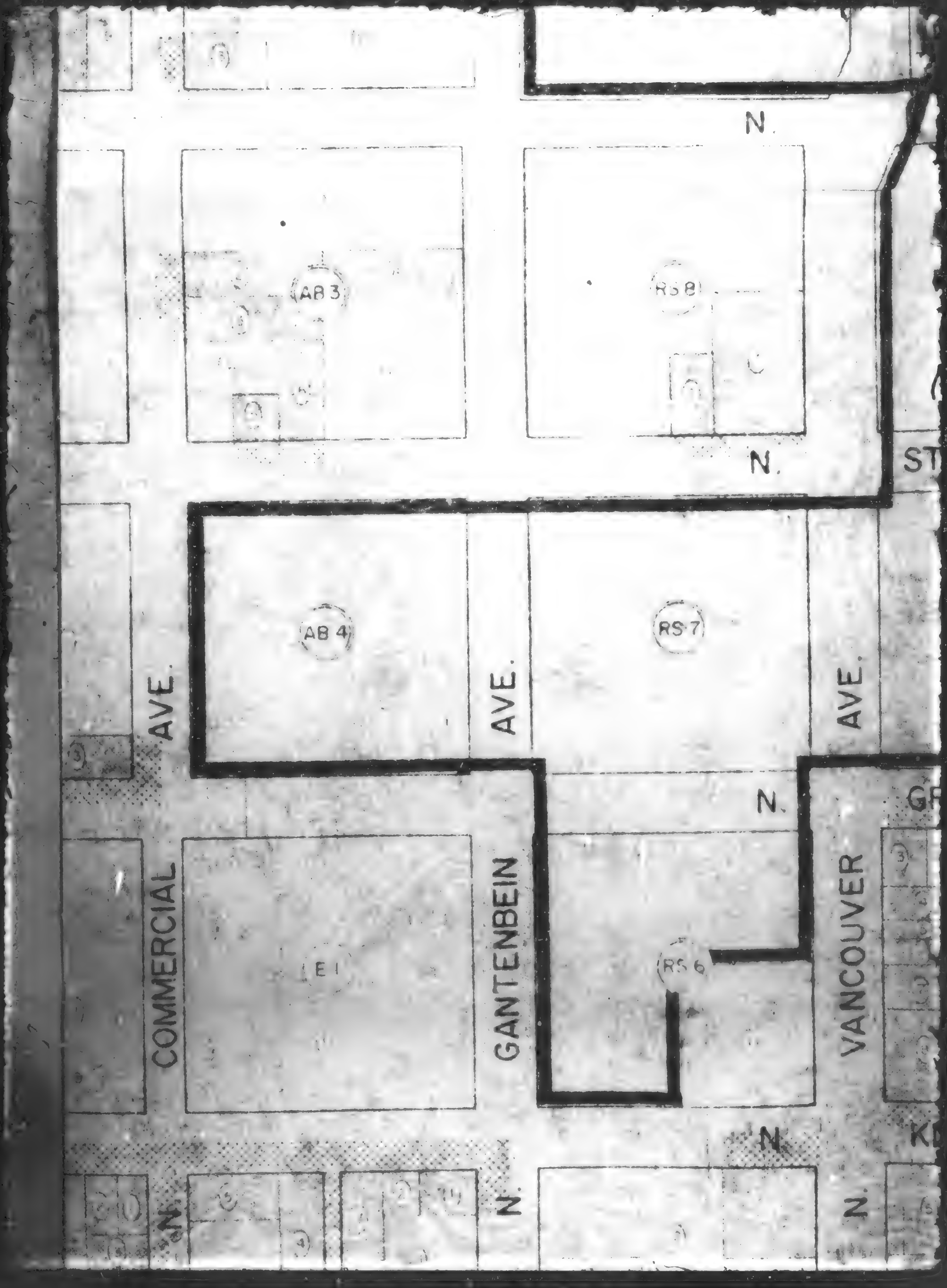

N. BORTHWICK AVE
N.
MONROE
AVE.
R-13
R-14
AB-2
AB-1
2


A3
ST.
N.
R9
A2
ST.
N.
R15
N.
AB3
RS8
N.

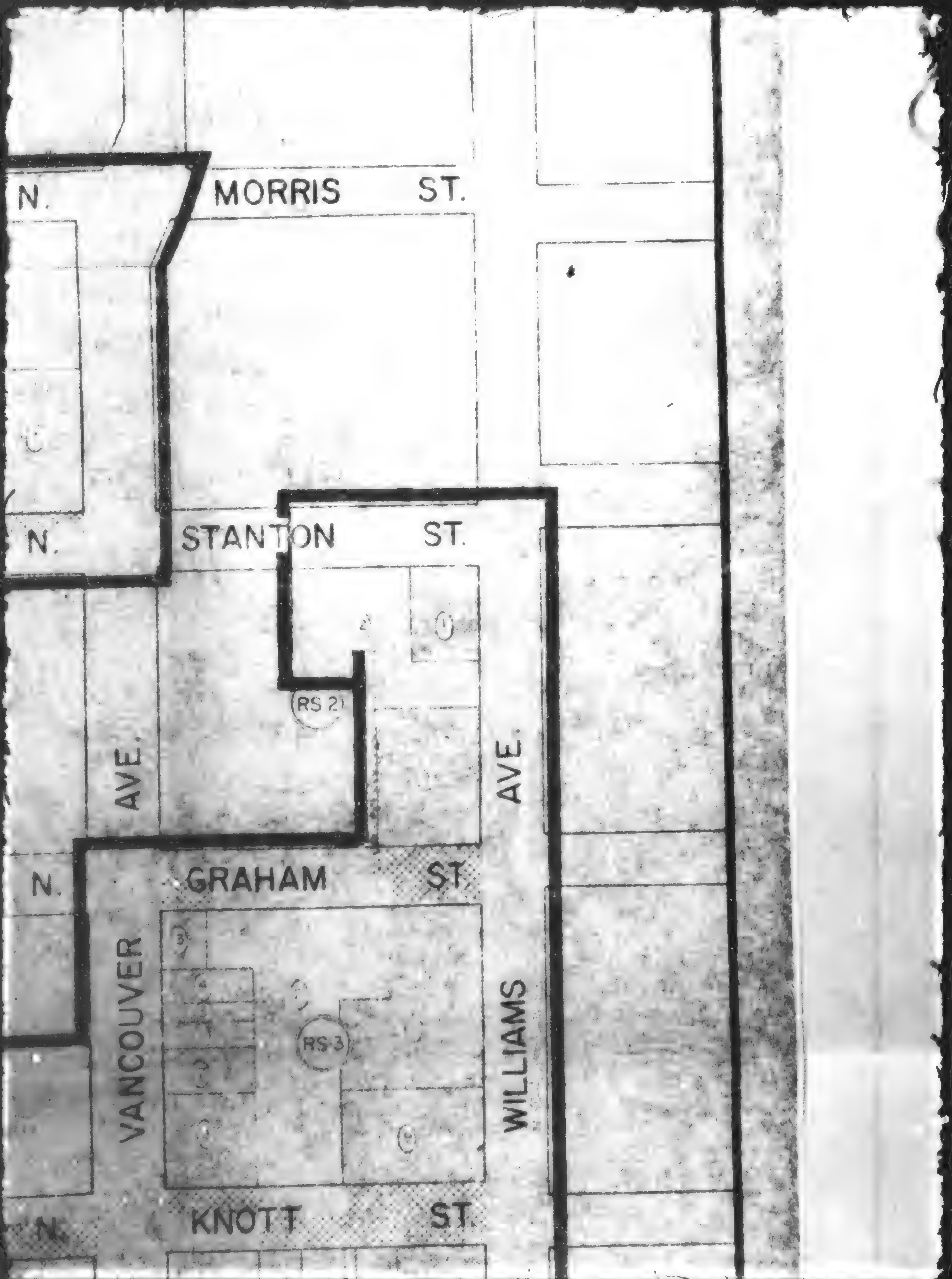

N.
COOK ST.
A 3
N.
FARGO ST.
A-2
N.
MONROE ST.
N.
MORRIS ST.
RS 8
N.
STANTON ST.

RS-4-4	ELIZABETH [illegible]	[illegible]
RS-4-6	DE[illegible] PRO[illegible] INC.	[illegible]
RS-4-7	LEWIS [illegible] & [illegible] GREEN	7,818.[illegible]
RS-4-8	HARRY & [illegible] MOS[illegible]	1,[illegible]4.08
RS-4-9	KATHERINE MATTHIEU	9,603.87
RS-5-1	CECIL A & EUGENIA WALKER	[illegible]
RS-5-3	[illegible] & GE[illegible] MAE ALLEN	[illegible]
RS-5-4	[illegible] & ZULA [illegible]	8,240.70
RS-5-5	[illegible] CHURCH of God in Christ	4,[illegible]
RS-5-6	SEYMOUR R [illegible]	8,919.90
RS-8-2	ROBERT LEE & CLEO GREEN	[illegible],375.[illegible]
RS 8-3	MARY A STEWART	2,846.60
R-8-1	WILLIE CHARLES THOMAS	[illegible],221.0[illegible]
R-8-2	[illegible] & INA V WARREN	[illegible]169.[illegible]
R-8-3	HORACE E & DOROTHY M [illegible]	[illegible].02
R-8-4	RUFUS & MARY [illegible]	[illegible]
R-8-5	EPHRUM & ANNA CLARK	[illegible]
R-8-7	GOOD SAMARITAN CHURCH of [illegible]	[illegible]
R-8-8	JENNIE & NAOMI HEGGMU[illegible]	[illegible].00
R-8-9	FANNIE MAE FAULKNER	[illegible],32[illegible]
R-8-10	CHARLES & VILLA MONTAQUE	4,[illegible]
R-8-11	[illegible]	[illegible]
R-8-12	A[illegible] & DOROTHY E [illegible]	[illegible]
R-9-1	OLIVE C HUGHES	[illegible]
R-9-2	[illegible]BERT [illegible]	2,[illegible]
R-9-3	ROBERT C & TH[illegible]	[illegible]
R-9-4	MAREN NIELSEN	4,320.00
R-9-7	HERBERT M & HELEN M [illegible]	4,[illegible]
R-9-9	J. B. SANDBLAST & FRANCES WILLIAMS	[illegible].00
R-9-11	FRANK & DOROTHEA [illegible]	[illegible]45.[illegible]
R-10-1	JOHN B. & MELISIA BENFORD	[illegible],130.5[illegible]
R-10-2	SVEN FRYKMAN, LILLY JOHNSON, H. OLSON IRMA RUPERT, MARGARET FRYKMAN	[illegible],19[illegible].5[illegible]
R-10-3	ARTIS & LILLIE MAE HILDRETH	[illegible]
R-10-4	A.A. BRINK	[illegible]
R-10-5	WILL & DOROTHY BUTLER	4,32[illegible]
R-10-6	SHIRLEY MAY [illegible] TERRELL	[illegible],720.00
R-10-7	NETTIE [illegible]	[illegible],576.60
R-10-8	ONEITA MICHAELS	8,150.74
R-10-9	ALFRED BRINK	4,320.00
R-10-10	ALBERT [illegible] & ANNIE [illegible] GARNETT	[illegible],320.00
R-10-11	[illegible] BUELL & MABEL W. ALEXANDER	4,[illegible]
R-10-12	FLORENCE J. MASON	[illegible]
R-10-14	FRED & RUTH PETERSON	[illegible]44.0[illegible]
R-10-15	STEWARD, Jr. & BEULAH MINNIEWEATHER	[illegible]
R-13-2	[illegible]GE & JULIE [illegible] JOHNSON	4,3[illegible]
R-13-3	A.H. EICHENBERGER	3,240.00
R-13-4	EDWARD A & DOCIA E. WILCOX	1,512.00
R-14-2	JAMES & BOVIE R BRYSON	4,320.00
R-14-3	DALE C. & DOROTHY E. HARTMAN	[illegible],123.51
R-14-4	WALTER, Sr. & ELIZABETH HINES	2,515.[illegible]3
R-14-7	ELMER A. & CHRISTINE L. HIGH	4,[illegible]0.00
R-14-8	VERN M. WIRTZ	[illegible]
R-15-3	JOHN E. CURRAN, et. al	[illegible]5.5[illegible]
R-10-13	MULTNOMAH COUNTY	1,953.36
R-8-6	STATE HIGHWAY COMMISSION	3,[illegible]0.85
	STREETS TO BE VACATED	173,[illegible]


BORTHWICK
N.
AVE.
KERBY
N.
MINNESOTA
FREEWAY
AB2
AB1
F 2
COURT
COMMERCIAL
LEGEND



N.
AB 3
RS 8
N.
ST
AB 4
RS 7
COMMERCIAL AVE.
GANTENBEIN AVE.
VANCOUVER AVE.
N.
GR
E 1
RS 6
N.
KN
N.
N
N.


N. MORRIS ST.
N. STANTON ST.
N. GRAHAM ST.
N. KNOTT ST.
N. VANCOUVER AVE.
N. WILLIAMS AVE.
RS 21
RS 3

R-10-6	SHIRLE[illegible] ME[illegible]	[illegible]
[illegible]	NE[illegible]	[illegible],57[illegible]
R-[illegible]	[illegible] MICH.	[illegible],15[illegible]
R-[illegible]	ALF[illegible] BR[illegible]	4,22[illegible]
R-10-10	[illegible]	[illegible]
R-10-11	[illegible] B[illegible] & [illegible] ALEXANDER	[illegible]
R-10-12	FLORENCE [illegible] MA[illegible]	[illegible]
R-10-[illegible]	FRED & RUTH [illegible]ERS	[illegible]
R-10-15	STEWARD, Jr. & BEULAH MINNIEWEATHER	[illegible]
R-13-2	[illegible]GE & [illegible]	4,[illegible]
R-13-3	A. H. [illegible]CHENBERGER	[illegible],4[illegible]
R-13-4	EDWARD A. & [illegible] WILCOX	1,[illegible]
R-14-2	JAMES & [illegible]OVIE R. BRYSON	4,320.00
R-14-3	DALE C. & DOROTHY E. HARTMAN	[illegible],[illegible]3.51
R-14-4	WALTER, Sr. & ELIZABETH [illegible]	[illegible],515.[illegible]
R-14-7	ELMER A. & CHRISTINE [illegible]	4,[illegible]0.00
R-14-8	JOHN M. WHITE	[illegible]
R-15-3	JOHN E. COJRAN, et al	[illegible]
R-10-13	MULTNOMAH COUNTY	1,953.36
R-8-6	STATE HIGHWAY COMMISSION	3,[illegible].85
	STREETS TO BE VACATED	17[illegible]
X-[illegible]	STATE HIGHWAY COMMISSION	[illegible]
	TOTAL AREA TO BE ACQUIRED	9[illegible],197.55

RIGHT OF

BOUNDAR

EMANUEL HOSPITAL PROJECT

ORE R-20

PORTLAND DEVELOPMENT COMMISSION

PORTLAND, MULTNOMAH COUNTY, OREGON

JANUARY 16TH, 1969 WFW SCALE 1"=100'

FREEWAY
KE
COMMERCIAL
N
3372

LEGEND

PR[illegible]

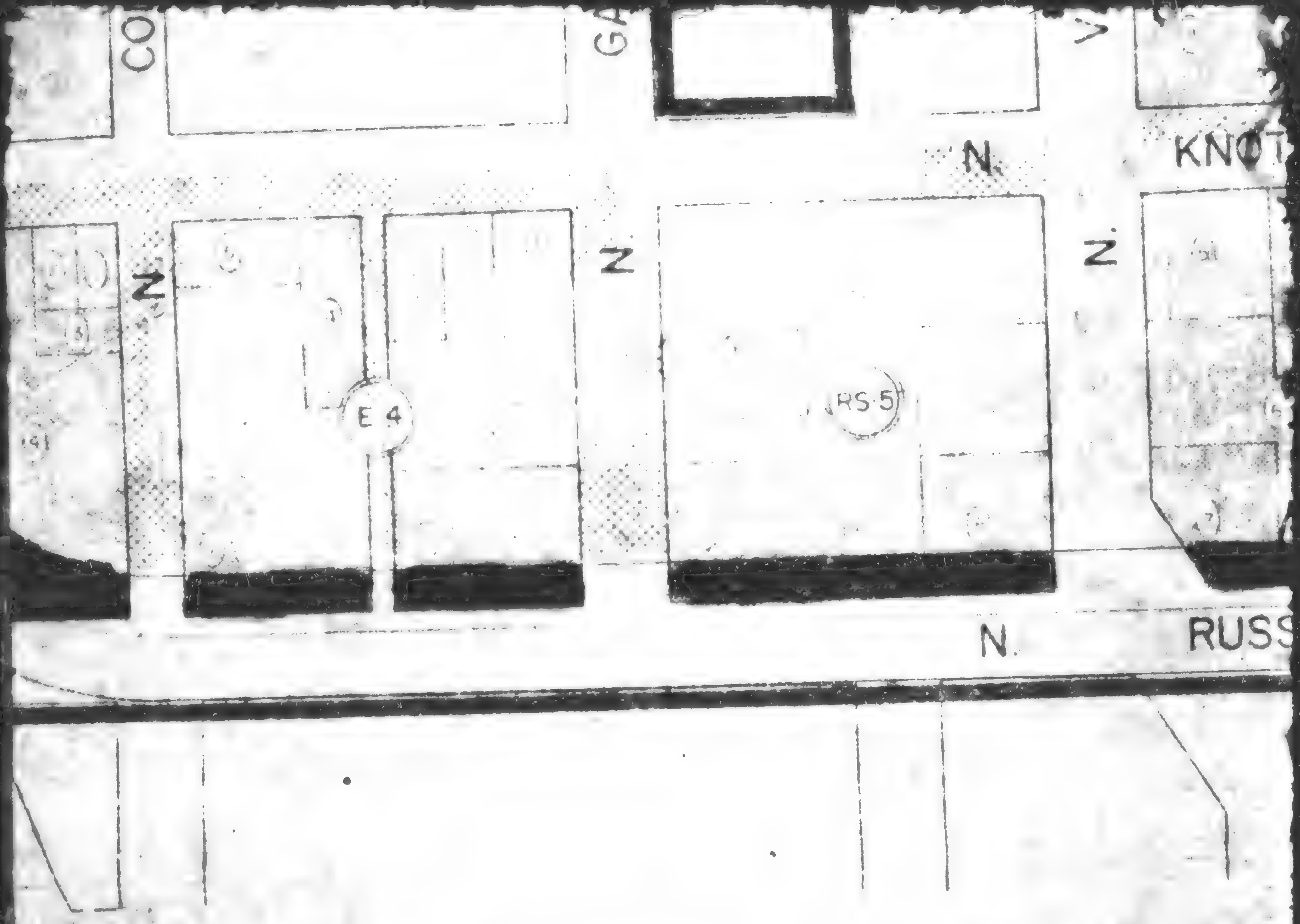
[illegible]

[illegible]

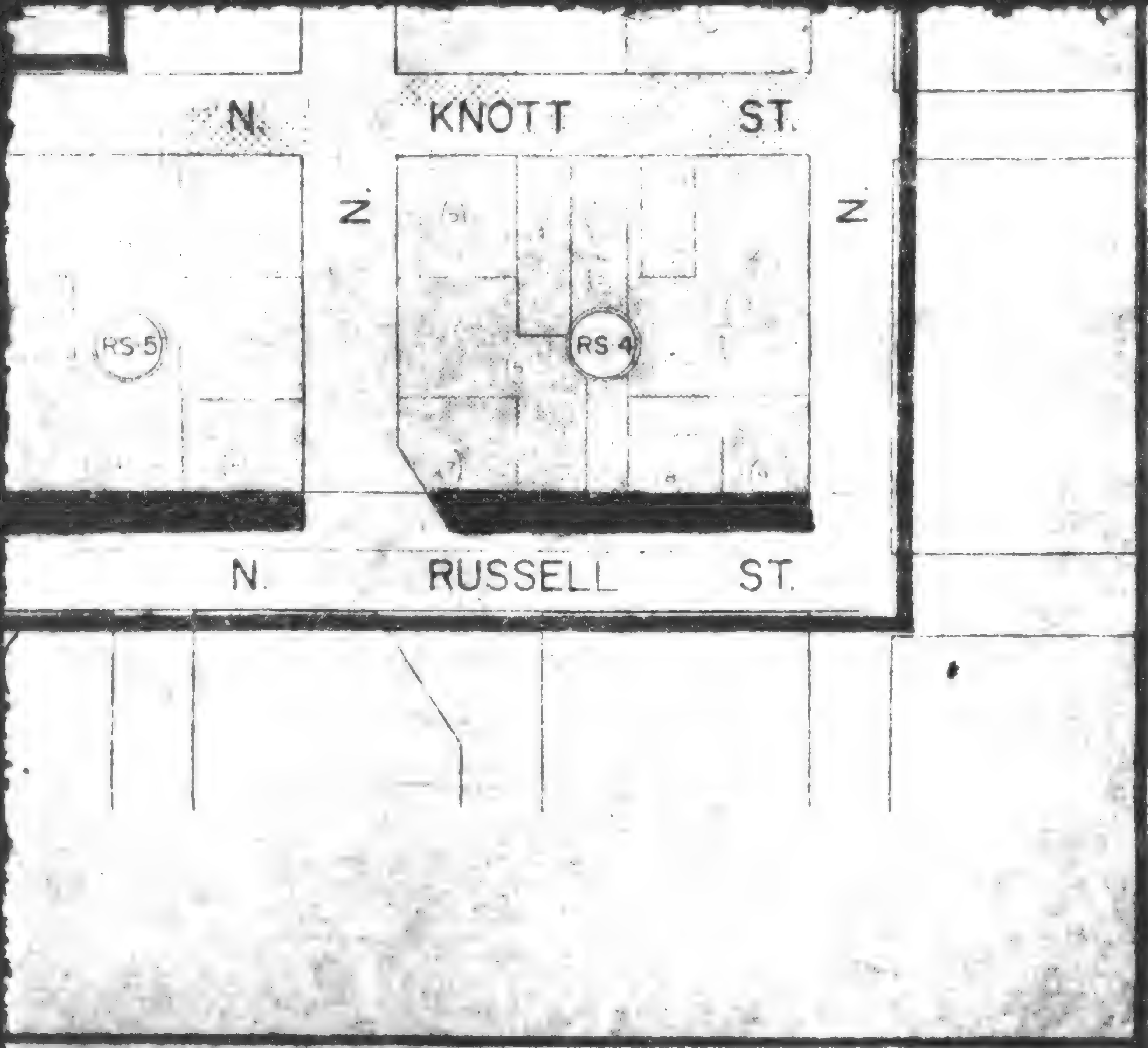
[illegible] PROPERTY
NOT [illegible]

RIGHT OF WAY ADDITIONS 6-70
BOUNDARY CHANGES 8-69
REVISION

PRO


CO
GA
V
N.
KNOT
E 4
RS-5
N.
RUSS

PERTY MA


N. KNOTT ST.
N
N
RS-5
RS-4
N. RUSSELL ST.

MAP

10

RECEIVED
DEC 2 - 1970
FORM E-30 (REV. 10-69)
FOR FILING

Const
Projects
Metro - Portland

E Fre. Int

OREGON STATE HIGHWAY DIVISION
INTER-DEPARTMENT CORRESPONDENCE

Portland, Oregon 97213
November 25, 1970

JOHNSON

SUBJECT: Emanual Hospital
e
Urban Development
Unit B - WE Line
East Fremont Interchange
Stadium Freeway
Contract No. 7311

To: Frank Hall
Design Engineer
State Highway Building
Salem

I-405-8(1)301

ATTENTION: A. D. Olson

If the right of way line is set 70 feet off the "WE" line as this office has proposed, the cost of curb, pavement, sidewalk and other removal is estimated at $2,500. As stated previously, this could be included in the landscape contract or done by the Portland Development Commission as part of the property exchange agreement.

It is our best estimate that fence southerly of the "WE" line will have to be installed, then moved to the new location. The other alternate would be to delete it entirely from the contract and install the fence under a landscape contract.

Current local development would indicate that it will be an eight-foot fence with barbed wire on top. Portland School Board made such a recommendation last night.

We will further explore this in a meeting on December 2, 1970. We should be ready to make some commitments at that time. Any advice or guidelines would be appreciated before that date.

Robert L. Schroeder
Metropolitan Engineer

By:

ORIGINAL SIGNED BY
J. H. VERSTEEG

J. H. Versteeg
Assistant Metropolitan Engineer

JHV:pb

cc: F. B. Klaboe
F. D. Morgan
A. E. Johnson
James Don
Robert Shotwell

RECEIVED
NOV 30 1970
OFFICE OF
STATE HIGHWAY ENGINEER

SP*55475-734

11-23-7
GLK

Form E-49-

OREGON STATE HIGHWAY
DEPARTMENT

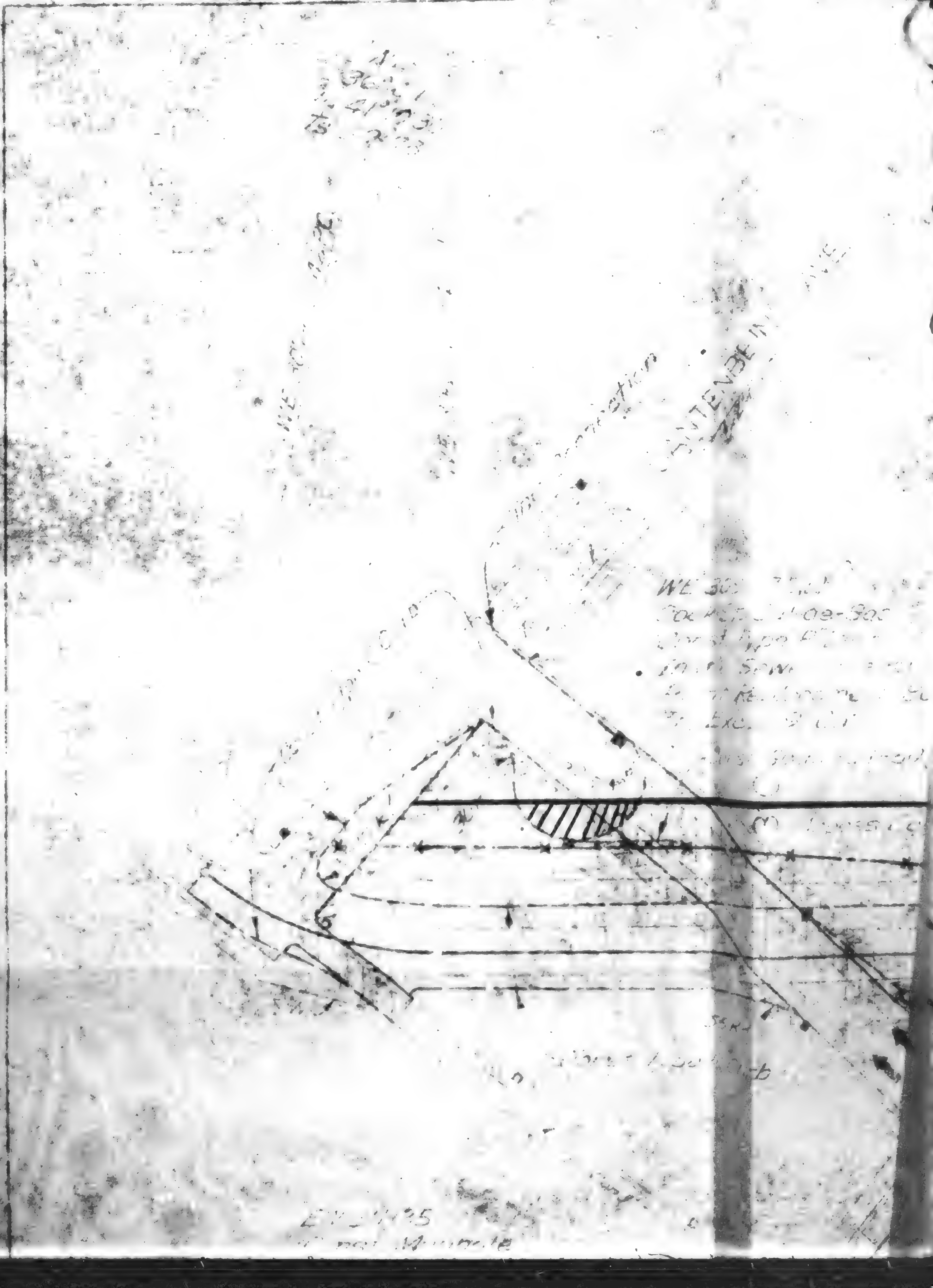
TABULATION SHEET

SHEET 1 OF 1 SHEETS

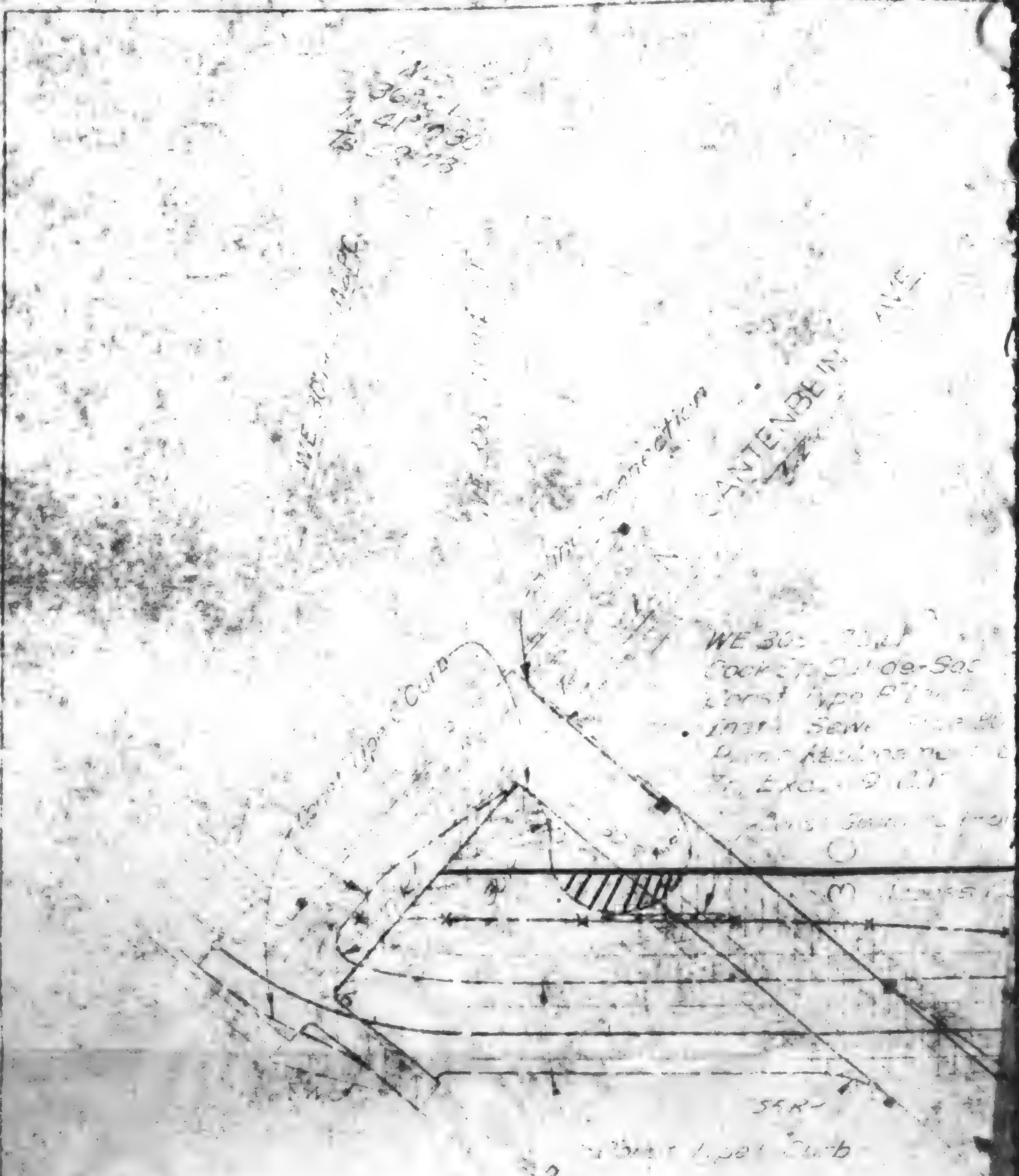
EAST FREMONT Interchange
UNIT B
REMOVAL WE. LT. Sta. 308 - 319

COST ESTIMATE

	ITEM		UNIT	AMOUNT	Allowance	Bid AMOUNT	PRice	TOTAL
① "AC" PVMT	REMOVAL		Sq.yd	448	52	500	.75	375^{00}
② CONC	CURB	REMOVAL	Lin FT	200	20	220	0.75	165^{00}
③ Remove	TYPE I	G. RAIL	Lin. FT	163	17	200	1,00	200^{00}
④ ReMove	Inlet		Each	2	1	3	35,00	105^{00}
⑤ Plug	PIPE		Each	2	1	3	10,00	30^{00}
⑥ REMOVE	CHAIN	Link Fence	Lin. FT	1150	50	1200	$1,00	1200^{00}
								2075^{00}
				+20%				425^{00}
								2500^{00}

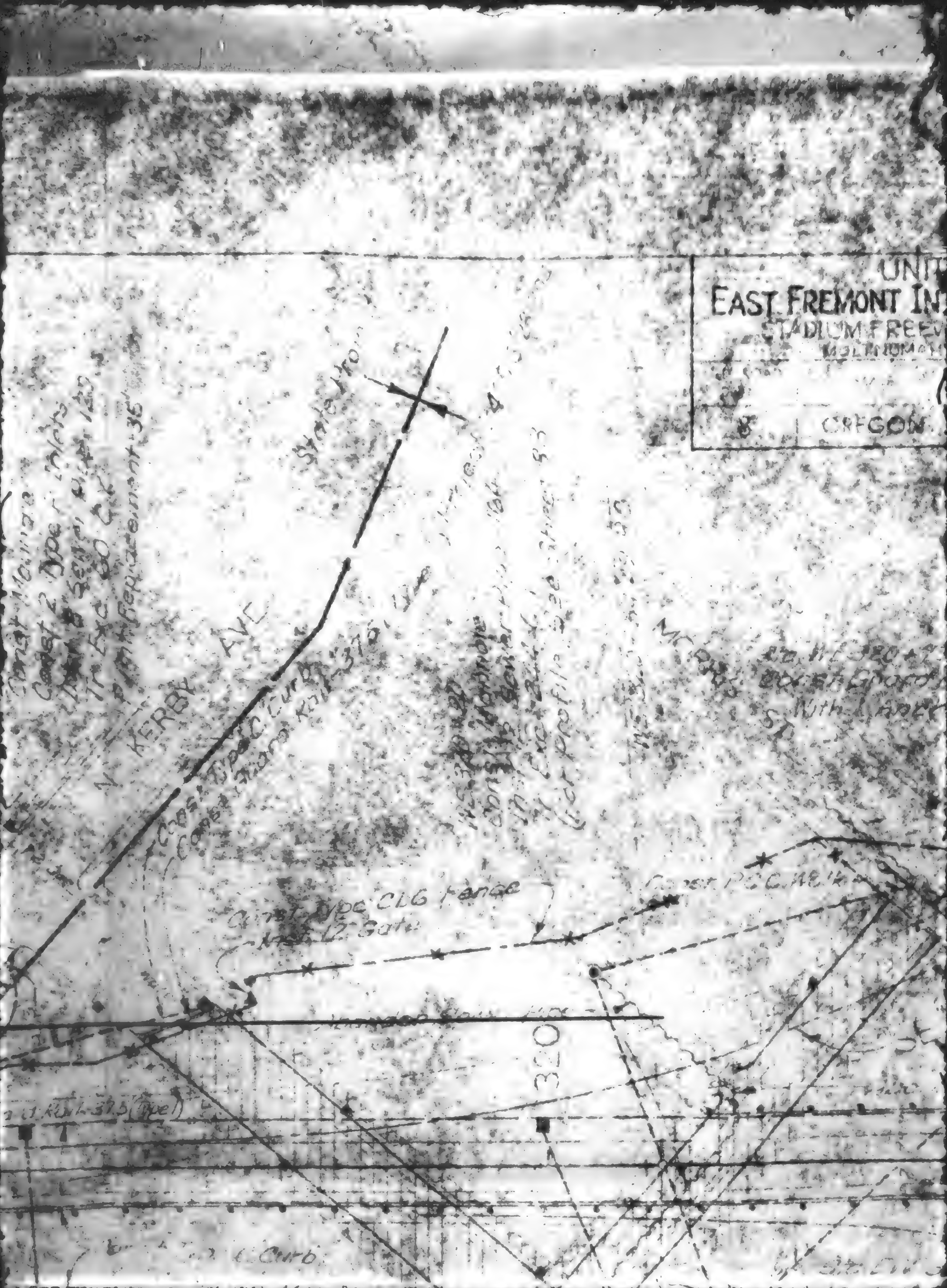


connection
WE 30
Sewer
Exc.
Lip Curb
Manhole


36
41°03'
CANTENBEIN AVE
connection
WE 30
Curb
WE 30
Cul-de-Sac
Sew
Exc
Upper Curb
SER

S
NTENBEIN AVE
N. FARGO
N. COM
Const Type B Inlet
Const 8" Sewer Pipe
Tr Exc 20 CY
Cul-de-Sac
Const Type P
Tr Exc 9 CY
Access Control Line
Access Cont Line
Curb

ec 27, T1N, R1E, WM
PORTLAND
AVE
Type C Curb
Const Type A Driveway
Const Approach
Guard Rail
"WE" 316+25
Const 12" Sewer
N. MONROE ST.
Const Type A Driveway
Const Type C Curb
"WE" 317
Const Manhole
Const 2 Type Inlets
"WE" LINE
Remove Conc Steps
S 82°29'30" W
Const Guard Rail

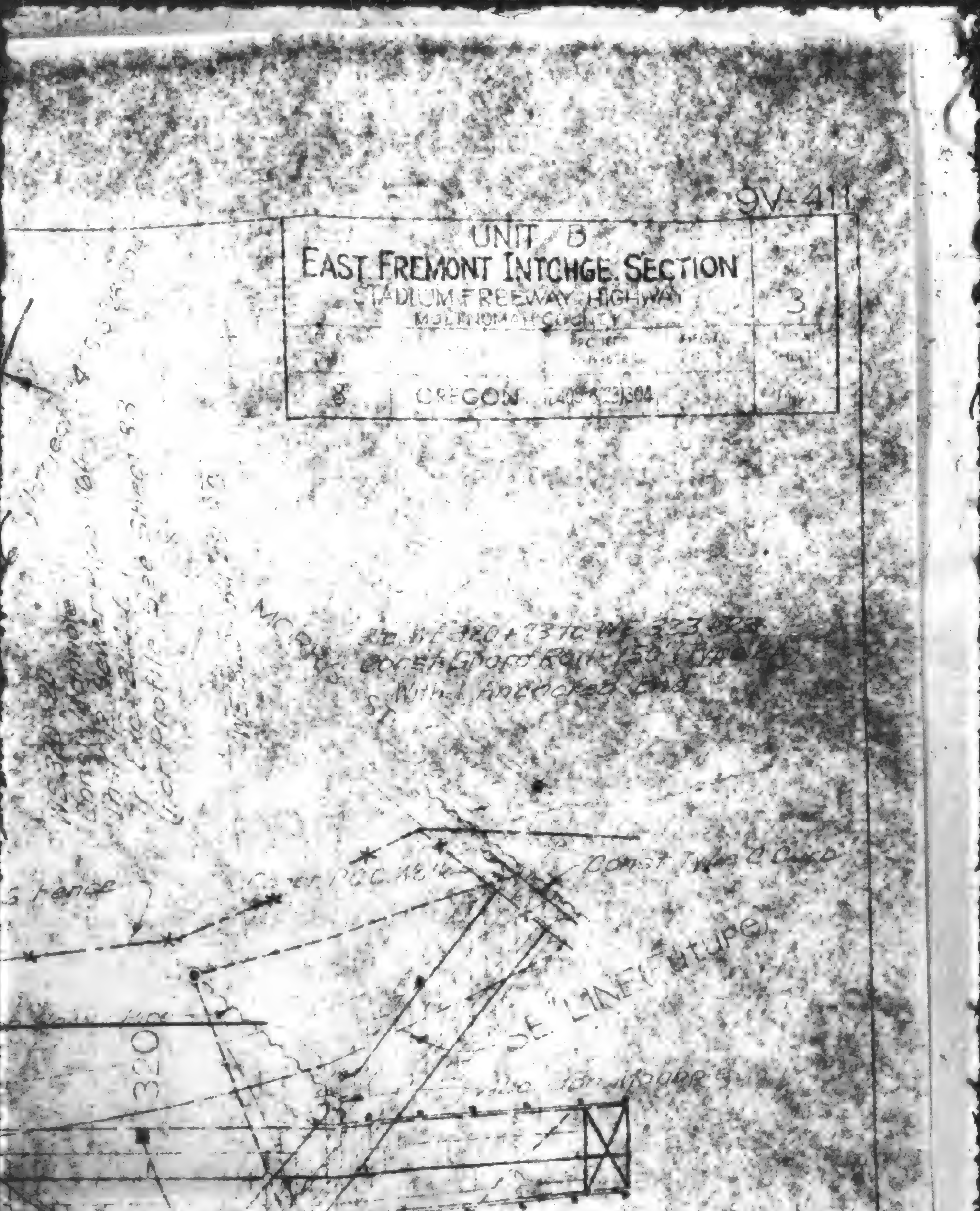
UNIT
EAST FREMONT IN
STADIUM FREEW
MULTNOMAH
OREGON
N. KERBY AVE.
N. MORRIS ST.
Const. Type C Curb
Const. Guard Rail 37.5
Const. 2 Type inlets
Const. Type CLG Fence
12' Gate
Const. P.C.C. Walk
See Profile
320
Guard Rail 37.5 (Type I)
Curb

9V-411

UNIT B
EAST FREMONT INTCHGE. SECTION
STADIUM FREEWAY HIGHWAY
MULTNOMAH COUNTY

8 OREGON [illegible]3304

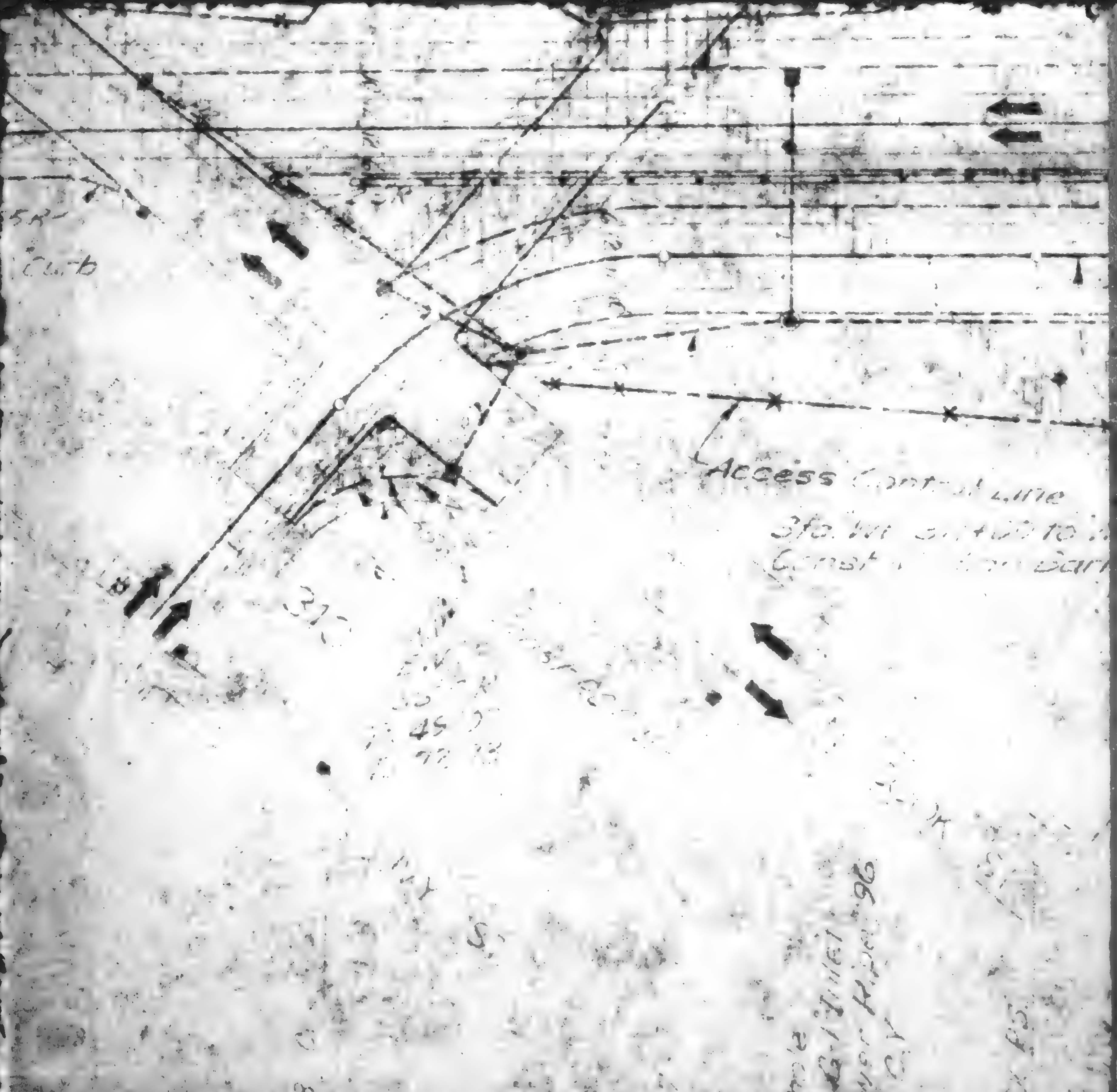
3


WE 320+73 to WE 323+[illegible]
Const Guard Rail [illegible]
With Anchored End
MC[illegible] ST
s Fence
Const P.C.C. [illegible]
Const Type C Curb
[illegible]SE LINE (Future)
320
[illegible] 320+25 to W 322+38
[illegible] 80
[illegible]

[illegible]
Const Manhole
Const Type [illegible] Inlets
Const Type [illegible] Inlet
Inst [illegible] Sewer [illegible] 24
Inst 12" Sew[illegible] Pipe - 230
Pvmt Replacement - 38'
[illegible]

Perforated or Unperforated
Drain Pipe May be Furnished [illegible]
Following Materials
Corrugated Aluminum [illegible]
[illegible] Asbes. [illegible] Cement
B.F. Fiber or Concrete

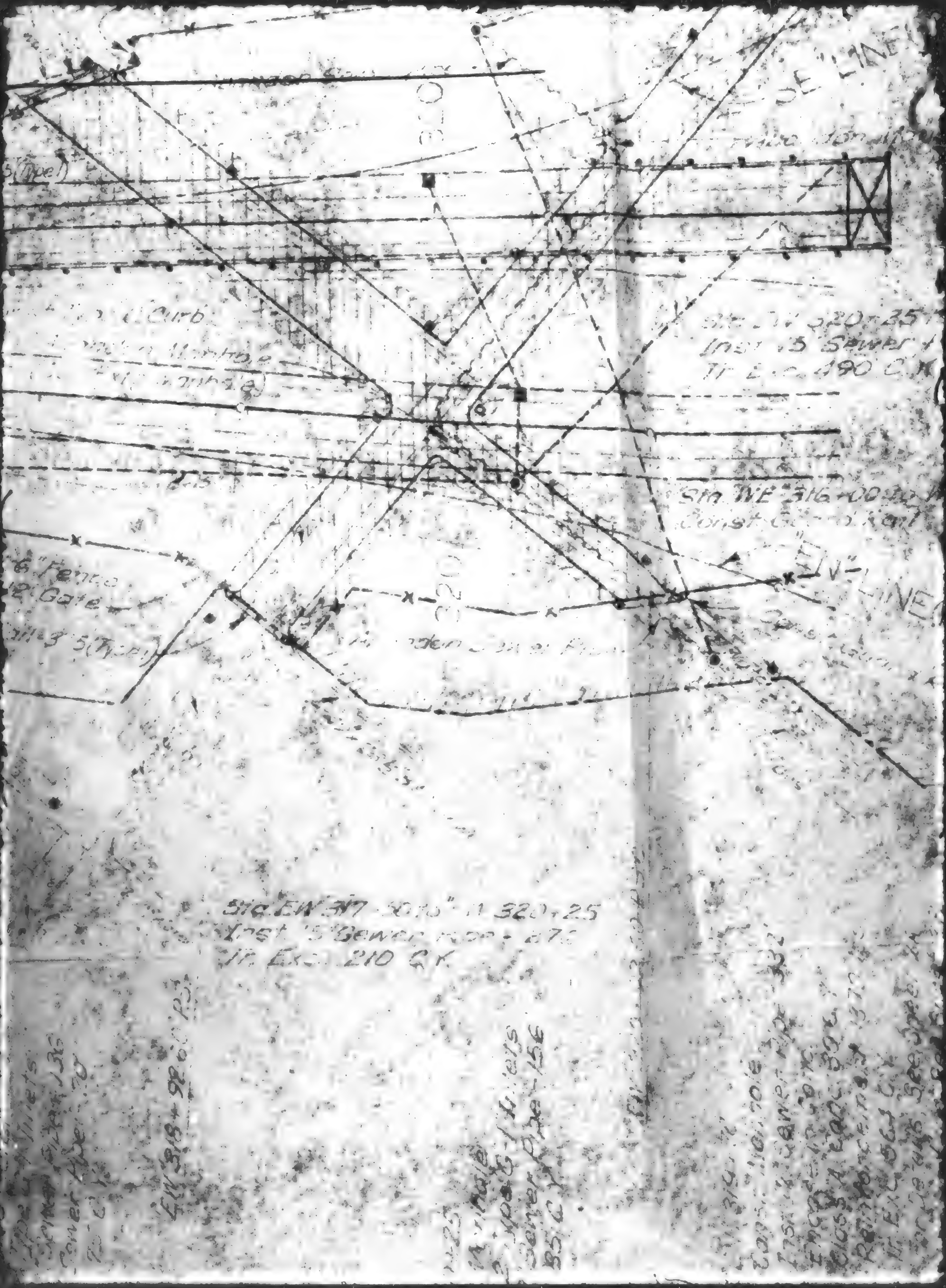
▨ Remo[illegible]
▨ Remove [illegible] Py Walk
— Remove Extg Curb

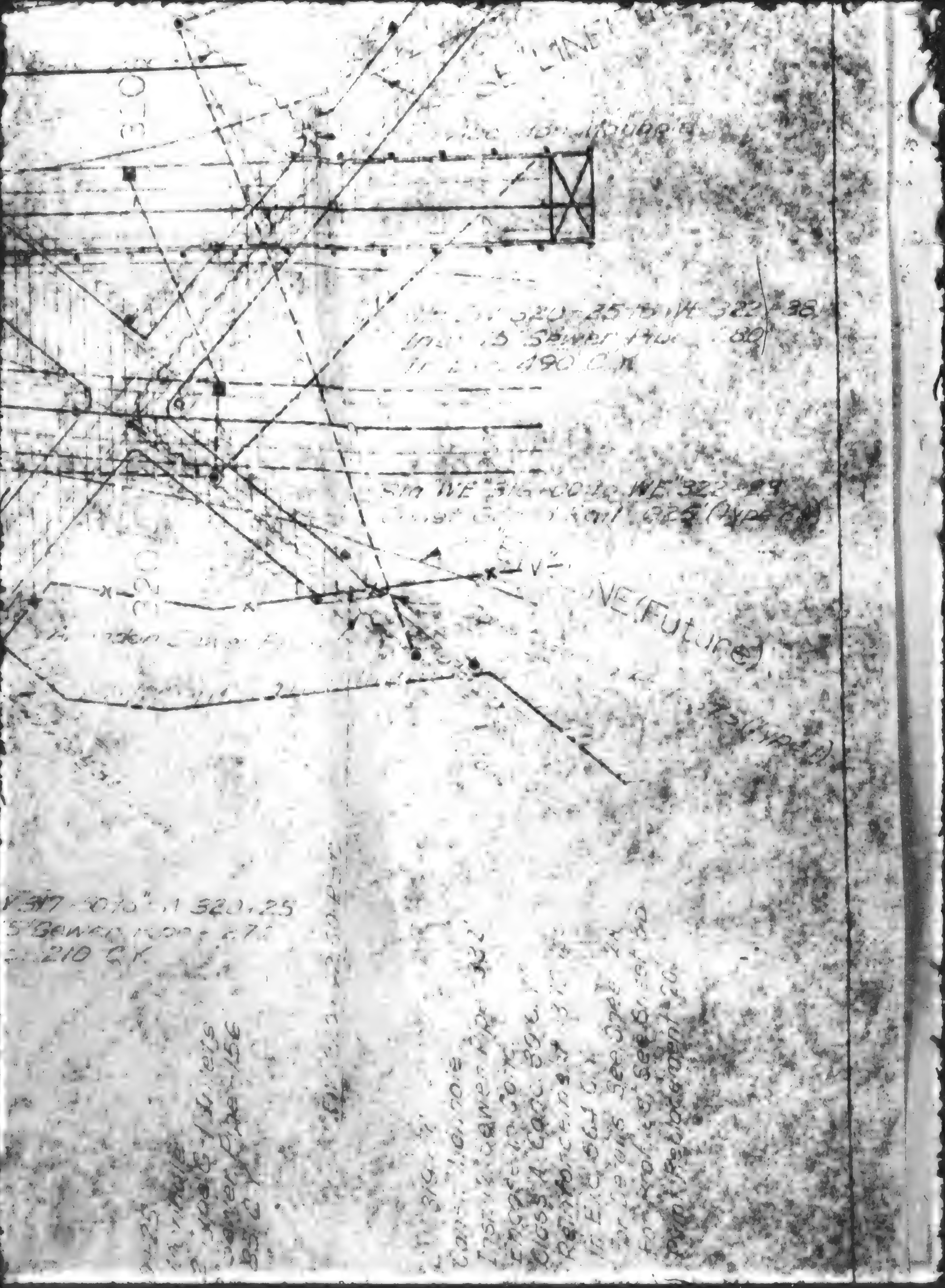

Curb
Access Control Line
Sta. [illegible] to [illegible]
Const. [illegible] Barr
En 312+46
Const. 1 Manhole
Const. 1 Type [illegible] Inlet
Inst. 12" Sewer Pipe - 96
Tr. Exc. 45 C.Y.
En 310+43
EW 312+55
En 312+55

Sta. En 311+23 to En 312+46
Inst. 12" Sewer Pipe - 100
Tr. Exc. 75 C.Y.

Sta. E[illegible]
Inst. [illegible]
Tr. Exc.

S 82°29'30" W
T.C.
Remove Conc Steps
NEW LINE
SEWER "A"
315
313+
BORTHWICK AVE
State Project
Const. Curb Inlet
Inst. 12" Sewer Pipe
Tr. Exc.
EW 314+54
EW 315+3
EW 316+69
EW 317+50
Const. Manhole with Conc. Slab
312+ to EW 314+55
Sewer Pipe 212'
110 C.Y.
316" EW 314+55 to EW 317+50
Inst 15" Sewer Pipe 292
Tr. Exc. 360
Pvmt Replacement 45
C.R.
6°30'30"
3.26
.50 Sp
2 15


LINE
S(Typ.)
Curb
Manhole
Manhole
Sta. EW 320+25
Inst. 15" Sewer
Tr. Exc. 190 C.Y.
Sta. WE 316+00
Const. Curb
EW-LINE
6" Fence
Gate
3.5(Typ.)
Sta. EW 317+30 to 320+25
Inst. 15" Sewer
Tr. Exc. 210 C.Y.
EW 318+99
Inlets
Sewer
Inlets
Sewer Pipe
Manhole
Sewer
Reinf.

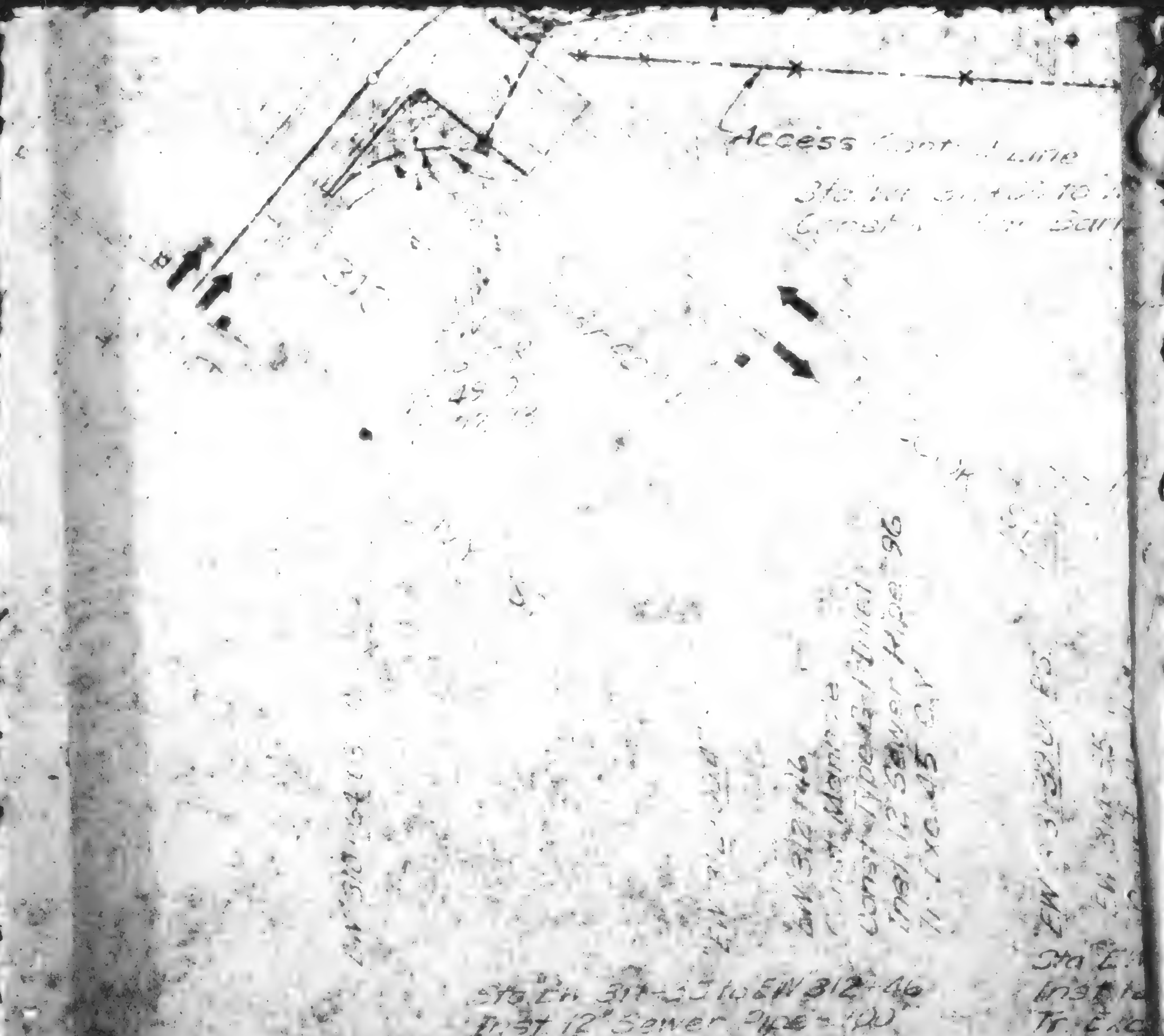

LINE
House
320.25 W 322.38
Inv. 15 Sewer .80
490 C.Y.
Stn WE 316+00 WE 322.93
325 (Typical)
NE (Future)
(Typical)
320.25
15 Sewer 2.75
210 C.Y.
Sewer Pipe 156
Class A Conc.
See

[illegible]

[illegible] Manhole
Const. Type [illegible] Inlet
Const. Type 3 Inlet
Inst. [illegible] Sewer Pipe [illegible]
Inst 12" Sewer Pipe 230'
Pavmt Replacement 38'
[illegible]

Perforated or Unperforated
Drain Tile May be Furnished in the
Following Materials:
[illegible] Steel, Aluminum or [illegible]
Bit. [illegible] Coated or Asbestos Cement
Bit. Fiber or Concrete.

▨ Remove [illegible]
▨ Remove [illegible] Sq. Yds. [illegible]
— Remove Extg. Curb


Access Cont. Line
EW 312+46
Const. Type Inlet
Inst. 12" Sewer Pipe - 96
Tr. Exc. 45 C.Y.
Sta. EW 311+55 to EW 312+46
Inst. 12" Sewer Pipe - 90
Tr. Exc. 75 C.Y.
EW 312+
Sta. E
Inst. 12
Tr. Exc

Remove Conc 31695
"EW" LINE
31613
SEWER
12"
Const Type Cd-1 Inlet
Const 3 Inlet
Inst 12" Sewer
Inst 6" Sewer
Tr. Exc
EW 314
EW 313+35
EW 310+85
BORTHWICK AVE.
EW 317+50
Const Manhole with Conc
Slope Protector
Inlets
312+ to EW 314+55
Sewer Pipe 272'
120 C.Y.
Sta "EW" 314+55 to "EW" 317+50
Inst 15" Sewer Pipe 292'
Tr. Exc 360 C.Y.
Pvmt Replacement 45'
"EW"
3" C.K
6" 30 10"
1 3.26
2 .50 Sp
2
0

Sta W.E. 3
CL6 Fence
12 Gate
Sta E.W. 3
EW 318 + 99
Const Manhole with Conc
Slope Protector
Inst 12 Sewer Pipe 136
Inst 8 Sewer Pipe 50
7 C.Y.
W 320 + 25
Const Manhole
Const 2 Type G-1 Inlets
Inst 12 Sewer Pipe 156
85 C.Y.
Const Manhole
Inst 12 Sewer Pipe
Class A Conc 39 C.Y.
E.W.
320 + 50
5 30
16 1.75

C.M.
200 58
50
75

W 320+25
Cons't Manhole
Const 2 Type G-1 Inlets
Inst 12" Sewer Pipe - 156
Exc 85 C.Y.

314
Co
Inst 12" Sewer Pipe
Encase in Conc
Class A Conc
Reinforcing St
12" Exc 064 C.Y.
For details See Std
For Profiles See S
Pvmt Replacement

C.M.
78 18 21
78 312 30
30 15

Sew
210 C
(Type 2A)
NE 32 23
(Future)
(Pumped)
12

RECEIV
DEC 1 - 1970
FORM E-30-X 12-67

FOR
Card
Roy
[illegible]

OREGON STATE HIGHWAY DEPARTMENT

INTER-DEPARTMENT CORRESPONDENCE
Salem, Oregon
November 23, 1970

SUBJECT: Peripheral Street
Emanuel Hospital Project
East Fremont Interchange

To: Mr. R. L. Schroeder
Metropolitan Engineer
5821 N. E. Glisan Street
Portland, Oregon

Attention: Mr. J. H. Versteeg

This is in reply to your letter of November 19 concerning the proposed 70-foot right of way line as a basis for property exchange with the Emanual Hospital.

The 70-foot right of way appears to be adequate for any future needs, and you may use this in any discussions with the Hospital people.

ORIGINAL SIGNED BY
FRANK L. HALL

Frank L. Hall
Design Engineer

DNS:jp
cc: F. B. Klaboe w/attach

RECEIVED
NOV 24 1970
OFFICE OF
STATE HIGHWAY ENGINEER

OREGON STATE HIGHWAY DIVISION
INTER-DEPARTMENT CORRESPONDENCE

Portland, Oregon 97213
November 19, 1970

SUBJECT: Peripheral Street
Emanual Hospital Project
East Fremont Interchange

To: Frank Hall
Design Engineer
State Highway Building
Salem

RECEIVED
NOV 20 1970
DESIGN
SECTION

Scott
Swenson
R. Olson
Trout
Do Not File ☐
Keep ☐
Return To
Other

Transmitted is a map of the proposed right of way southerly of "WE" line between N. Kirby and Gantenbein in the East Fremont area. This line was set by this office. The City of Portland has used it for a base in surveying for the peripheral street. The Portland Development Commission will study exchanging properties based on this 70' offset line.

This is a request for a review of this proposal as a second meeting is set for December 2, 1970. Any reasonable change can be made at that time. At a later date considerable more time and effort will have been expended and changes will be more difficult to make in the proposed right of way limits.

The Emanual Hospital project will require removal of cul-de-sacs, curbs, guardrails, driveways, inlets, etc. constructed this last summer under Unit B of the East Fremont contract. This work could be done by urban renewal or under a future landscaping contract—which ever is the simplest to handle. Fencing along the "WE" line is held up until next spring. At that time a decision must be made where to install it. In any case, it does appear we will have to move it at least once.

The Metro Section has been aware of the Emanual Hospital project for some time. It was necessary to construct the street facilities to handle existing conditions. The Portland Development Commission's plans are reasonably firm and they should be able to meet the time table described by Mr. Limbocker.

Robert L. Schroeder
Metropolitan Engineer

By: J H Versteeg

J. H. Versteeg
Assistant Metropolitan Engineer

JHV:pb
Enc

cc: F.D. Morgan
Louis C. Grothaus
James Don
Robert Shotwell

FORM 2-10 (REV. 10-69)

OREGON STATE HIGHWAY DIVISION

INTER-DEPARTMENT CORRESPONDENCE

Portland, Oregon 97213
November 18, 1970

SUBJECT: Cook-Kerby-Russell
Peripheral Street
Emanual Hospital Project
East Fremont Interchange

To: Memo To The Files

A meeting was held Wednesday, November 18, 1970, at 10:00 AM in the offices of the Portland Development Commission, 1700 S. E. 4th Avenue. Purpose of the meeting was to discuss the Emanual Hospital project. Those attending were:

Omar Gustafson	Emanual Hospital
Paul R. Hanson	" "
Jim Robertson	Portland Development Commission
Paul R. Johnson	" " "
Ray Cruden	City of Portland
Don Bergstrom	" " "
M.E. Schissler	" " "
R.L. Schroeder	OSHD
J.H. Versteeg	"
K.D. Limbocker	"

The meeting came to order at 10:20 AM. The first item discussed was the freeway right of way line. A map prepared by the Metropolitan Section was shown which indicates a 70 foot right of way measured at right angles from the "WE" centerline. Mr. Robertson indicated that with this information they would proceed to work up details of right of way exchange between Emanual Hospital and the State Highway Division.

The second item covered was the access to Emanual Hospital. It was explained that with respect to the Fremont complex there would be service only to and from the west bank of the river. East side access would remain as it is. If and when the freeway is constructed on east, there will be no local access until a Union-Grand Interchange— or essentially no more freeway access than exists today.

The City explained the internal service from the peripheral road.

The next item was landscaping. They are aware of State landscaping practices and are satisfied. They would like to review the plan when it is available.

METROPOLITAN ENGINEER
RECEIVED
NOV 18 1970
☐ ME ☐ AME ☐ ANE ☐ MOE ☐ MDE ☐ MTE

The next topic of discussion was construction timing. The Development Commission indicated that the purchasing and demolision would be completed by the end of 1971. The City will plan a project to be let early in 1972. The State will attempt to delay the work not now completed until determination of the need is made. The State will prepare a map showing remaining details for further study.

Another meeting was set for December 2, 1970.

K. D. Limbocker
Metropolitan Design Engineer

KDL:pb

STATE OF OREGON
MICROFILMED PUBLIC RECORD

(IN ACCORDANCE WITH THE PROVISIONS OF ORS 192.040 THROUGH 192 070)

NAME OF AGENCY	OREGON DEPARTMENT OF TRANSPORTATION
TITLE OF RECORD SERIES	Construction Contracts
ARRANGEMENT OF RECORDS	by Contract Numbers
INDEX	

INDEXING BEGINS WITH : 8965 #1 **ENDS WITH** 8909 To be Continued on Reel 209

FLASH CARDS:

REMARKS:

CAMERA: MAKE AND MODEL	FILM TYPE	REDUCTION RATIO	REEL NUMBER	PROJECT NUMBER
Bell & Howell File Master	16 mm	24 X	208	

CAMERA OPERATOR'S CERTIFICATION

I CERTIFY THAT I HAVE ON THIS 6th DAY OF March 1990 PHOTOGRAPHED THE DOCUMENTS APPEARING ON THIS ROLL OF FILM, THAT THEY ARE TRUE COPIES OF DOCUMENTS FOUND IN THE RECORD FILE DESCRIBED ABOVE, AND THAT THE INTEGRITY OF THE ABOVE DESCRIBED RECORD FILE HAS BEEN MAINTAINED ON THE FILM BY MICROFILMING EACH DOCUMENT IN THE EXACT ORDER IN WHICH IT WAS FOUND IN THE FILE WITH THE EXCEPTION, IF ANY OF DOCUMENTS OMITTED BECAUSE OF TECHNICAL DIFFICULTIES AND / OR BY ERROR, AS INDICATED ON THE FILM IN THE CROSS REFERENCE NOTES OR RETAKE CERTIFICATE.

I FURTHER CERTIFY THAT THE MICROFILM ON WHICH THESE DOCUMENTS ARE RECORDED WAS PROCURED AS PERMANENT FILM OF THE SLOW BURNING CELLULOSE ESTER OR POLYESTER TYPE KNOWN AS SAFETY PHOTOGRAPHIC FILM, THAT THIS FILM CONFORMS TO THE APPLICABLE STANDARDS OF THE AMERICAN NATIONAL STANDARDS INSTITUTE, AND THAT THE PROCESSING CONFORMS TO THE STANDARDS FOR PERMANENT FILM; AND THAT SAMPLES OF FILM PROCESSED BY THE SERVICE ARE PERIODICALLY TESTED TO ASSURE CONFORMANCE WITH THESE STANDARDS.